World Health Organization

Global Tuberculosis Report 2013

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Cover design by Tom Hiatt, Western Pacific Regional Office and Irwin Law, WHO headquarters. The front cover illustrates the latest status of global progress for five indicators that are part of the Millennium Development Goals framework. These are the incidence rate of tuberculosis disease per 100 000 population per year, the prevalence of tuberculosis disease per 100 000 population, the tuberculosis mortality rate per 100 000 population per year, the case detection rate (the number of cases detected and reported to national tuberculosis programmes divided by the estimated incidence) and the treatment success rate for new TB patients started on treatment. Each pair of shapes represents both the most recent level of the indicator and a baseline year against which progress is measured. For incidence (green and dark orange), prevalence (grey and pink) and mortality (light orange and light blue), the top of the combined height of each pair of shapes shows the level in 1990. The lower of the two shapes in each pair shows the level in 2012. For the case detection rate, the combined height of each pair of shapes (dark blue and brown) shows the level in 2012 and the lower of the two shapes (dark blue) illustrates the level in 1995. For the treatment success rate (red and yellow), the combined height of each pair shows the level in 2011 and the lower of the two shapes (red) shows the level in 1995. More information about these indicators and progress towards global targets are provided in Chapter 2 and Chapter 3 of the Global Tuberculosis Report 2013.

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Contents

Abbreviations

ACSM	Advocacy, Communication and Social Mobilization
ACTG	AIDS Clinical Trials Group
ADR	adverse drug reactions
AFB	acid-fast bacilli
AIDS	acquired immunodeficiency syndrome
ARI	annual risk of infection
ART	antiretroviral therapy
BCG	Bacille-Calmette-Guérin
BRICS	Brazil, Russian Federation, India, China, South Africa
CDR	case detection rate
CEM	cohort event monitoring
CFR	case fatality rate
CFU	colony-forming units
CPT	co-trimoxazole preventive therapy
CBC	community-based care
DOTS	the basic package that underpins the Stop TB Strategy
DR-TB	drug-resistant tuberculosis
DRS	drug resistance surveillance
DST	drug susceptibility testing
DS-TB	drug-susceptible tuberculosis
DTLC	District TB and Leprosy Coordinator
EBA	early bactericidal activity
ECDC	European Centre for Disease Prevention and Control
ERR	electronic recording and reporting
EU	European Union
FDA	Food and Drug Administration
FIND	Foundation for Innovative New Diagnostics
GDP	gross domestic product
GLC	Green Light Committee
GLI	Global Laboratory Initiative
GNI	gross national income
HBC	high-burden country
HIV	human immunodeficiency virus
HR	Hazard ratio
ICD-10	International Classification of Diseases (10th revision)
IDRI	Infectious Disease Research Institute
IGRA	interferon-gamma release assay
IPAQT	Initiative for Promoting Affordable, Quality TB Tests
IPT	isoniazid preventive therapy
IRR	incidence rate ratio
LED	light-emitting diode
LPA	line-probe assay
LTBI	latent TB infection
MDG	Millennium Development Goal
MDR-TB	multidrug-resistant tuberculosis
MNCH	maternal, newborn and child health
NAAT	nucleic acid amplification test
NAP	national AIDS programme
NFM	new funding model
NTP	national tuberculosis [control] programme
OECD	Organisation for Economic Co-operation and Development
OR	Operational research
PAL	Practical Approach to Lung health
PCR	polymerase chain reaction
PDA	personal digital assistant
PEPFAR	US President's Emergency Plan for AIDS Relief
POC	point of care
PPM	public–private mix
QMS	quality management system
rGLC	Regional Green Light Committee
RNTCP	Revised National TB Control Programme [India]
rRNA	ribosomal ribonucleic acid
RR	relative risk
RR-TB	rifampicin-resistant tuberculosis
SD	standard deviation
SITT	Integrated Tuberculosis Information System
SRL	supranational reference laboratory
STAG-TB	Strategy and Technical Advisory Group for TB
TAG	Treatment Action Group
TB	tuberculosis
TB-MAC	TB Modelling and Analysis Consortium
TB-TEAM	Tuberculosis Technical Assistance Mechanism
TBVI	Tuberculosis Vaccine Initiative
TFM	transitional funding mechanism
TST	tuberculin skin test
UHC	universal health coverage
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNITAID	international facility for the purchase of diagnostics and drugs for diagnosis and treatment of HIV/AIDS, malaria and TB
USAID	United States Agency for International Development
UNPD	United Nations Population Division
VR	vital registration
WHO	World Health Organization
XDR-TB	extensively drug-resistant tuberculosis
ZN	Ziehl Neelsen

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WHO staff in regional and country offices

WHO African Region

Harura Adamu, Boubacar Ould Abdel Aziz, Esther Aceng, Inacio Alvarenga, Balde Amadou, Ayodele Awe, Sanni Babatunde, Bazie Babou, Nayé Bah, Marie Barouan, Abera Bekele, Norbert Bidounga, Gaël Claquin, Augusto da Cruz Claudina, Peter Clement, Noel Djemadji, Ismael Hassen Endris, Amos Omoniyi Fadare, Louisa Ganda, Boingotlo Gasennelwe, Patrick Hazangwe, Joseph Imoko, Michael Jose, Joel Kangangi, Katherine Lao, Nzuzi Katondi, Bah Keita, Daniel Kibuga, Hillary Kipruto, Désiré Aristide Komangoya Nzonzo, Sharmila Lareef-Jah, Frank Lule, Mwendaweli Maboshe, Mbemba Leonard, Richard Mbumba, Julie Mugabekazi, André Ndongosieme, Denise Nkezimana, Wilfred Nkhoma, Nicolas Nkiere, Ghislaine Nkone Asseko, Ishmael Nyasulu, Laurence Nyiramasarabwe, Samuel Ogiri, Daniel Olusoti, Amos Omoniyi, Chijioke Osakwe, Felicia Owusu-Antwi, Philips Patrobas, Kalpeshsinh Rahevar, Bacary Sambou, Kefas Samson, Neema Simkoko, Desta Tiruneh, Alexis Tougordi, Henriette Wembanyama.

WHO Region of the Americas

Monica Alonso Gonzalez, Angel Manuel Alvarez, Luis Gerardo Castellanos, Gerardo de Cossio, Rachel Eersel, Marcos Espinal, Ingrid García, Mirtha Del Granado, Rosalinda Hernández, Vidalia Lesmo, Rafael López Olarte, Wilmer Marquiño, Thais dos Santos, Alfonso Tenorio, Jorge Victoria, Anna Volz.

WHO Eastern Mediterranean Region

Mohamed Abdel Aziz, Ali Akbar, Samiha Baghdadi, Amal Bassili, Najwa El Emam, Hamida Khattabi, Aayid Munim, Ghulam Nabi Kazi, Ali Reza Aloudel, Gabriele Riedner, Karam Shah, Sindani Ireneaus Sebit, Bashir Suleiman, Rahim Taghizadeh.

WHO European Region

Martin van den Boom, Brenda van den Bergh, Andreea Cassandra Butu, Silvu Ciobanu, Pierpaolo de Colombani, Andrei Dadu, Irina Danilova, Masoud Dara, Jamshid Gadoev, Gayane Ghukasyan, Sayohat Hasanova, Arax Hovhannesyan, Saliya Karymbaeva, Mehmet Kontas, Kristin Kremer, Dmitriy Pashkevich, Valiantsin Rusovich, Bogdana Shcherbak-Verlan, Javahir Suleymanova, Szabolcs Szigeti, Melita Vujnovic.

WHO South-East Asia Region

Mohammad Akhtar, Vikarunnesa Begum, Erwin Cooreman, Deki, Khurshid Alam Hyder, Navaratnasingam Janakan, Kim Tong Hyok, La Win Maung, Jorge Luna, Partha Mandal, Amaya Maw-Naing, Giampaolo Mezzabotta,

Bo Myint, Ye Myint, Eva Nathanson, Rajesh Pandav, Razia Pendse, Sri Prihatini, K Rezwan, Rim Kwang Il, Hwang Kum Ryong, Mukta Sharma, Aminath Shenalin, Achuthan Nair Sreenivas, Chawalit Tantinimitkul, Wangchuk Lungten.

WHO Western Pacific Region

Shalala Ahmadova, Niño Dayanghirang, Asaua Faasino, Salu Failauga, Ogtay Gozalov, Cornelia Hennig, Tom Hiatt, Tauhid Islam, Narantuya Jadambaa, Ridha Jebeniani, Sung Hye Kim, Miwako Kobayashi, Woo-Jin Lew, Katsunori Osuga, Khanh Pham, Fabio Scano, Jacques Sebert, Catharina van Weezenbeek, Rajendra Yadav, Dongbao Yu.

National respondents who contributed to reporting and verification of data

WHO African Region

Abdou-Salam Abderemane, Ouédraogo Adama, Abdelrahim Barka Abderramane, Jean Louis Abena Foe, Sofiane Alihalassa, Arlindo Amaral, Kouamé Amenan, Séverin Anagonou, Younoussa Assoumani, Georges Bakaswa, Adama Marie Bangoura, Jorge Noel Barreto, Ballé Boubakar, Victor Bonkoungou, Frank Adae Bonsu, Miguel Camara, Evangelista Chisakaitwa, Ernest Cholopray, Nkemdilim Chukwueme, Catherine Cooper, Swasilanne da Silva, B. de Sousa Bandeira, Isaias Dambe, Davi Kokou Mawulé, Serge Diagbouga, Aicha Diakité, Awa Helene Diop, Sicelo Dlamini, Themba Dlamini, Thaddée Ndikumana, Oumou Fofana, Susan Gacheri, Evariste Gasana, Michel Gasana, Sandile Ginindza, Martin Gninafon, Nii Nortey Hanson-Nortey, Adama Jallow, Saffa Kamara, Madou Kane, Henry Kanyerere, Nathan Kapata, Biruck Kebede, Kerram Aziza, Deogratias Kibambazi, Patrick Konwuloh, Jacquemin Kouakou, Popaul Kulonga, Rossin Lebeke, Lillian Ishengoma, Llang Bridget Maama-Maime, Marcel Lougue, Maxime Lunga, Ghislaine Mabeluanga Tshitenge, Jocelyn Mahoumbou, Angelo Makpenon, David Mametja, Ivan Manhiça, Tseliso Marata, Farai Mavhunga, Mba Bekolo Frenk José Mathieu, Salem Salem Mohameden, Louine Morel, Youwaoga Isidore Moyenga, James Mpunga, Frank Mugabe, Kenneth Mugisha, Clifford Munyandi, Lindiwe Mvusi, Aboubacar Mzembaba, Ronald Ncube, Fulgence Ndayikengurukiye, Yvon Martial Ngana, Antoine Ngoulou, Lourenço Nhocuana, Blasdus Franz Njako, Emmanuel Nkiligi, M Nkou, Joshua Obasanya, Davidson Ogunade, Hermann Ongouo, Abdelhadi Oumar, Issoufou Ousmane, Maria Conceição Palma, Victor Pereira, Thato Raleting, Sahondra Jeanine Randriambeloson, Rujeedawa Mohammed Fezul, Samey Agbenyegan, Charles Sandy, Kebba D Sanneh, Marie Sarr Diouf, Mineab Sebhatu, Mamie Shoma, Angele Shoma Matota, René Simalo, Joseph Sitienei, Nicholas Siziba, Philippe Takongo, Celstino Francisco Teixeira, Mohamed Abdallahi Traoré, Nassiama Traoré, Kassim Traoré, Alie Wurie, Eucher Dieudonné Yazipo, Ranivomahefa Myrienne Bakoliarisoa Zanajohary, Abbas Zezai, Eric Ismaël Zoungrana.

WHO Region of the Americas

Christian Acosta, Shalauddin Ahmed, Valentina Antonieta Alarcon Guizado, Xochil Alemán de Cruz, Kiran kumar Alla, Valeria Almanza Torrez, Mirian Alvarez, Raúl Álvarez, Aisha Andrewin, A. Alister Antoine, Chris Archibald, Carlos Alberto Marcos Ayala Luna, Wiedjaiprekash Balesar, Draurio Barreira, Patricia Bartholomay, Soledad Beltrame, María del Carmen Bermúdez, Lynrod Brooks, Marta Calona de Abrego, Martín Castellanos Joya, Jorge Castillo Carbajal, Kenneth Castro, Judith Cazares, Gemma Chery, Carlos Cuadra, Ofelia Cuevas, D'Auvergne Cleophas, Jose Davy, Cecilia de Arango, Eva de Weever-Lista, Camille Deleveaux, Dy-Juan De Roza, Roger Duncan, España Cedeño Mercedes, Manuel Salvador España Rueda, Fernandez Hugo, Cecilia Figueroa Benites, Victor Gallant, Julio Garay Ramos, Sarita Aguirre García, Izzy Gerstenbluth, Margarita Godoy, Roscio Gómez, Ilse Maria Góngora Rivas, Silvino González, Yaskara Halabi, Kevin Harvey, Dorothea Hazel, Maria Henry, Tania Herrera, Carla Jeffries, Dihadenys Lemus Molina, Athelene Linton, Maria Josefa Llanes Cordero, Marvin Andres Maldonado Rivera, Maldonado Saavedra Andrea, Marcelino Belkys, Eva Martìnez, María de Lourdes Martínez Olivares, Zeidy Mata Azofeifa, Joan McLeod-Simon, Timothy McLaughlin-Munroe, Roque Miramontes, Leilawatie Mohammed, Jeetendra Mohanlall, Ernesto Moreno, Francis Morey, Willy Morose, Michael Owen, Cheryl Peek-Ball, Janelle Pickering, Tomasa Portillo, Irad Potter, Manohar Singh Rajamanickam, Dottin Ramoutar, Anna Esther Reyes Godoy, Paul Ricketts, Jorge Rodriguez De Marco, Myrian Román, Nilda de Romero, Carolyn Russell, Wilmer Salazar, Deborah Stijnberg, Sutton Jackurlyn, Torres Clarita, Maribelle Tromp, William Turner, Melissa Valdez, Daniel Vázquez, Nestor Vera, Michael Williams, David Yost, Oritta Zachariah.

WHO Eastern Mediterranean Region

Fadhil Abbas, Mohammad S Abouzeid, Khaled Abu Ruhman, Nadia Abu Sabra, Ahmadi Shahnaz, Mohamed Redha Al Lawati, Al Saidi Fatmah, Samia Ali Alagab, Abdelbary Abdullah Ahmed Al-Hammadi, Abdullatif Al-Khal, Saeed Al Saffar, Kifah Alshaqeldi, Bahnasy Samir, Bennani Kenza, Kinaz Cheikh, Walid Daoud, Mohamed Furjani, Amal Galal, Dhikrayet Gamara, Assia Haissama Mohamed, Hiba Kamal Hamad Elneel, Kaalthoom Hassan, Hawa Hassan Guessod, Lou Joseph, Onwar Otien Jwodh Chol, Basharat Khan, Joseph Lasu, Sayed Daoud Mahmoodi, Khadiga Adam Mohammed, Mokhtar Alaa, Mulham Mustafa, Nasehi Mahshid, Ejaz Qadeer, Mohammad Khalid Seddiq, Sghiar Mohammed, Mohemmed Tabena, Tamara Tayeb, Najib Abdul aziz Abdullah Thabit, Seddik Walha, Yaacoub Hiam.

WHO European Region

Abildaev Tleukhan Shildebaevich, Mokhonim Abdulloeva, Ibrahim Abubakar, Rafig Abuzarov, Nurhan Albayrak, Natavan Alikhanova, Avtandil Alisherov, Ewa Augustynowicz-

Kopeć, Ekkehardt Altpeter, Laura Anderson, Delphine Antoine, Trude Margrete Arnesen, Rusudan Aspindzelashvili, Andrei Astrovko, Elizabeta Bachiyska, Anna Ivanovna Barbova, Yana Besstraschnova, Venera Lazarevna Bismilda, Oktam Ikramovich Bobokhojaev, Olivera Bojovic, Eric C. Böttger, Bonita Brodhun, Noa Cedar, Daniel Chemtob, Domnica Ioana Chiotan, Ana Ciobanu, Nico Cioran, Andra Cirule, Thierry Comolet, Radmila Curcic, Manfred Danilovitš, Edita Davidaviciene, Hayk Davtyan, Pava Dimitrijevic, António Diniz, Francis Drobniewski, Raquel Duarte, Mladen Duronjic, Connie Erkens, Jennifer Fernandez Garcia, Lyalya Gabbasova, Viktor Gasimov, Lárus Jón Guðmundsson, Gennady Gurevich, Walter Haas, Hasan Hafizi, Evgeny Hanyukov, Armen Hayrapetyan, Peter Helbling, Sven Hoffner, Daniela Homorodean, Jahongir Jurakhonovich Ismoilov, Mamuka Japaridze, Vincent Jarlier, Soledad Jiménez Pajares, Jerker Jonsson, Abdullat Kadyrov, Gulmira Kalmambetova, Dmitry Klymuk, Maria Korzeniewska-Kosela, Ainura Koshoeva, Košnik Mitja, Gabor Kovacs, Tiina Kummik, Nino Lomtadze, Stevan Lučić, Jasminka Maglajllic, Turid Mannsåker, Mathys Vanessa, Rafail Mehdiyev, Rukije Mehmeti, Donika Mema, Vladimir Milanov, Alvard Mirzoyan, Gjyle Mulliqi, Gulnora Murmusaeva, Seher Musaonbasioglu, Ucha Nanava, Zdenka Novakova, Joan O'Donnell, Analita Pace Asciak, Clara Palma Jordana, Elena Pavlenko, Olga Pavlova, Monique Perrin, Edita Pimkina, Monika Polanova, Georgeta Gilda Popescu, Gordana Radosavljevic Asic, Bozidarka Rakocevic, Thomas Rendal, Vija Riekstina, Jerome Robert, Elena Rodríguez Valín, Tom Rogers, Elena Romancenco, Kazimierz Roszkowski-Sliz, Sabine Rüsch-Gerdes, Branislava Savic, Gérard Scheiden, Hasia Kaidar Shwartz, Anabela Silva, Girts Skenders, Cathrine Slorbak, Erika Slump, Hanna Soini, Ivan Solovic, Dick van Soolingen, Flemming Stenz, Sergey Sterlikov, Jana Svecova, Svetina Šorli Petra, Silva Tafaj, Talevski Stefan, Odorina Tello Anchuela, Mirzagaleb Tillyashaykhov, Aida Ustamujic, Gulnoz Uzakova, Tonka Varleva, Piret Viiklepp, Cveta Vragoterova, Gerard de Vries, Jiri Wallenfels, Wanlin Maryse, Pierre Weicherding, Aysegul Yildirim, Zakoska Maja, Oksana Zalutskaya, Ilona Zemanová, Manca Žolnir Dovč, Hasan Zutic.

WHO South-East Asia Region

Shina Ahmed, Aminath Aroosha, Choe Kum Song, Emdadul Hoque, RS Gupta, Sirinapha Jittimanee, Suksont Jittimanee, Niraj Kulshrestha, Constantino Lopes, Thandar Lwin, Dyah Erti Mustikawati, Tin Zar Naing, Chawetsan Namwat, Md Nuruzzaman Haque, Nirupa Pallewatta, Rajendra Prasad Pant, Kiran Rade, Dyah Armi Riana, Chewang Rinzin, Sudath Samaraweera, Gamini Senevirathne, Janaka Thilakarathne, Sabino Viegas, Bimal Kumar Yadav.

WHO Western Pacific Region

Paul Aia, Cecilia Teresa T. Arciaga, Nemia Bainivalu, Christina Bareja, Risa J. Bukbuk, Cheng Shiming, Phonenaly Chittamany, Chou Kuok Hei, Nese Ituaso Conway, Du Xin, Mayleen J. Ekiek, Fanai Saen, Rangiau Fariu, Ludovic Floury, Louise Fonua, Jiloris Frederick Dony, Anna Marie Celina Garfin, Go Un-Yeong, Shakti Gounder, Anie Haryani Hj Abdul Rahman, Noel Itogo, Tom Jack, Seiya Kato, Khin Mar Kyi Win, Lamar Daniel, Leo Lim, Liza Lopez, Sakiusa Mainawalala, Henri-Pierre Mallet, Tan Eang Mao, Markleen Tagaro, Serafi Moa, Suzana Mohd Hashim, Nguyen Binh Hoa, Nguyen Viet Nhung, Nou Chanly, Ochirbat Batbayar, Connie Bieb Olikong, Park Yoon-Sung, Nukutau Pokura, Waimanu Pulu, Purev Nasanjargal, Rabauliman Marcelina, Bereka Reiher, Bernard Rouchon, Temilo Seono, Tokuaki Shobayashi, Vita A. Skilling, Grant Storey, Phannasinh Sylavanh, Kenneth Reuee Tabutoa, Tam Cheuk Ming, Kyaw Thu, Tieng Sivanna, Tong Ka Io, Rosalind Vianzon, Wang Yee Tang, Wang Lixia.

Executive summary

Tuberculosis (TB) remains a major global health problem. In 2012, an estimated 8.6 million people developed TB and 1.3 million died from the disease (including 320 000 deaths among HIV-positive people).[1] The number of TB deaths is unacceptably large given that most are preventable.

Nearly 20 years after the WHO declaration of TB as a global public health emergency, major progress has been made towards 2015 global targets set within the context of the Millennium Development Goals (MDGs). Two years ahead of the deadline, the *Global Tuberculosis Report 2013* and accompanying supplement *Countdown to 2015* assess progress towards the 2015 targets and the top priority actions needed to achieve and/or move beyond them.

COUNTDOWN TO 2015: key findings

On track:

- The rate of new TB cases has been falling worldwide for about a decade, achieving the MDG global target. TB incidence rates are also falling in all six WHO regions. The rate of decline (2% per year) remains slow.
- Globally by 2012, the TB mortality rate had been reduced by 45% since 1990. The target to reduce deaths by 50% by 2015 is within reach.
- Two WHO regions have already achieved the 2015 targets for reduced incidence, prevalence and mortality: the Region of the Americas and the Western Pacific Region.
- Of the 22 high TB burden countries (HBCs) that account for about 80% of the world's TB cases,[2] seven have met all 2015 targets for reductions in TB incidence, prevalence and mortality. Four more HBCs are on track to do so by 2015.

Off track:

- By 2012, the level of active TB disease in the community (prevalence) had fallen by 37% globally since 1990. The target of a 50% reduction by 2015 is not expected to be achieved.
- The African and European regions are currently not on track to achieve the mortality and prevalence targets.
- Among the 22 HBCs, 11 are not on track to reduce incidence, prevalence and mortality in line with targets. Reasons include resource constraints, conflict and instability, and generalized HIV epidemics.
- Progress towards targets for diagnosis and treatment of multidrug-resistant TB (MDR-TB) is far off-track. Worldwide and in most countries with a high burden of MDR-TB, less than 25% of the people estimated to have MDR-TB were detected in 2012.
- Many countries have made considerable progress to address the TB/HIV co-epidemic. However, global-level targets for HIV testing among TB patients and provision of antiretroviral therapy (ART) to those who are HIV-positive have not been reached.

Five priority actions required to accelerate progress towards 2015 targets:

1. **Reach the missed cases**. About 3 million people who developed TB in 2012 were missed by national notification systems. Key actions needed to detect people with the illness and ensure that that they get the right treatment and care include: expanded services (including rapid tests) throughout health systems bolstered by the support of nongovernmental organizations, community workers and volunteers to diagnosis and report cases; intensified collaboration with public hospitals and private health facilities who are treating patients but not reporting; instituting mandatory notification of cases in more countries; and better data compilation.
2. **Address MDR-TB as a public health crisis**. In high MDR-TB burden countries, increased capacity to diagnose MDR-TB must be matched with supplies of quality drugs and scaled-up country capacity to deliver effective treatment and care. This will require high-level political will and leadership and more collaboration among partners, including drug regulatory authorities, donor and technical agencies, civil society and the pharmaceutical industry.
3. **Accelerate the response to TB/HIV**. The top priority is to increase coverage of ART for HIV-positive TB patients towards the 100% target. Expanded coverage of TB preventive treatment among people living with HIV is the second priority.
4. **Increase financing to close all resource gaps**. An estimated US$ 7–8 billion per year is required for a full response to the TB epidemic in low- and middle-income countries in 2014 and 2015 (excluding research and development for new TB diagnostics, drugs and vaccines). Funding in 2013 is about US$ 6 billion. Increases in both domestic and donor financing are needed to close the gap of up to US$ 2 billion per year, including via the full replenishment of the Global Fund in 2013. Progress remains fragile and could be reversed without adequate funding.
5. **Ensure rapid uptake of innovations**. The fast uptake of new tools and strategies for better diagnosis, treatment and prevention of all forms of TB can be accelerated by country-specific operational research and translation of findings into policy and practice.

ADDITIONAL FINDINGS

The report is based primarily on data provided by WHO's Member States. In 2013, data were reported by 178 Member States and a total of 197 countries and territories that collectively have more than 99% of the world's TB cases.

Burden of disease

The current global picture of TB shows continued progress, but not fast enough.

- An estimated 1.1 million (13%) of the 8.6 million people who developed TB in 2012 were HIV-positive. About 75% of these cases were in the African Region.
- Globally in 2012, an estimated 450 000 people developed MDR-TB and there were an estimated 170 000 deaths from MDR-TB .
- Most TB cases and deaths occur among men, but TB remains among the top three killers of women worldwide. There were an estimated 410 000 TB deaths among women in 2012, including 160 000 among HIV-positive women. Half of the HIV-positive people who died from TB in 2012 were women. Of the estimated 8.6 million new TB cases worldwide in 2012, 2.9 million were women.
- There were an estimated 530 000 TB cases among children (under 15 years of age) and 74 000 TB deaths (among HIV-negative children) in 2012 (6% and 8% of the global totals, respectively).
- The majority of cases worldwide in 2012 were in the South-East Asia (29%), African (27%) and Western Pacific (19%) regions. India and China alone accounted for 26% and 12% of total cases, respectively.
- The TB incidence rate at country level ranges substantially, with around 1000 or more cases per 100 000 people in South Africa and Swaziland, and fewer than 10 per 100 000 population in parts of the Americas, several countries in western Europe, Japan, Australia and New Zealand.

TB detection and treatment outcomes

Millions of people access effective TB care each year but "missed cases" hold back gains.

- Between 1995 and 2012, 56 million people were successfully treated for TB in countries that had adopted WHO's global TB strategy, saving 22 million lives.
- In 2012, 6.1 million cases of TB were notified to national TB programmes (NTPs). Of these, 5.7 million were people newly diagnosed in 2012 and 0.4 million were previously diagnosed TB patients whose treatment regimen was changed.
- In 2011, the treatment success rate continued to be high at 87% among all new TB cases.
- Notifications of TB cases have stabilized globally. In 2012, about 66% (5.7 million) of the estimated 8.6 million people who developed TB were notified as newly diagnosed cases.
- About 75% of the estimated 2.9 million missed cases – people who were either *not diagnosed* or *diagnosed but not reported* to NTPs – were in 12 countries. In order of total numbers, these were India (31% of the global total), South Africa, Bangladesh, Pakistan, Indonesia, China, Democratic Republic of the Congo, Mozambique, Nigeria, Ethiopia, the Philippines and Myanmar.
- Xpert® MTB/RIF, a rapid molecular diagnostic test, is being rapidly adopted by countries to detect TB and rifampicin-resistant TB. By end June 2013, 1402 testing machines and 3.2 million test cartridges had been procured by 88 of the 145 countries eligible for concessional prices.
- Treatment success rates for TB remain lowest in the European Region, where in 2011 only 72% of new cases were successfully treated.

MDR-TB and XDR-TB detection and treatment outcomes

Undetected cases and treatment coverage gaps constitute a public health crisis.

- Globally in 2012, data from drug resistance surveys and continuous surveillance among notified TB cases suggest that 3.6% of newly diagnosed TB cases and 20% of those previously treated for TB had MDR-TB. The highest levels of MDR-TB are found in eastern Europe and central Asia, where in some countries more than 20% of new TB cases and more than 50% of those previously treated for TB have MDR-TB.
- A total of 94 000 TB patients eligible for MDR-TB treatment were detected in 2012: 84 000 people with confirmed MDR-TB (i.e. resistance to both rifampicin, the most powerful TB drug, and isoniazid), plus 10 000 with rifampicin resistance detected using Xpert MTB/RIF. This was a 42% increase in detected cases eligible for treatment compared with 2011. The largest increases between 2011 and 2012 were in India, South Africa and Ukraine.
- Just over 77 000 people with MDR-TB were started on second-line treatment in 2012, equivalent to 82% of the 94 000 newly detected cases that were eligible for treatment globally. Treatment coverage gaps for detected cases were much larger in some countries, especially in the African Region (51% enrolled in treatment), and widened in China, Pakistan and South Africa.
- At least one case of extensively drug-resistant TB (XDR-TB) had been reported by 92 countries by the end of 2012. On average, an estimated 9.6% of MDR-TB cases have XDR-TB.
- Globally, only 48% of MDR-TB patients in the 2010 cohort of detected cases were successfully treated, reflecting high mortality rates and loss to follow-up. A treatment success rate of 75% or more for patients with MDR-TB was achieved in 34 of 107 countries.

Addressing TB-HIV

TB-HIV collaborative services are expanding, but global targets are not yet in sight.

- The main interventions to reduce the burden of HIV in TB patients are HIV testing and provision of ART and cotrimoxazole preventive therapy (CPT) to those found to be HIV-positive. The main interventions to reduce TB among people living with HIV are regular screening for TB among people in HIV care and provision of isoniazid preventive therapy (IPT) to those without active TB who meet eligibility criteria (estimated at 50% of those newly enrolled in HIV care).
- Progress in the implementation of TB/HIV interventions was further consolidated in 2012. Globally, 46% of TB patients knew their HIV status (up from 40% in 2011). In the African Region that has the highest TB/HIV burden, 74% of TB patients knew their HIV status (up from 69% in 2011). Among the 41 countries with the highest TB/HIV burden, more than 85% of TB patients knew their HIV status in 15 countries, and in 7 of these countries over 90% of patients knew their HIV status.
- The coverage of ART among TB patients who were known to be HIV-positive reached 57% in 2012, up from 49% in 2011. As in the past few years, about 80% of HIV-positive TB patients were treated with CPT.
- In 2012, 4.1 million people enrolled in HIV care were reported to have been screened for TB, up from 3.5 million in 2011. Of the reported 1.6 million people newly enrolled in HIV care in 2012, 0.5 million (31%) were provided with IPT.

TB financing

International donor funding and more domestic investments are essential.

- Of the US$ 7–8 billion per year required in low and middle-income countries in 2014 and 2015, about two thirds is needed for the detection and treatment of drug-susceptible TB, 20% for treatment of MDR-TB, 10% for rapid diagnostic tests and associated laboratory strengthening, and 5% for collaborative TB/HIV activities.
- Growth in domestic and international donor funding has been clearly documented since 2002. There is capacity to further increase domestic funding, especially in BRICS (Brazil, the Russian Federation, India, China and South Africa) that have almost 50% of global TB cases.
- International donor funding reported by NTPs amounted to US$ 0.8 billion in 2013, about three-quarters of which was from the Global Fund. To close resource gaps, at least US$ 1.6 billion is needed in both 2014 and 2015.
- International donor funding is crucial in many countries, accounting for more than 50% of total funding in the group of 17 HBCs excluding BRICS, and in all low-income countries. The proportion is even higher in some individual countries.

Research and development

New TB diagnostics, medicines and vaccines are crucial to end the global TB epidemic.

- More than 50 companies are involved in development of new diagnostic tests.
- 10 new or repurposed TB drugs are in late phases of clinical development. In late 2012, bedaquiline became the first novel TB drug approved in 40 years. In June 2013, WHO issued interim guidance for its use in treatment of MDR-TB.
- There are 10 vaccines for TB prevention and two immunotherapeutic vaccines in the pipeline. In early 2013, results from a Phase IIb proof-of-concept study of one of the preventive vaccine candidates were published. While efficacy was not superior to the Bacille-Calmette-Guérin (BCG) vaccine alone, the study demonstrated that a trial of a novel TB vaccine is feasible in a high TB burden setting.
- Short, effective and well-tolerated treatments for latent TB infection, a point-of-care diagnostic test, and an effective post-exposure vaccine are needed to help end the global TB epidemic.

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[1] The estimated number of TB deaths among HIV-positive people in 2011 was 336 000. Estimates of TB deaths among HIV-positive people for the entire period 1990–2012 were updated in 2013 using the Spectrum software, which has been used for more than a decade to produce estimates of the burden of disease caused by HIV. In 2013, a TB module in Spectrum was available for the first time for use in the country consultations on HIV burden estimates that are organized by UNAIDS every two years. Estimation of the number of TB cases living with HIV, and of the number of TB deaths among HIV-positive people, was integrated into this process.

[2] The 22 HBCs are Afghanistan, Bangladesh, Brazil, Cambodia, China, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Kenya, Mozambique, Myanmar, Nigeria, Pakistan, the Philippines, the Russian Federation, South Africa, Thailand, Uganda, the United Republic of Tanzania, Viet Nam and Zimbabwe.

CHAPTER 1

Introduction

BOX 1.1

Basic facts about TB

TB is an infectious disease caused by the bacillus *Mycobacterium tuberculosis*. It typically affects the lungs (pulmonary TB) but can affect other sites as well (extrapulmonary TB). The disease is spread in the air when people who are sick with pulmonary TB expel bacteria, for example by coughing. In general, a relatively small proportion of people infected with *M. tuberculosis* will develop TB disease; however, the probability of developing TB is much higher among people infected with HIV. TB is also more common among men than women, and affects mostly adults in the economically productive age groups.

The most common method for diagnosing TB worldwide is sputum smear microscopy (developed more than 100 years ago), in which bacteria are observed in sputum samples examined under a microscope. Following recent breakthroughs in TB diagnostics, the use of rapid molecular tests for the diagnosis of TB and drug-resistant TB is increasing, as highlighted in **Chapter 5** and **Chapter 8** of this report. In countries with more developed laboratory capacity, cases of TB are also diagnosed via culture methods (the current reference standard).

Without treatment, TB mortality rates are high. In studies of the natural history of the disease among sputum smear-positive/HIV-negative cases of pulmonary TB, around 70% died within 10 years; among culture-positive (but smear-negative) cases, 20% died within 10 years.[a]

Effective drug treatments were first developed in the 1940s. The most effective first-line anti-TB drug, rifampicin, became available in the 1960s. The currently recommended treatment for new cases of drug-susceptible TB is a six-month regimen of four first-line drugs: isoniazid, rifampicin, ethambutol and pyrazinamide. Treatment success rates of 85% or more for new cases are regularly reported to WHO by Member States (**Chapter 3**). Treatment for multidrug-resistant TB (MDR-TB), defined as resistance to isoniazid and rifampicin (the two most powerful anti-TB drugs) is longer, and requires more expensive and more toxic drugs. For most patients with MDR-TB, the current regimens recommended by WHO last 20 months, and treatment success rates are much lower (**Chapter 4**). For the first time in four decades, new TB drugs are starting to emerge from the pipeline and combination regimens that include new compounds are being tested in clinical trials, as discussed in **Chapter 8**. There are several TB vaccines in Phase I or Phase II trials (**Chapter 8**). For the time being, however, a vaccine that is effective in preventing TB in adults remains elusive.

[a] Tiemersma EW et al. Natural history of tuberculosis: duration and fatality of untreated pulmonary tuberculosis in HIV-negative patients: A systematic review. *PLoS ONE*, 2011, 6(4): e17601.

Tuberculosis (TB) remains a major global health problem. It causes ill-health among millions of people each year and ranks as the second leading cause of death from an infectious disease worldwide, after the human immunodeficiency virus (HIV). The latest estimates included in this report are that there were 8.6 million new TB cases in 2012 and 1.3 million TB deaths (just under 1.0 million among HIV-negative people and 0.3 million HIV-associated TB deaths). Most of these TB cases and deaths occur among men, but the burden of disease among women is also high. In 2012, there were an estimated 2.9 million cases and 410 000 TB deaths among women, as well as an estimated 530 000 cases and 74 000 deaths among children.[1] The number of TB deaths is unacceptably large given that most are preventable if people can access health care for a diagnosis and the right treatment is provided. Short-course regimens of first-line drugs that can cure around 90% of cases have been available for decades.

These large numbers of cases and deaths notwithstanding, 20 years on from the 1993 World Health Organization (WHO) declaration of TB as a global public health emergency, major progress has been made. Globally, the TB mortality rate (deaths per 100 000 population per year) has fallen by 45% since 1990 and TB incidence rates (new cases per 100 000 population per year) are falling in most parts of the world. In the 18 years since the launch of a new international strategy for TB care and control by WHO in the mid-1990s (the *DOTS strategy*) and the subsequent global rollout of DOTS and its successor (the *Stop TB Strategy*,[2] **Box 1.2**), a cumulative total of 56 million people were successfully treated for TB between 1995 and 2012, saving approximately 22 million lives.

The overarching goal of the *Stop TB Strategy* is to achieve 2015 global targets (shown in **Box 1.2**) for reductions in the burden of disease caused by TB. The target set within the United Nations (UN) Millennium Development Goals (MDGs) is that TB incidence should be falling by 2015 (MDG Target 6.c). Besides incidence, four other TB indicators are included in the MDG monitoring framework: the prevalence rate, the mortality rate, the case detection rate (the number of notified cases divided by the estimated number of incident cases in the same year, expressed as a percentage), and the treatment success rate (the percentage

[1] The estimated number of deaths among children excludes TB deaths in HIV-positive children, for which estimates are not yet available. Further details are provided in **Chapter 2**.

[2] Raviglione M, Uplekar M. WHO's new Stop TB strategy. *The Lancet*, 2006, 367: 952–5.

BOX 1.2

The Stop TB Strategy at a glance

THE STOP TB STRATEGY

VISION	A TB-free world
GOAL	To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals (MDGs) and the Stop TB Partnership targets
OBJECTIVES	■ Achieve universal access to high-quality care for all people with TB
	■ Reduce the human suffering and socioeconomic burden associated with TB
	■ Protect vulnerable populations from TB, TB/HIV and drug-resistant TB
	■ Support development of new tools and enable their timely and effective use
	■ Protect and promote human rights in TB prevention, care and control
TARGETS	■ MDG 6, Target 6.c: Halt and begin to reverse the incidence of TB by 2015
	■ Targets linked to the MDGs and endorsed by the Stop TB Partnership: – 2015: reduce prevalence of and deaths due to TB by 50% compared with a baseline of 1990 – 2050: eliminate TB as a public health problem (defined as <1 case per 1 million population per year)

COMPONENTS

1. Pursue high-quality DOTS expansion and enhancement

a. Secure political commitment, with adequate and sustained financing
b. Ensure early case detection, and diagnosis through quality-assured bacteriology
c. Provide standardized treatment with supervision, and patient support
d. Ensure effective drug supply and management
e. Monitor and evaluate performance and impact

2. Address TB/HIV, MDR-TB, and the needs of poor and vulnerable populations

a. Scale up collaborative TB/HIV activities
b. Scale up prevention and management of MDR-TB
c. Address the needs of TB contacts, and of poor and vulnerable populations

3. Contribute to health system strengthening based on primary health care

a. Help improve health policies, human resource development, financing, supplies, service delivery and information
b. Strengthen infection control in health services, other congregate settings and households
c. Upgrade laboratory networks, and implement the Practical Approach to Lung Health
d. Adapt successful approaches from other fields and sectors, and foster action on the social determinants of health

4. Engage all care providers

a. Involve all public, voluntary, corporate and private providers through public–private mix approaches
b. Promote use of the International Standards for Tuberculosis Care

5. Empower people with TB, and communities through partnership

a. Pursue advocacy, communication and social mobilization
b. Foster community participation in TB care, prevention and health promotion
c. Promote use of the *Patients' Charter for Tuberculosis Care*

6. Enable and promote research

a. Conduct programme-based operational research
b. Advocate for and participate in research to develop new diagnostics, drugs and vaccines

FIGURE 1.1

Seventeen annual WHO global TB reports, 1997–2012

of TB patients who are successfully treated). The Stop TB Partnership adopted the MDG target and in addition set global targets to halve TB prevalence and death rates by 2015 compared with their levels in 1990. The scale at which interventions included in the *Stop TB Strategy* need to be implemented to achieve the 2015 targets for reductions in disease burden, and the associated funding requirements, have been described in Global Plans developed by the Stop TB Partnership. The latest plan covers the period 2011–2015 and has a price tag of US$ 47 billion.[1]

As the MDG target year of 2015 approaches, work on a post-2015 development framework is assuming increasing prominence. In June 2013, a high-level panel established by the UN Secretary General to provide recommendations about the content of a post-2015 development framework, including possible goals and targets, submitted its report.[2] One of the twelve proposed goals for 2030 is to "Ensure healthy lives", under which a suggested target is to "Reduce the burden of disease from HIV/AIDS, TB, malaria, neglected tropical diseases and priority noncommunicable diseases". Important themes within the report are building on the MDGs and equity, and for health specifically the importance of steady progress towards universal health coverage (UHC) is highlighted.

In line with the development of a post-2015 development framework and in response to a request from Member States, WHO began the process of developing a post-2015 global TB strategy in 2012. Following a series of consultations between June 2012 and July 2013, the draft strategy includes the goal of ending the global TB epidemic by 2035, with corresponding global targets for major reductions in TB cases and deaths by 2035 and milestones for 2020, 2025 and 2030. Achieving the proposed targets is based on three strategic pillars: integrated, patient-centred TB care and prevention; bold policies and supportive systems; and intensified research and innovation. It is anticipated that the strategy will be reviewed by the WHO Executive Board in January 2014 and discussed at the World Health Assembly in May 2014.

In the context of global TB strategies and targets, WHO has published a global TB report every year since 1997 (**Figure 1.1**). The main aim of the report is to provide a comprehensive and up-to-date assessment of the TB epidemic and progress in prevention, diagnosis and treatment of the disease at global, regional and country levels, based primarily on data that are reported by countries and territories to WHO in annual rounds of global TB data collection (**Box 1.3**). This 2013 global TB report is the eighteenth in the series of annual reports, and uses data reported by a total of 197 countries and territories including 178 Member States that account for over 99% of the world's estimated cases of TB (**Table 1.1**). With just over two years remaining before the end of 2015, a special feature of this 2013 global report is that it is accompanied by a supplement focused on the 'Countdown to 2015' (**Box 1.4**).

The main part of the report contains seven major chapters. Each chapter is intended to stand alone, but links to other chapters are highlighted where appropriate.

Chapter 2 contains the latest estimates of the burden of disease caused by TB and assessment of progress towards the 2015 targets at global, regional and country levels. Estimates for women and children specifically are given particular attention. Following new analytical and modelling work in 2013, the chapter also contains new estimates of the number of cases of and deaths from MDR-TB and of HIV-related TB mortality. The latest status of efforts to improve measurement of TB cases and deaths at country level, with guidance and support from the WHO Global Task Force on TB Impact Measurement, is described.

Chapter 3 presents data on the numbers of cases notified to NTPs and reported to WHO and their treatment outcomes, including breakdowns of TB cases by type, sex and age. Recent progress in increasing the reporting of cases by private sector providers through engagement of

1 *The Global Plan to Stop TB, 2011–2015*. Geneva, World Health Organization, 2010 (WHO/HTM/STB/2010.2). Available at http://www.stoptb.org/assets/documents/global/plan/TB_GlobalPlanToStopTB2011-2015.pdf

2 http://www.un.org/sg/management/beyond2015.shtml

BOX 1.3

Data collected in the 2013 round of global TB data collection

Data were requested on the following topics: TB case notifications and treatment outcomes, including breakdowns by TB case type, age, sex and HIV status; an overview of services for the diagnosis and treatment of TB; laboratory diagnostic services; drug management; monitoring and evaluation; surveillance and surveys of drug-resistant TB; management of drug-resistant TB; collaborative TB/HIV activities; TB infection control; engagement of all care providers in TB control; the budgets of national TB control programmes (NTPs) in 2013 and 2014; utilization of general health services (hospitalization and outpatient visits) during treatment; and NTP expenditures in 2012. A shortened version of the online questionnaire was used for high-income countries (that is, countries with a gross national income per capita of ≥US$ 12 616 in 2012, as defined by the World Bank)[a] and/or low-incidence countries (defined as countries with an incidence rate of <20 cases per 100 000 population or <10 cases in total).

Countries reported data using an online web-based system (www.stoptb.org/tme). The system was opened for reporting on 14 March, with a deadline of 15 May for all WHO regions except the Region of the Americas (29 May) and the European Region (30 May). Countries in the European Union submit notification data to a system managed by the European Centre for Disease Prevention and Control (ECDC). Data from the ECDC system were uploaded into the WHO online system.

Data were reviewed, and followed up with countries where appropriate, by a team of reviewers from WHO (headquarters and regional offices) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund). Validation of data by respondents was also encouraged via a series of in-built, real-time checks of submitted data as well as a summary report of apparent inconsistencies or inaccuracies (this report can be generated at any time within the online system). Following corrections and updates by countries, the data used for the main part of this report were the data available in July 2013. **Annex 4** was produced on 1 October, by which time additional data had been reported by a few European countries.[b]

Besides the data reported through the standard TB questionnaire, data about screening for TB among people living with HIV and provision of isoniazid preventive therapy (IPT) to those without active TB were collected by the HIV department in WHO and the Joint United Nations Programme on HIV/AIDS (UNAIDS). The data were jointly validated and imported into the global TB database.

a. http://data.worldbank.org/about/country-classifications
b. For this reason, there may be slight discrepancies between the main part of the report and **Annex 4**.

TABLE 1.1

Reporting of data in the 2013 round of global TB data collection

WHO REGION OR SET OF COUNTRIES	COUNTRIES AND TERRITORIES		MEMBER STATES	
	NUMBER	NUMBER THAT REPORTED DATA	NUMBER	NUMBER THAT REPORTED DATA
African Region	46	45	46	45
Eastern Mediterranean Region	23	23	22	22
European Region[a]	54	42	53	41
Region of the Americas	46	46	35	35
South-East Asia Region	11	11	11	11
Western Pacific Region	36	30	27	24
High-burden countries (HBCs)[b]	22	22	22	22
World	**216**	**197**	**194**	**178**

a Countries that did not report by the deadlines were mostly low-incidence countries in Western Europe.
b The HBCs are Afghanistan, Bangladesh, Brazil, Cambodia, China, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Kenya, Mozambique, Myanmar, Nigeria, Pakistan, the Philippines, the Russian Federation, South Africa, Thailand, Uganda, the United Republic of Tanzania, Viet Nam and Zimbabwe.

large hospitals in five countries, the contribution of community health workers and volunteers to the referral of TB cases and treatment support in 13 countries, and strikingly high notification rates in prisons in parts of the European Region, are highlighted.

Chapter 4 focuses on drug-resistant TB. The first part of the chapter covers progress in drug resistance surveillance and associated estimates of the absolute number and proportion of TB patients that have MDR-TB and extensively drug-resistant TB (XDR-TB). The second part of the chapter presents and discusses the latest data on the programmatic response to MDR-TB, including the coverage of testing for drug resistance among new and previously treated TB patients, the number of cases detected with MDR-TB and enrolled on treatment, and treatment outcomes.

Chapter 5, on TB diagnostics and laboratory strengthening, covers three topics. These are policy developments between mid-2012 and mid-2013, the status of laboratory capacity and incorporation of WHO guidance into national policy in 2012, and recent progress in strengthening laboratories and associated diagnostic capacity. The latest data on the roll out of the rapid molecular test Xpert MTB/RIF since it was recommended in 2010 and two multinational projects (EXPAND-TB and TBXpert) are included.

Chapter 6 contains the most recent data on progress in implementing collaborative TB/HIV activities to jointly address the epidemics of TB and HIV. These include HIV testing for TB patients, provision of antiretroviral therapy (ART) to HIV-positive TB patients, intensified screening for TB among people living with HIV and treatment for those without active TB with IPT.

Chapter 7 assesses financing for TB care and control. Funding requirements for a full response to the global TB epidemic up to 2015, which were updated in early 2013 as part of preparatory work undertaken to inform the replenishment of the Global Fund, are presented first. Key findings from a study of long-term trends (2002–2011) using data compiled in the WHO annual rounds of data collection and recently published in *The Lancet Global Health* are then summarized, followed by a detailed analysis of new data reported in 2013.

Chapter 8 discusses research and development for new TB diagnostics, drugs and vaccines. After years of stagnation, considerable progress has occurred in the past decade and the development pipelines as of mid-2013 are described and discussed.

The report also has four annexes. **Annex 1** explains the methods used to produce estimates of the burden of disease caused by TB. **Annex 2** contains country profiles for the 22 HBCs that collectively account for about 80% of the world's TB cases (profiles for all countries are available online[1]). **Annex 3** contains regional profiles. **Annex 4** consists of summary tables that provide data on key indicators for the world, the six WHO regions and individual countries.

BOX 1.4

Special supplement on the *Countdown to 2015*

The MDGs were established by the UN at the turn of the 21st century, with targets set for 2015 (www.un.org/millenniumgoals). Designed to drive progress worldwide and endorsed by all countries, the targets have been the focus of international and national development efforts for more than a decade. TB was included as part of MDG 6. In addition to TB targets and indicators that are part of the MDG framework, targets for the response needed to address the specific challenges of MDR-TB and the TB/HIV co-epidemic have been set for 2015 in the *Global Plan to Stop TB 2011–2015*.

With just over two years remaining before the target deadline of the end of 2015, this 2013 global TB report is accompanied by a special supplement called *Countdown to 2015*. The supplement provides an overview of progress towards the 2015 targets set within the MDG framework and for the response to TB/HIV and MDR-TB specifically, and the top priority actions needed to either move beyond or accelerate towards these targets. Snapshots are provided globally, regionally and for the 22 HBCs that have about 80% of the world's TB cases and that have received greatest attention at the global level since 2000. The snapshots are based on the data presented in the main chapters of the report and the annexes, complemented by recommendations from recent programme reviews, published literature, and discussions with experts at global, regional and national levels.

1 www.who.int/tb/data

CHAPTER 2

The burden of disease caused by TB

KEY FACTS AND MESSAGES

- The global burden of TB remains enormous. In 2012, there were an estimated 8.6 million incident cases of TB and 1.3 million people died from the disease (940 000 deaths among people who were HIV-negative and 320 000 among people who were HIV-positive). Among these deaths there were an estimated 170 000 from MDR-TB, a relatively high total compared with 450 000 incident cases of MDR-TB.

- Although the number of TB cases and deaths remains unnecessarily large for a mostly curable disease, there has been major progress towards global targets for reductions in the burden of disease. The 2015 MDG target of halting and reversing TB incidence has been achieved, with TB incidence falling globally for several years (2% per year in 2012). Globally, the TB mortality rate has fallen by 45% since 1990 and the Stop TB Partnership target of a 50% reduction by 2015 is within reach. Mortality and incidence rates are falling in all six WHO regions and in most of the 22 HBCs that account for over 80% of the world's TB cases.

- This is the first year in which estimates of TB deaths among HIV-positive people were produced using the UNAIDS Spectrum model, leading to revisions to previously published estimates for the period 1990–2011. The estimated percentage of TB cases living with HIV remains unchanged, at 13% globally in 2012.

- Although most TB cases and deaths occur among men, the burden of disease is high among women. In 2012, an estimated 410 000 women died from TB (250 000 among HIV-negative women and 160 000 among HIV-positive women). There were also an estimated 74 000 TB deaths among HIV-negative children (estimates of HIV-associated mortality are not yet available).

- The South-East Asia and Western Pacific Regions collectively accounted for 58% of the world's TB cases in 2012. The African Region had approximately one quarter of the world's cases, and the highest rates of cases and deaths relative to population (255 incident cases per 100 000 on average, more than double the global average of 122). India and China had the largest number of cases (26% and 12% of the global total, respectively). South Africa and Swaziland had the highest incidence rate per capita (about 1 new case for every 100 people each year).

- The quality and coverage of data available to estimate TB disease burden continues to improve. In 2012, data from vital registration systems were used to estimate TB mortality in 121 countries (up from 3 countries in 2008); there has been unprecedented progress in the implementation of national TB prevalence surveys since 2008; and efforts to improve the monitoring of TB incidence by strengthening routine health information systems and implementing inventory studies to measure under-reporting of diagnosed cases are expanding.

- Five national TB prevalence surveys were implemented in 2012 (in the Gambia, Nigeria, Rwanda, the United Republic of Tanzania and Thailand) and a further five will start or be completed in 2013 (in Ghana, Indonesia, Malawi, Sudan and Zambia). These surveys provide a direct measure of disease burden, often for the first time, and will be used to update estimates of disease burden once results are finalized. They also provide rich data to inform programme policy and strategy.

The burden of disease caused by TB can be measured in terms of incidence (defined as the number of new and relapse cases of TB arising in a given time period, usually one year), prevalence (defined as the number of cases of TB at a given point in time) and mortality (defined as the number of deaths caused by TB in a given time period, usually one year).

This chapter presents estimates of TB incidence, prevalence and mortality (absolute numbers and rates) between 1990 and 2012 and (for prevalence and mortality) forecasts up to 2015 (in **sections 2.1–2.3**). These data are used to assess progress towards achieving the global targets for reductions in TB disease burden set for 2015: that incidence should be falling (MDG Target 6.c) and that prevalence and death rates should be halved by 2015 compared with 1990 (**Box 1.2** in **Chapter 1**). Key aspects of the methods used to produce the estimates are provided at the beginning of each section.[1] Estimates of the number of incident TB cases among people living with HIV, the number of incident cases of MDR-TB, mortality due to MDR-TB and TB deaths disaggregated by HIV status are included in the relevant sections. Estimates are presented globally, for the six WHO Regions, and at country level with particular focus on the 22 HBCs. In response to increasing demand and global attention, special consideration is given to estimates of TB disease burden among women and children. Updates to data sources and methods used to produce estimates of TB disease burden compared with those published in 2012 are highlighted in **Box 2.1**.

There is uncertainty in all estimates of the burden of disease caused by TB. **Section 2.4** profiles efforts to improve measurement of this burden under the umbrella of the WHO Global Task Force on TB Impact Measurement. The recent and unprecedented progress in implementing national TB prevalence surveys is summarized and expanding efforts to strengthen surveillance of cases and deaths via notification and vital registration (VR) systems are described.

[1] A detailed description is provided in **Annex 1**.

BOX 2.1

Updates to estimates of TB disease burden in this report and updates that are anticipated in the near future

Each year, new data become available for the estimation of TB disease burden. Periodically, new approaches to the use of available data are developed. This box provides a summary of updates that were made in 2013. Updates for specific countries that are expected in the near future, pending the finalization of analyses of data from recently completed prevalence surveys, are also highlighted.

UPDATES IN THIS REPORT

1. TB/HIV burden estimates

In 2013, and for the first time, estimates of TB incidence among people living with HIV and TB mortality among HIV-positive people were generated using the Spectrum software programme.[a] Spectrum has been used for more than a decade to produce estimates of the burden of disease caused by HIV, to build projections about the future course of the HIV epidemic and to assess the potential impact of interventions. A TB module was developed in 2012 and 2013 through a collaboration between the Futures Institute, the TB Modelling and Analysis Consortium (TB-MAC), UNAIDS and WHO. It was initially tested in two regional workshops held in Johannesburg, South Africa (in March 2013) and subsequently in a workshop for countries in western Africa. The mathematical methods implemented in Spectrum as well as the input data are described in **Annex 1**. It is anticipated that the TB module will be extended to include projections of the future course of the TB epidemic and the potential impact of selected interventions, building on existing estimates of TB disease burden generated by WHO.

The updated estimates of TB incidence among people living with HIV published in this report are generally very consistent with previously published estimates, especially for countries with a generalized HIV epidemic and strong TB/HIV surveillance systems. The updated time series of mortality estimates at global level and for the African Region indicate a lower level of TB mortality among HIV-positive people compared with estimates published in 2012. As a result of the use of Spectrum, country-specific estimates of TB mortality among HIV-positive people that are fully consistent with overall estimates of HIV mortality are available for the first time. These are shown in **Annex 2** and in online country profiles.

2. MDR-TB mortality and incidence

Estimates of MDR-TB mortality and incidence were last produced in 2008 and published in a 2010 WHO report on the MDR-TB epidemic. A systematic literature review of evidence about mortality associated with MDR-TB was commissioned by WHO in 2013. The results have been used to produce global estimates of MDR-TB incidence and mortality in 2012. The estimate of mortality due to MDR-TB is slightly higher than before, but the uncertainty interval greatly overlaps the previous one. The estimate of MDR-TB incidence is similar to the previous estimate.

3. Newly reported data

There are relatively small changes to estimates of TB incidence, mortality and prevalence for many countries that reflect vital registration data reported to WHO between mid-2012 and mid-2013, updated WHO estimates of the overall number of deaths (that provide overall mortality envelopes), updates to estimates of the burden of HIV-associated TB and new TB notification data including corrections made to historical data. In most instances, changes are well within the uncertainty intervals of previously published estimates of TB burden and time trends are generally consistent. Newly-reported data are the reason for small changes to estimates of the number of TB deaths among women and children.

4. In-depth epidemiological reviews

In January 2013, estimates of TB burden for Viet Nam were updated in close consultation with the NTP and other stakeholders. These resulted in changes to estimates of the level of and trends in TB incidence, prevalence and mortality compared with those published in the 2012 global TB report. Updates drew on new analyses from prevalence survey data, evidence about the influence on trends in case notifications of increased reporting to the NTP of cases diagnosed in the private sector and prisons and new analyses of broader influences on TB disease burden such as economic growth, health system performance and the coverage of health insurance.

5. Inclusion of newly reported cases without documented treatment history in incidence estimates

In previous years, notified TB patients without any reported treatment history were not considered as incident cases (incident cases were the sum of new and relapse cases). In this report, notified cases for which the treatment history is unknown are considered to be incident cases. This change is justified for two reasons: first, in countries facing problems with incomplete documentation of treatment history, the vast majority of such cases are first episodes or relapse episodes; second, WHO received several requests from NTPs (or equivalent) to include all patients with no documented treatment history in the count of new and relapse episodes to avoid understating the true burden of TB. This change affects relatively few countries, most of which are in western Europe.

UPDATES ANTICIPATED IN THE NEAR FUTURE

Updates to estimates of disease burden are expected in several countries that have recently completed or will soon complete national TB prevalence surveys. These include five HBCs: Indonesia, Nigeria, Pakistan, Thailand and the United Republic of Tanzania. Additional countries include the Gambia and Rwanda, both of which completed surveys in 2012, and Ghana where a survey began in March 2013. In addition to a prevalence survey, an inventory study to estimate TB underreporting was completed in Pakistan in 2012 (see also **section 2.4**) and an in-depth epidemiological review was conducted in Thailand in August 2013. A workshop for the six countries that had completed surveys by July 2013 (i.e. the Gambia, Nigeria, Pakistan, Rwanda, Thailand and United Republic of Tanzania) as well as their technical partners will be held at WHO headquarters in November 2013, to conduct and complete analyses of survey data. Following this workshop, updates to estimates of TB disease burden will be possible. These updates will be made available in online country profiles and associated data sets.

In 2014, a thorough review of the current epidemiological and modelling methods used to estimate TB disease burden will be conducted by the WHO Global Task Force on TB Impact Measurement. The recommendations may result in some further updates in the 2014 global TB report.

[a] http://www.futuresinstitute.org/spectrum.aspx

2.1 TB incidence

TB incidence has never been measured at national level because this would require long-term studies among large cohorts of people (hundreds of thousands) at high cost and with challenging logistics. Notifications of TB cases provide a good proxy indication of TB incidence in countries that have both high-performance surveillance systems (for example, there is little underreporting of diagnosed cases) and where the quality of and access to health care means that few cases (or a negligible number) are not diagnosed. In the large number of countries where these criteria are not yet met, TB incidence can be estimated using an inventory study (in which the level of underreporting is assessed) combined with capture–recapture analysis to estimate under-diagnosis, provided that certain assumptions are satisfied.[1] To date, such studies have been undertaken in only a few countries: examples include Egypt, Iraq and Yemen (see **section 2.4**). The ultimate goal is to directly measure TB incidence from TB notifications in all countries. This requires a combination of strengthened surveillance, better quantification of underreporting (i.e. the number of cases that are missed by surveillance systems) and universal access to health care. A *TB surveillance checklist* developed by the WHO Global Task Force on TB Impact Measurement defines the standards that need to be met for notification data to provide a direct measure of TB incidence (further details in **section 2.4**).

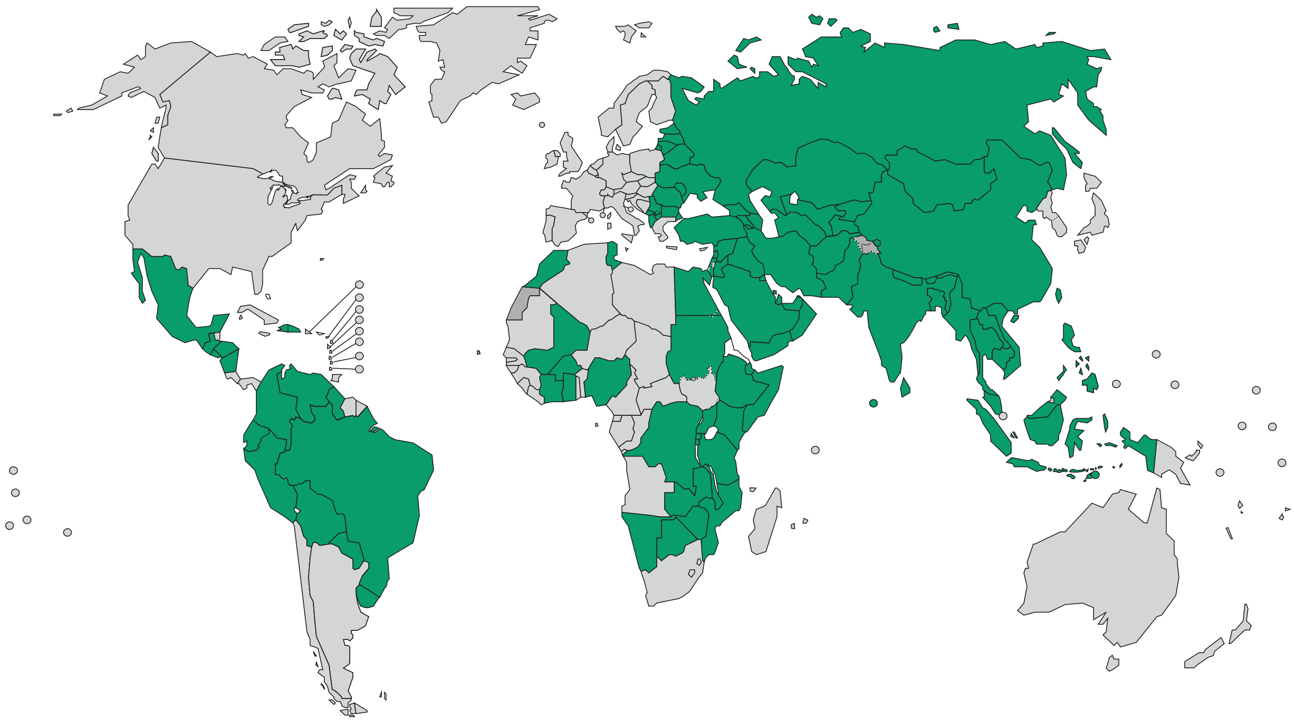
For most countries, incidence estimates are currently based on notification data combined with country consultations in which in-depth analyses of the available surveillance, survey and programmatic data are undertaken, and expert opinion about the fraction of cases diagnosed but not reported, or not diagnosed at all, is elicited and documented. The 96 countries (with 89% of estimated TB cases) covered by such consultations since 2008 are shown in **Figure 2.1**. For remaining countries not covered in workshops and in which notifications do not provide a good proxy indication of TB incidence, estimates are based on extending previously published time series, mortality data from VR systems combined with evidence about the case fatality rate, or ecological modelling (see **Annex 1** for details).

In 2012, there were an estimated 8.6 million incident cases of TB (range, 8.3 million–9.0 million) globally, equivalent to 122 cases per 100 000 population (**Table 2.1**, **Table 2.2**). The absolute number of incident cases is falling, albeit slowly (**Figure 2.2**).

Most of the estimated number of cases in 2012 occurred in Asia (58%) and the African Region (27%);[2] smaller proportions of cases occurred in the Eastern Mediterranean Region (8%), the European Region (4%) and the Region of

FIGURE 2.1

Coverage of country consultations on estimates of TB disease burden, 2008–2013



[1] An inventory study can be used to measure the number of cases that are diagnosed but not reported, but using results to estimate the total number of incident cases using capture–recapture methods requires that certain conditions are met. These are explained in a guide on inventory studies recently published by WHO, which is available at: www.who.int/tb/publications/inventory_studies/en/index.html

[2] Asia refers to the WHO Regions of South-East Asia and the Western Pacific.

TABLE 2.1

Estimated epidemiological burden of TB, 2012. Numbers in thousands.[a]

	POPULATION	MORTALITY[b]			HIV-POSITIVE TB MORTALITY			PREVALENCE			INCIDENCE			HIV-POSITIVE INCIDENT TB CASES		
		BEST[c]	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH
Afghanistan	29 825	11	4.6	20	< 0.1	< 0.1	0.3	110	54	180	56	47	67	0.3	0.2	0.5
Bangladesh[d]	154 695	70	29	130	< 0.1	< 0.1	0.1	670	340	1 100	350	290	410	0.2	0.2	0.3
Brazil	198 656	4.9	4.6	5.2	2.5	2.2	3	120	51	210	92	76	110	16	13	19
Cambodia	14 865	9.3	4.3	16	0.6	0.4	0.7	110	96	130	61	52	70	2.7	2.3	3.1
China	1 377 065	44	43	46	1.2	0.9	1.5	1 400	1 200	1 600	1 000	880	1 100	7.3	6.4	8.2
DR Congo	65 705	36	16	64	6.3	5.5	8.1	380	200	620	210	190	250	16	14	19
Ethiopia	91 729	16	12	21	5.6	4.6	7.3	210	170	250	230	170	290	23	17	30
India[e]	1 236 687	270	170	390	42	37	48	2 800	1 900	3 900	2 200	2 000	2 400	130	120	140
Indonesia	246 864	67	30	120	2.1	1.8	3	730	350	1 200	460	380	540	7.5	5.6	9.7
Kenya	43 178	9.5	5.4	15	7.7	6.6	8.9	130	71	210	120	110	120	45	44	47
Mozambique	25 203	13	1	41	45	35	53	140	28	340	140	96	190	83	58	110
Myanmar	52 797	25	12	44	4.6	3.8	5.3	260	200	320	200	170	230	19	16	21
Nigeria	168 834	27	1.6	86	19	11	25	270	43	710	180	85	310	46	21	80
Pakistan	179 160	62	27	110	1.2	0.8	1.3	670	320	1 100	410	340	490	3.8	3.1	4.6
Philippines	96 707	23	22	25	0.1	< 0.1	0.1	450	390	500	260	210	310	0.5	0.4	0.6
Russian Federation	143 170	19	18	20	1.8	1.5	2.2	170	73	320	130	110	150	9.3	7.9	11
South Africa	52 386	31	3.7	86	88	75	100	450	160	880	530	430	630	330	270	390
Thailand	66 785	9.2	3.8	17	2.2	1.9	2.8	110	47	190	80	66	95	12	10	14
Uganda	36 346	4.7	0.8	12	9.2	8	12	64	24	120	65	53	79	35	28	42
UR Tanzania	47 783	6.1	3.2	9.9	7	5.8	8	84	45	140	79	74	84	32	30	34
Viet Nam	90 796	18	12	25	2.1	1.8	2.7	200	78	370	130	99	170	9.3	6.9	12
Zimbabwe	13 724	4.6	0.2	16	18	15	20	59	13	140	77	60	97	55	42	69
High-burden countries	**4 432 959**	**780**	**630**	**940**	**270**	**250**	**280**	**9 600**	**8 200**	**11 000**	**7 000**	**6 700**	**7 400**	**880**	**810**	**960**
AFR	892 529	230	160	310	250	230	270	2 700	2 100	3 300	2 300	2 100	2 500	830	760	910
AMR	961 103	19	16	21	6.4	5.6	7.2	390	300	490	280	260	300	31	28	34
EMR	616 591	100	63	150	4.2	3.8	4.7	1 100	730	1 600	670	590	750	11	10	12
EUR	904 540	36	35	36	3.9	3.4	4.4	510	380	650	360	340	390	19	17	21
SEAR	1 833 359	450	330	590	51	46	56	4 800	3 700	6 100	3 400	3 200	3 700	170	160	180
WPR	1 845 562	110	96	120	4.8	4.2	5.4	2 400	2 100	2 600	1 600	1 500	1 800	24	21	27
Global	**7 053 684**	**940**	**790**	**1 100**	**320**	**300**	**340**	**12 000**	**11 000**	**13 000**	**8 600**	**8 300**	**9 000**	**1 100**	**1 000**	**1 200**

[a] Numbers for mortality, prevalence and incidence shown to two significant figures. Totals (HBCs, regional and global) are computed prior to rounding.
[b] Mortality excludes deaths among HIV-positive TB cases. Deaths among HIV-positive TB cases are classified as HIV deaths according to ICD-10 and are shown separately in this table.
[c] Best, low and high indicate the point estimate and lower and upper bounds of the 95% uncertainty interval.
[d] Estimates of TB disease burden have not been approved by the NTP in Bangladesh and a joint reassessment (by the NTP and WHO) will be undertaken following completion of the national TB prevalence survey scheduled for 2014.
[e] Estimates for India have not yet been officially approved by the Ministry of Health & Family Welfare, Government of India, and should therefore be considered provisional.

TABLE 2.2

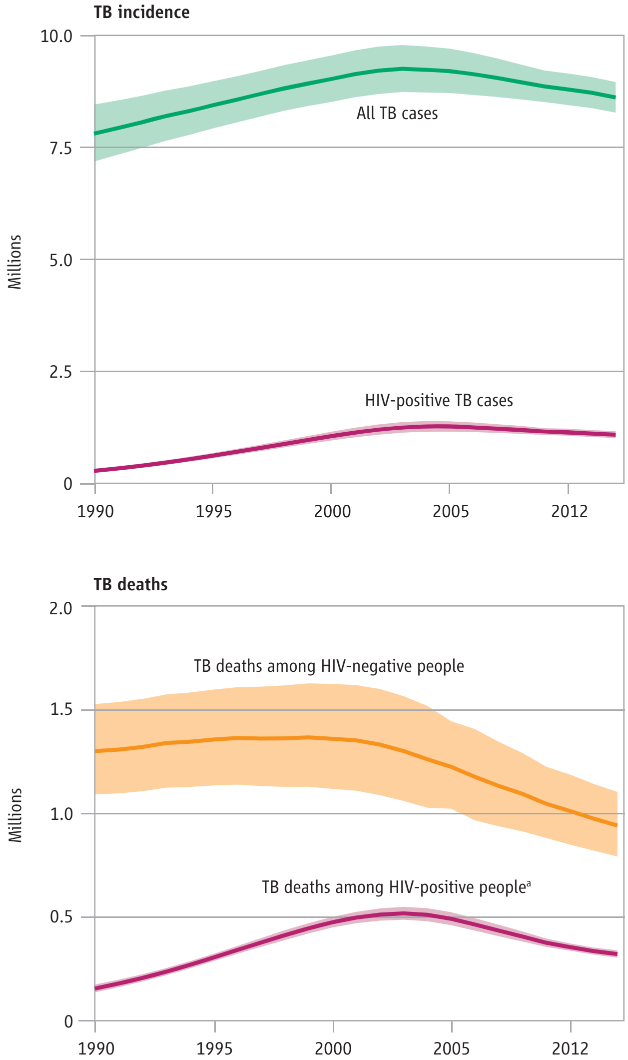
Estimated epidemiological burden of TB, 2012. Rates per 100 000 population except where indicated[a]

	POPULATION (THOUSANDS)	MORTALITY[b]			HIV-POSITIVE TB MORTALITY			PREVALENCE			INCIDENCE			HIV PREVALENCE IN INCIDENT TB CASES (%)		
		BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH
Afghanistan	29 825	37	15	68	0.3	< 0.1	1.1	358	181	595	189	156	226	0.55	0.41	0.68
Bangladesh[c]	154 695	45	19	84	< 0.1	< 0.1	< 0.1	434	218	721	225	185	268	< 0.1	< 0.1	< 0.1
Brazil	198 656	2.5	2.3	2.6	1.3	1.1	1.5	59	25	107	46	38	55	17.3	17.1	17.4
Cambodia	14 865	63	29	110	3.8	2.7	4.7	764	645	892	411	353	474	4.34	4.21	4.44
China	1 377 065	3.2	3.1	3.3	< 0.1	< 0.1	0.1	99	86	113	73	64	82	0.73	0.73	0.73
DR Congo	65 705	54	24	97	9.7	8.3	12	576	301	938	327	282	375	7.66	7.65	7.66
Ethiopia	91 729	18	13	23	6.1	5	8	224	180	272	247	183	321	10.2	10.1	10.2
India[d]	1 236 687	22	14	32	3.4	3	3.9	230	155	319	176	159	193	5.95	5.93	5.97
Indonesia	246 864	27	12	48	0.9	0.7	1.2	297	144	506	185	153	220	1.65	1.65	2.33
Kenya	43 178	22	13	34	18	15	21	299	164	475	272	261	283	38.7	38.7	38.7
Mozambique	25 203	53	3.9	163	177	138	209	553	111	1 340	552	383	753	59.7	59.6	59.8
Myanmar	52 797	48	23	84	8.8	7.3	10	489	377	616	377	322	435	9.33	9.32	9.33
Nigeria	168 834	16	0.9	51	11	6.7	15	161	25	420	108	50	186	25.2	24.8	25.7
Pakistan	179 160	34	15	61	0.7	0.5	0.8	376	181	641	231	190	276	0.92	0.84	0.96
Philippines	96 707	24	22	26	0.1	< 0.1	0.1	461	405	520	265	219	316	0.18	0.18	0.18
Russian Federation	143 170	13	13	14	1.2	1	1.5	121	51	221	91	77	106	7.14	7.03	7.25
South Africa	52 386	59	7	164	168	144	192	857	305	1 680	1 000	827	1 190	63.0	62.9	63.0
Thailand	66 785	14	5.8	25	3.3	2.9	4.2	159	71	282	119	98	142	15.2	15.2	15.3
Uganda	36 346	13	2.3	33	25	22	32	175	67	334	179	145	216	53.2	52.9	53.3
UR Tanzania	47 783	13	6.8	21	15	12	17	176	95	283	165	154	175	41.2	41.2	41.3
Viet Nam	90 796	20	13	27	2.4	2	2.9	218	86	410	147	109	192	6.97	6.94	6.99
Zimbabwe	13 724	33	1.2	117	132	111	147	433	92	1 030	562	434	706	70.9	70.7	71.4
High-burden countries	**4 432 959**	**18**	**14**	**21**	**6**	**5.6**	**6.4**	**216**	**186**	**248**	**159**	**151**	**166**	**7.37**	**7.35**	**7.40**
AFR	892 529	26	18	35	28	26	30	303	239	373	255	235	275	36.6	34.7	38.4
AMR	961 103	1.9	1.7	2.2	0.7	0.6	0.7	40	31	51	29	27	31	11.4	8.67	14.4
EMR	616 591	16	10	24	0.7	0.6	0.8	180	118	256	109	96	122	1.88	1.34	2.52
EUR	904 540	3.9	3.9	4	0.4	0.4	0.5	56	42	72	40	38	43	5.26	3.80	6.93
SEAR	1 833 359	25	18	32	2.8	2.5	3.1	264	203	333	187	174	200	4.94	4.31	5.62
WPR	1 845 562	5.8	5.2	6.4	0.3	0.2	0.3	128	115	142	87	80	95	1.49	0.92	2.18
Global	**7 053 684**	**13**	**11**	**16**	**4.6**	**4.3**	**4.8**	**169**	**149**	**190**	**122**	**117**	**127**	**12.8**	**11.6**	**14.0**

[a] Best, low and high indicate the point estimate and lower and upper bounds of the 95% uncertainty interval.
[b] Mortality excludes deaths among HIV-positive TB cases. Deaths among HIV-positive TB cases are classified as HIV deaths according to ICD-10 and are shown separately in this table.
[c] Estimates of TB disease burden have not been approved by the NTP in Bangladesh and a joint reassessment (by the NTP and WHO) will be undertaken following completion of the national TB prevalence survey scheduled for 2014.
[d] Estimates for India have not yet been officially approved by the Ministry of Health & Family Welfare, Government of India, and should therefore be considered provisional.

FIGURE 2.2

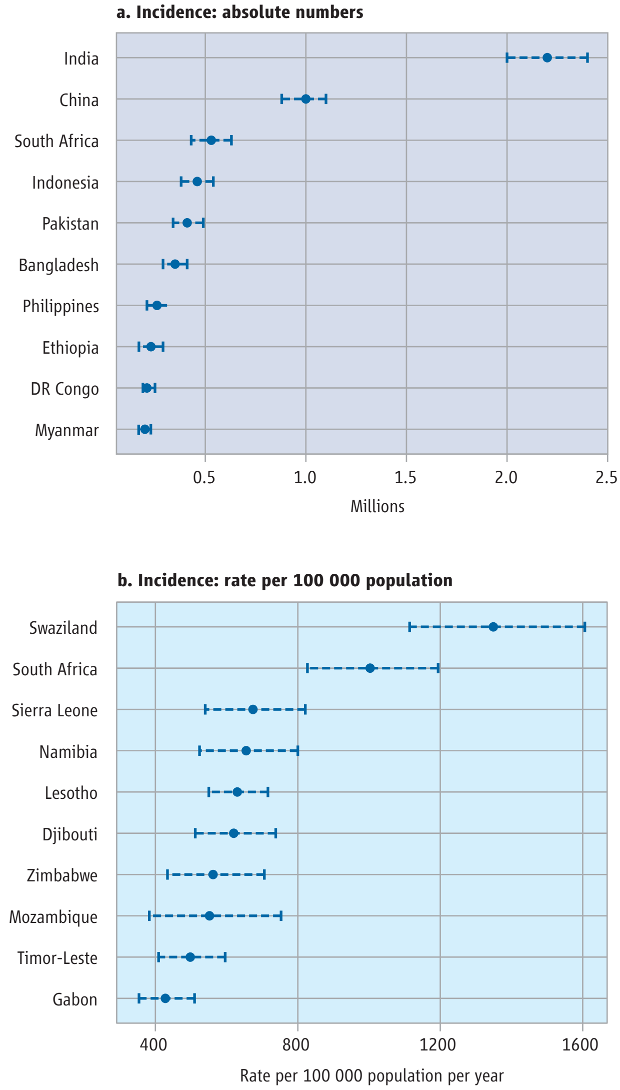
Estimated absolute numbers of TB cases and deaths (in millions), 1990–2012



[a] HIV-associated TB deaths are classified as HIV deaths according to ICD-10.

FIGURE 2.3

Estimated TB incidence: top-ten countries, 2012



the Americas (3%). The 22 HBCs that have been given highest priority at the global level since 2000 (listed in **Table 2.1** and **Table 2.2**) accounted for 81% of all estimated incident cases worldwide. The five countries with the largest number of incident cases in 2012 were India (2.0 million–2.4 million), China (0.9 million–1.1 million), South Africa (0.4 million–0.6 million), Indonesia (0.4 million–0.5 million) and Pakistan (0.3 million–0.5 million); these and the other five countries that make up the top ten in terms of numbers of cases are highlighted in **Figure 2.3**. India and China alone accounted for 26% and 12% of global cases, respectively. Of the 8.6 million incident cases, an estimated 0.5 million were children and 2.9 million (range, 2.7–3.1 million) occurred among women (**Box 2.2**).

The 8.6 million incident TB cases in 2012 included 1.0 million–1.2 million (12–14%) among people living with HIV, with a best estimate of 1.1 million (13%) (**Table 2.1**, **Table 2.2**). The proportion of TB cases co-infected with HIV was highest in countries in the African Region (**Figure 2.4**). Overall, 37% of TB cases were estimated to be co-infected with HIV in this region, which accounted for 75% of TB cases among people living with HIV worldwide. In parts of southern Africa, more than 50% of TB cases were co-infected with HIV (**Figure 2.4**).

Following a systematic review of evidence about mortality caused by MDR-TB (**Box 2.3**), global estimates of the burden of MDR-TB were updated in 2013 (**Box 2.1**). The best estimate is that there were 450 000 (range, 300 000–600 000) new cases of MDR-TB worldwide in 2012. This total includes cases of primary and acquired MDR-TB.

The number of incident TB cases relative to population (the incidence rate) varies widely among countries (**Figure 2.5**). The lowest rates are found predominantly in high-income countries including most countries in western Europe, Canada, the United States of America, Japan, Australia and New Zealand. In these countries, the incidence rate per 100 000 population is less than 10 cases per

BOX 2.2

The burden of TB disease among women and children

The burden of TB morbidity and mortality among women (defined as females aged ≥ 15 years) and children (defined as people aged <15 years) is larger than often realised. This is the second consecutive year in which the WHO global TB report highlights the burden of disease among children and for the first time includes estimates of the burden among women disaggregated by region and HIV status.

There were an estimated 2.9 million new cases of TB and 410 000 deaths from the disease among women in 2012. Among children, there were an estimated 530 000 new cases in 2012 and 74 000 deaths among children who were HIV-negative. Methods used to produce these estimates and further details about results are provided below. The estimates of TB morbidity and mortality among children are slightly higher than those published in the 2012 global TB report, reflecting new surveillance data that show more TB cases being notified among children globally, and new VR data.

The burden of TB in women: estimates of TB incidence and mortality, 2012

Incidence

Regional estimates of the women:men ratio for new (all case types) TB case notifications in 2012 were generated and assumed to be the same as the ratio among incident TB cases in 2012 (see **Annex 1** for further details). The resulting global and regional estimates of incidence are shown in **Table B2.2.1**. Women account for 34% of the total of 8.6 million incident cases in 2012. The African and South-East Asia regions account for 68% of the cases among women.

TABLE B2.2.1

Total number of new TB notifications (all case types) and estimated incident cases among women in 2012, disaggregated by WHO region

WHO REGION	NUMBER OF TB CASE NOTIFICATIONS	ESTIMATED TB INCIDENCE	
		BEST ESTIMATE	UNCERTAINTY INTERVAL
AFR	361 645	860 000	780 000–940 000
AMR	63 626	100 000	91 000–110 000
EMR	101 910	280 000	240 000–330 000
EUR	79 279	120 000	110 000–130 000
SEAR	431 470	1 100 000	990 000–1 200 000
WPR	392 030	510 000	460 000–550 000
Global	1 429 960	2 900 000	2 700 000–3 100 000

Mortality

In total, there were an estimated 410 000 TB deaths among women in 2012. This includes 250 000 (range, 210 000–290 000) TB deaths among HIV-negative women (29% of all TB deaths among HIV-negative adults) and 160 000 (range, 150 000–170 000) HIV-associated TB deaths (50% of all HIV-associated TB deaths). Newly reported data and a decrease in the overall TB mortality envelope explain the decrease in the estimated number of TB deaths among women compared with figures reported in previous years (see also **Box 2.1**).

Mortality data disaggregated by age and sex from VR systems were used to produce estimates of TB deaths among HIV-negative adults for 120 countries (VR data were available for 121 countries but for China, age and sex-disaggregated data were not available). TB deaths were calculated for women and men, after adjustment for incomplete coverage and ill-defined causes (see **Annex 1** for further details). For countries without VR data, an ecological statistical model was used to predict the ratio of male to female TB mortality. The model included a set of risk factors known to be associated with TB mortality (GDP per capita, the percentage of new cases with MDR-TB, HIV prevalence in the general population and the treatment success rate). Globally, there were 2.55 (range, 1.92–3.18) male deaths among HIV-negative adults for every female death (**Figure B2.2.1**). Regional differences are evident (**Table B2.2.2**), with the African and South-East Asia regions accounting for 69% of total deaths. The main limitation in the methods used is that the 120 countries reporting usable VR data were all middle- or high-income countries. Predictions for low-income countries had to be extrapolated from these countries.

TB deaths among HIV-positive people were disaggregated by sex using the assumption that the male to female sex ratio is similar to the sex ratio of AIDS deaths estimated by UNAIDS. Globally, the numbers of HIV-associated TB deaths were similar among men and women (**Figure B2.2.2**). However, there were striking regional variations (**Table B2.2.2**). In the African Region, more deaths occurred among women than men, while in other regions more deaths were estimated to have occurred among men.

TABLE B2.2.2

Estimated number of TB deaths among women in 2012, disaggregated by WHO region

	HIV-NEGATIVE		HIV-POSITIVE	
	BEST ESTIMATE	UNCERTAINTY INTERVAL	BEST ESTIMATE	UNCERTAINTY INTERVAL
AFR	80 000	53 000–110 000	140 000	130 000–150 000
AMR	5 900	5 000–6 700	2 000	1 900–2 200
EMR	32 000	18 000–46 000	1 400	1 300–1 600
EUR	10 000	9 700–10 000	1 200	1 000–1 300
SEAR	93 000	65 000–120 000	18 000	16 000–20 000
WPR	26 000	24 000–29 000	1 200	1 000–1 300
Global	250 000	210 000–290 000	160 000	150 000–170 000

The burden of TB in children: estimates of TB notifications, incidence and mortality (among those HIV-negative), 2012

TB notifications and incidence

The global number of new TB case notifications among children (aged <15 years) is estimated at 349 000 in 2012 (**Table B2.2.3**). This includes cases reported among children and an estimate of the number of cases among children in countries that did not report notifications disaggregated by age. For countries that did not report age-disaggregated data (**Figure B2.2.3**), it was assumed that the ratio of child to adult notified cases was the same (for each case type) as in those countries that did report notifications disaggregated by age (an alternative method using the assumption that the ratio of childhood to adult notification rates was the same gave similar results). WHO does not request age-disaggregated data for relapse cases or those reported as of unknown case type, and the number of children in these categories was assumed to be zero.

To estimate TB incidence among children, it was assumed that the case detection rate for all ages at the global level in 2012 (best estimate 66%, range 64%–69%) was the same for adults and children. On this basis, TB incidence among children is estimated at 530 000 (range, 510 000–550 000) in 2012, equivalent to about 6% of the total number of 8.6 million incident cases.

Limitations of the methods used include:

- The assumption that the case detection rate is the same for adults and children, in the absence of any data on levels of underreporting of diagnosed cases for children and adults separately.
- The assumption that reported cases were true cases of TB. Misdiagnosis is possible, especially given the difficulties of diagnosing TB in children.
- The proportion of cases among children may be different in countries for which age-disaggregated data were not available. However, reporting of cases disaggregated by age has been improving and the number of countries not reporting age-disaggregated data was relatively low in 2012.

FIGURE B2.2.1

The male:female ratio for HIV-negative TB deaths among adults (aged ≥15 years), globally and for WHO regions

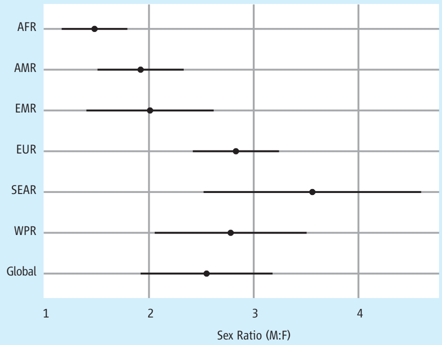


FIGURE B2.2.2

The male:female ratio for HIV-associated TB deaths among adults (aged ≥15 years), globally and for WHO regions

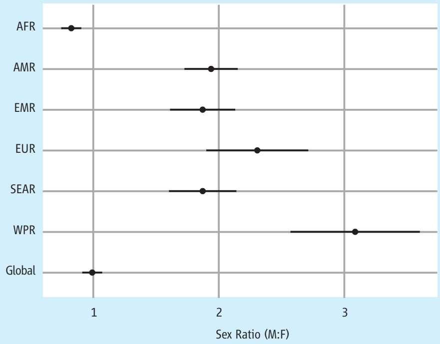


TABLE B2.2.3

New TB case notifications in 2012, by case type and age disaggregation

	SMEAR-POSITIVE	SMEAR-NEGATIVE[a]	EXTRA-PULMONARY
Total notifications	2 568 789	1 935 971	817 462
Countries disaggregating by age	2 551 136	1 597 530	678 953
Countries not disaggregating by age	17 653	338 441	138 509
(% total notifications disaggregated)	(99%)	(83%)	(83%)
Number of countries that reported notifications disaggregated by age (number of HBCs)[b]	204 (22)	184 (14)	184 (14)
Total childhood notifications from countries disaggregating by age	46 488	163 477	91 308
Total estimated childhood notifications among all countries	349 000		

[a] This includes reported cases for whom smear results were unknown or not done.
[b] An additional nine countries reported zero TB cases for 2012 and three countries had not reported data to WHO by July 2013.

Mortality among HIV-negative children

Mortality data reported to WHO from VR systems that were disaggregated by age were available for 120 countries. These data were used to calculate TB death rates per 100 000 population for children and adults, after adjustment for incomplete coverage and ill-defined causes (see **Annex 1** for further details). For countries without VR data, an ecological statistical model was used to predict the ratio of childhood to adult TB mortality rates. The total number of deaths from TB among HIV-negative children was estimated to be 74 000 (range, 59 000–90 000), equivalent to about 8% of the total number of 940 000 TB deaths among HIV negative people in 2012.

An estimate of TB mortality among HIV-positive children is not included in this report, due to the difficulties arising from the miscoding of HIV deaths as TB deaths. However, age disaggregation of HIV-associated TB mortality will be one of the future outcomes of the TB component of Spectrum (see **Box 2.1**).

Steps to improve estimation of TB cases among children include:

- a global consultation to further develop analytical methods and to define and prioritize actions needed to obtain new data in September 2013;
- promotion of case-based electronic recording and reporting systems that facilitate compilation and analysis of age-disaggregated data;
- nationwide inventory surveys to measure underreporting of childhood TB;
- more contact-tracing studies and the integration of TB activities in maternal, newborn and child health services to find childhood cases that might otherwise not be diagnosed.

FIGURE B2.2.3

Reporting of notification data disaggregated by age, 2012

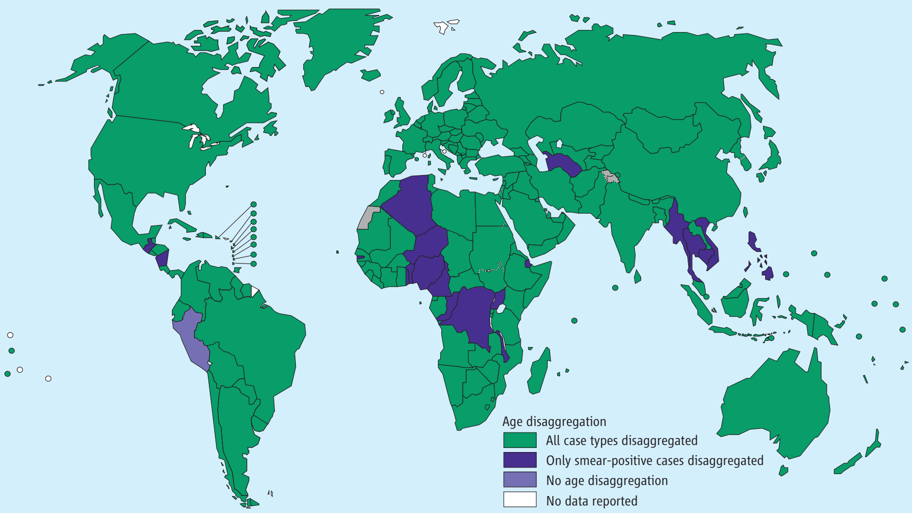


FIGURE 2.4

Estimated HIV prevalence in new TB cases, 2012

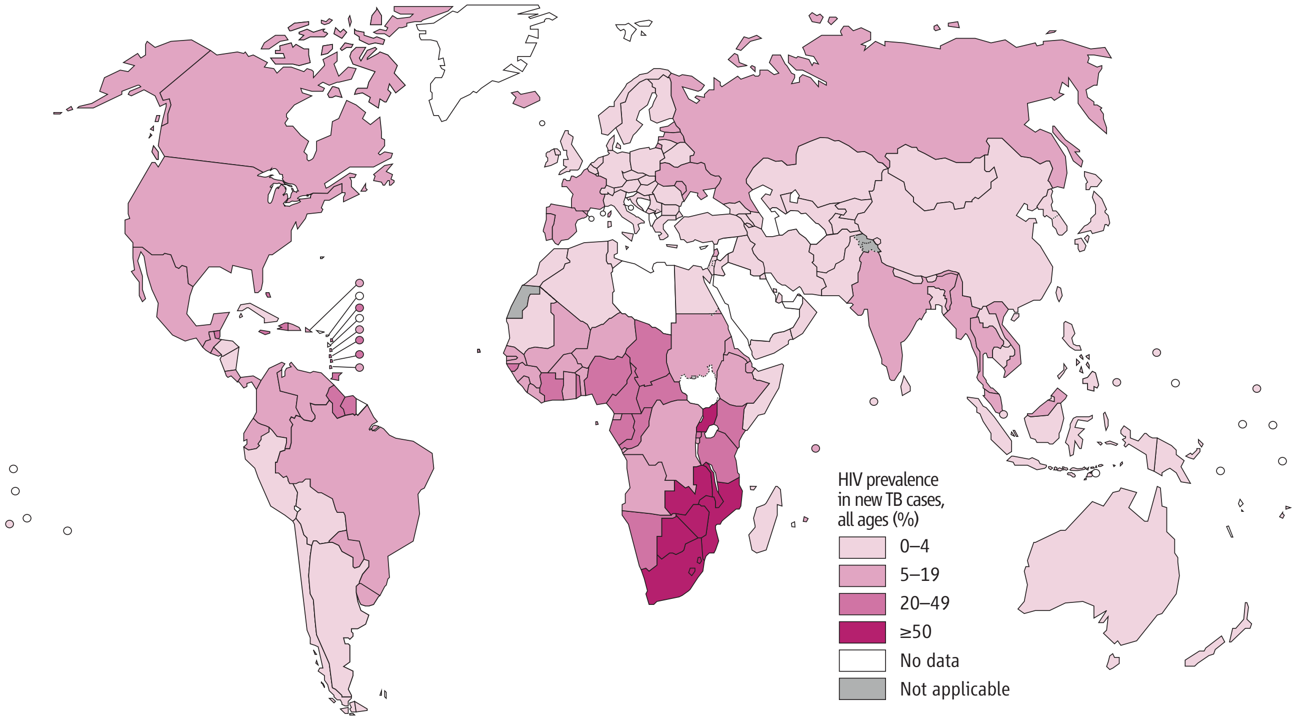


FIGURE 2.5

Estimated TB incidence rates, 2012

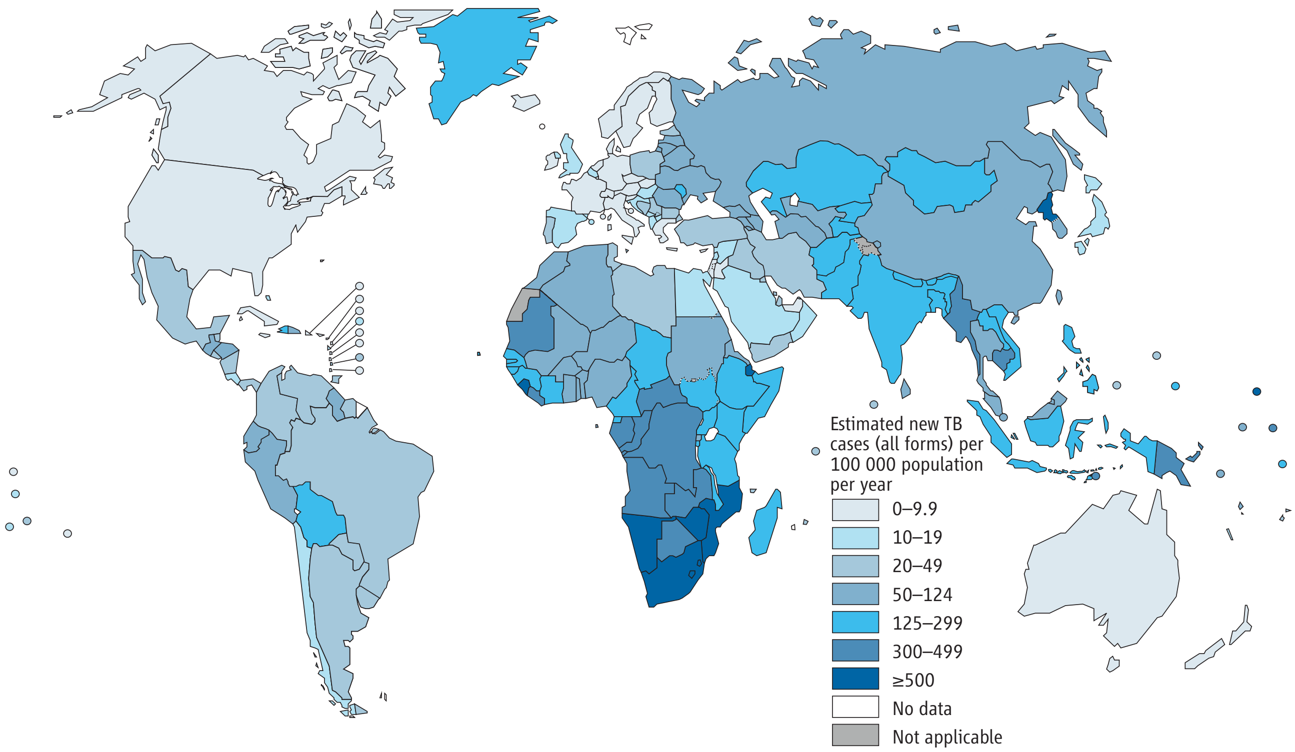
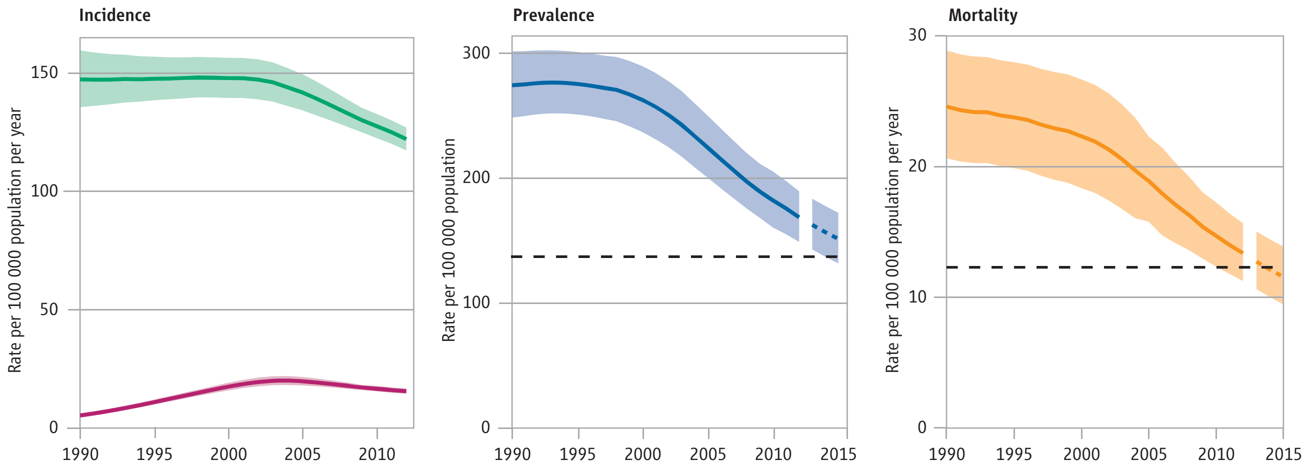


FIGURE 2.6

Global trends in estimated rates of TB incidence, prevalence and mortality. Left: Global trends in estimated incidence rate including HIV-positive TB (**green**) and estimated incidence rate of HIV-positive TB (**red**). Centre and right: Trends in estimated TB prevalence and mortality rates 1990–2012 and forecast TB prevalence and mortality rates 2013–2015. The horizontal dashed lines represent the Stop TB Partnership targets of a 50% reduction in prevalence and mortality rates by 2015 compared with 1990. Shaded areas represent uncertainty bands. Mortality excludes TB deaths among HIV-positive people.



100 000 population. Most countries in the Region of the Americas have rates below 50 per 100 000 population and this is the region with the lowest burden of TB on average. Most of the HBCs have rates of around 150–300 cases per 100 000 population (**Table 2.2**); HBCs with markedly lower rates are Brazil and China, while rates are above 500 per 100 000 population in Mozambique, South Africa and Zimbabwe. Other countries in the top ten worldwide in terms of incidence rates are mostly in Africa (**Figure 2.3**). In South Africa and Swaziland, the best estimate is that at least 1 in every 100 people (1000 or more per 100 000 population) develops TB each year.

Globally, the incidence rate was relatively stable from 1990 up to around 2001, and then started to fall (**Figure 2.6**), achieving the MDG target ahead of the 2015 deadline. Between 2011 and 2012, the rate of decline was 2%. This downward trend needs to be sustained to ensure that the MDG target is met in 2015. Incidence rates are also declin-

FIGURE 2.7

Estimated TB incidence rates by WHO region, 1990–2012. Regional trends in estimated TB incidence rates (**green**) and estimated incidence rates of HIV-positive TB (**red**). Shaded areas represent uncertainty bands.

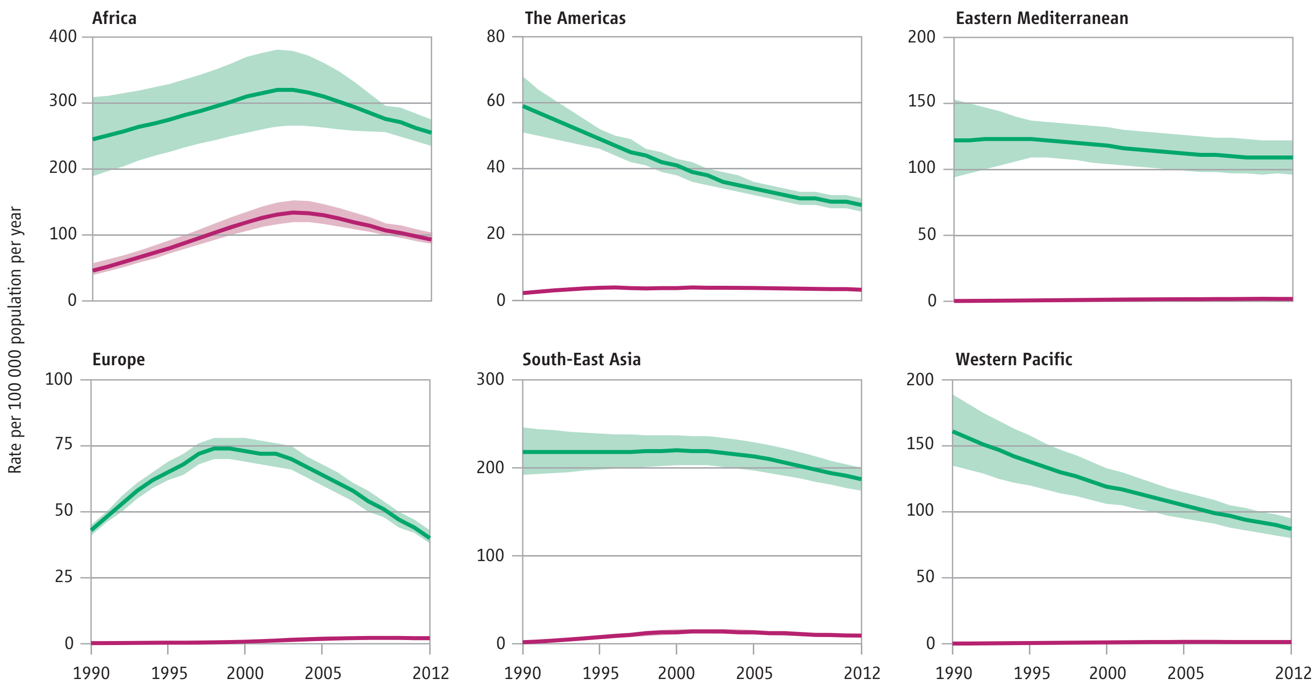
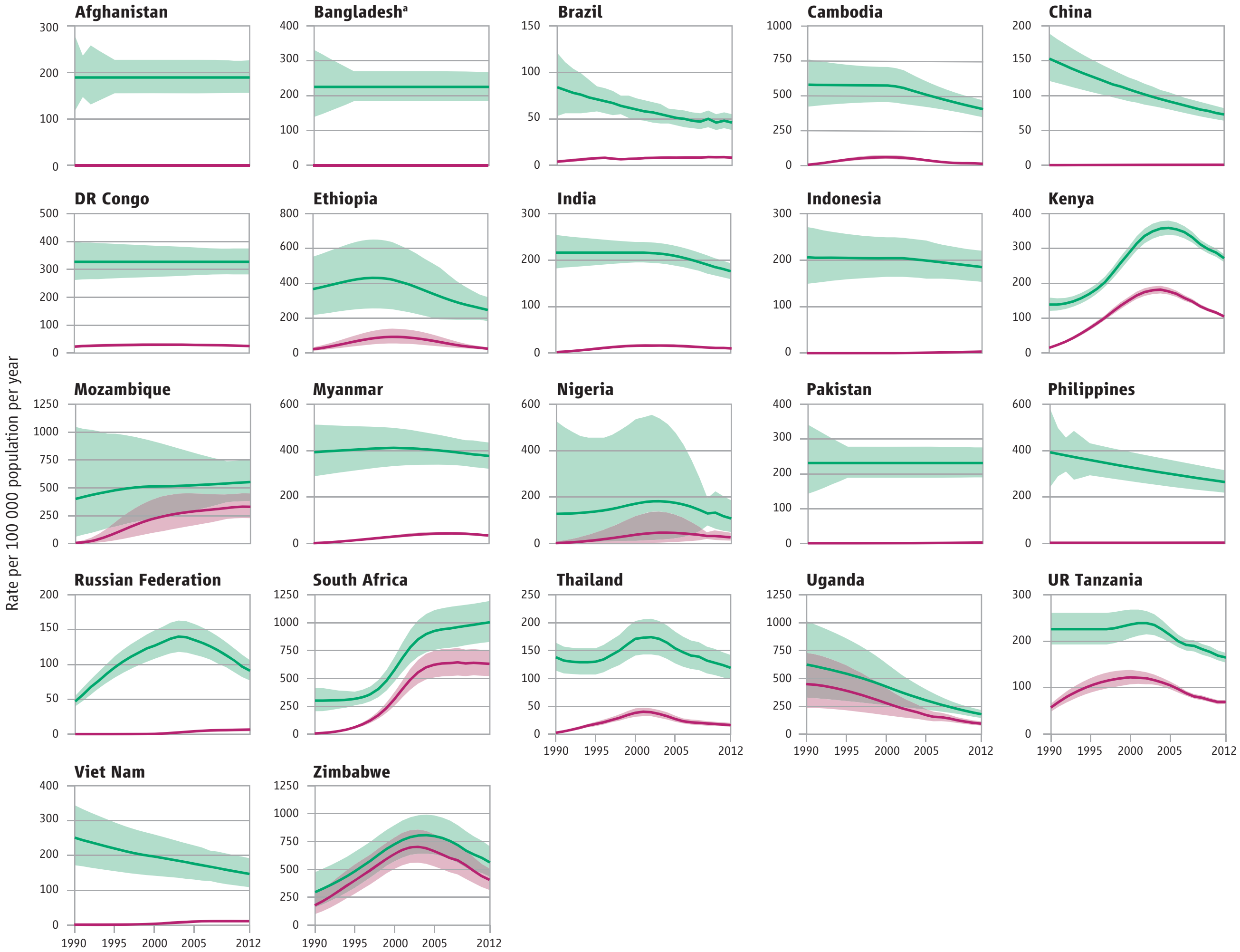


FIGURE 2.8

Estimated TB incidence rates, 22 high-burden countries, 1990–2012. Trends in estimated TB incidence rates (**green**) and estimated incidence rates of HIV-positive TB (**red**). Shaded areas represent uncertainty bands.



[a] Estimates of TB disease burden have not been approved by the national TB programme in Bangladesh and a joint reassessment will be undertaken following the completion of the prevalence survey planned for 2014.

ing in all of six WHO regions (**Figure 2.7**), fastest in the European Region (6.5% per year) and slowest in the Eastern Mediterranean and South-East Asia Regions (less than 1% per year and 2% per year, respectively). Incidence rates have been falling since the mid-1990s in the Eastern Mediterranean Region and since around 2000 in the South-East Asia Region; they peaked around 1997 in the European Region and around 2002 in the African region, and have been falling since 1990 in the Region of the Americas and the Western Pacific Region. The latest assessment for the 22 HBCs suggests that incidence rates are falling in most countries (**Figure 2.8**).

2.2 TB prevalence

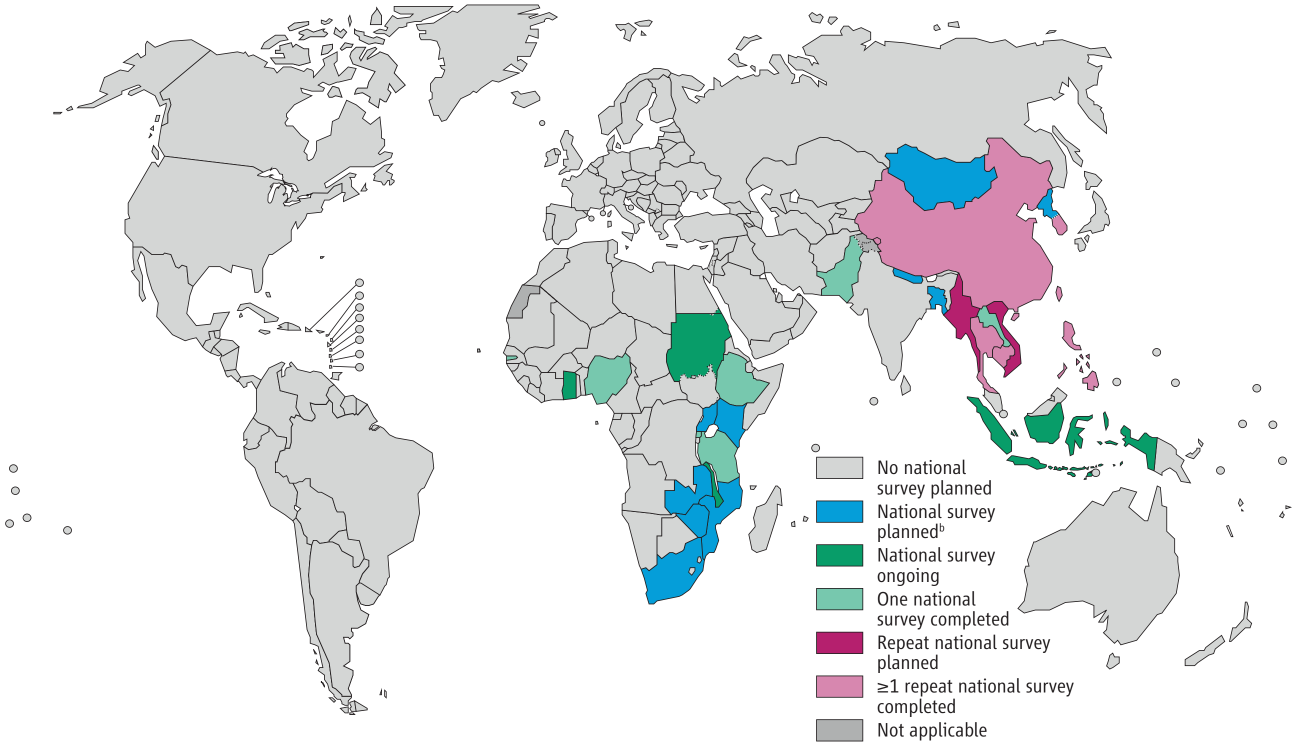
In countries with a relatively high burden of TB (around 100 cases per 100 000 population or more), the prevalence of bacteriologically-confirmed pulmonary TB can be directly measured in nationwide population-based surveys using sample sizes of around 50 000 people. Survey results can be used to produce a national estimate of TB prevalence that includes all forms of TB. The cost of a survey usually ranges from US$ 1 to 4 million, and comprehensive theoretical and practical guidance on survey design, implementation, analysis and reporting of results is available.[1] Repeat surveys conducted about every 10 years allow trends in disease burden to be assessed. HBCs that have completed repeat surveys in the last 10 years include Cambodia, China, the Philippines and Thailand, and repeat surveys are planned in Myanmar and Viet Nam. Countries in which surveys have been implemented or are planned in the near future are shown in **Figure 2.9**. Between 2008 and 2017, an unprecedented number of national TB prevalence surveys have been or will be conducted (see also **section 2.4**).

In low- and medium-burden countries, sample sizes and

[1] *TB prevalence surveys: a handbook*. Geneva, World Health Organization, 2011 (WHO/HTM/TB/2010.17). Available at www.who.int/tb/advisory_bodies/impact_measurement_taskforce/resources_documents/thelimebook/

FIGURE 2.9

Countries in which national population-based surveys of the prevalence of TB disease have been implemented using currently recommended screening and diagnostic methods[a] since 1990 or are planned in the near future: status in July 2013



[a] Screening methods include field chest X-ray; culture is used to confirm diagnosis.
[b] "National survey planned" means that a country has submitted at least a draft survey protocol and a budget to the WHO Global Task Force on TB Impact Measurement.

costs become prohibitively large. If survey data are not available, prevalence can be indirectly estimated as the product of incidence and the average duration of disease, but with considerable uncertainty (**Annex 1**). TB prevalence can be estimated only indirectly for most countries.

There were an estimated 12 million prevalent cases (range, 11 million–13 million) of TB in 2012 (**Table 2.1**), equivalent to 169 cases per 100 000 population (**Table 2.2**). By 2012, the prevalence rate had fallen 37% globally since 1990. Current forecasts suggest that the Stop TB Partnership target of halving TB prevalence by 2015 compared with a baseline of 1990 will not be met worldwide (**Figure 2.6**). Regionally, prevalence rates are declining in all six WHO regions (**Figure 2.10**). The Region of the Americas halved the 1990 level of TB prevalence by around 2004, well in advance of the target year of 2015, and the best estimate suggests that the Western Pacific Region achieved the 50% reduction target in 2012. Reaching the 50% reduction target by 2015 appears feasible in the South-East Asia Region and also in the European Region with a relatively small acceleration in the current rate of progress. The target appears out of reach in the African and Eastern Mediterranean Regions.

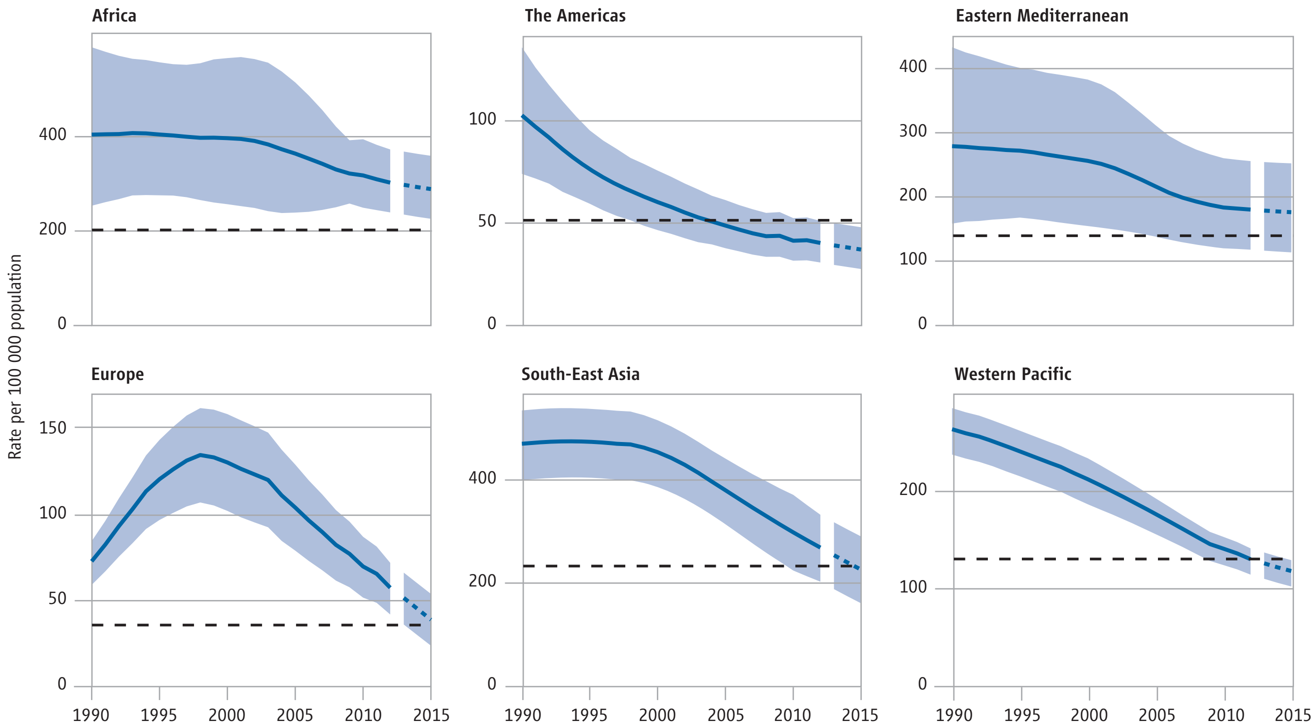
2.3 TB mortality

TB mortality among HIV-negative people can be directly measured using data from national VR systems, provided that these systems have high coverage and causes of death are accurately coded according to the latest revision of the *International classification of diseases* (ICD-10). Sample VR systems covering representative areas of the country (e.g. as in China) provide an interim solution. Mortality surveys can also be used to estimate deaths caused by TB. In 2012, most countries with a high burden of TB lacked national or sample VR systems and few had conducted mortality surveys. In the absence of VR systems or mortality surveys, TB mortality can be estimated as the product of TB incidence and the case fatality rate, or from ecological modelling based on mortality data from countries with VR systems. TB mortality among HIV-positive people is hard to measure even when VR systems are in place because deaths among HIV-positive people are coded as HIV deaths and contributory causes (such as TB) are often not reliably recorded. For this 2013 report, country-specific estimates of TB deaths among HIV-positive people were produced for the first time using the Spectrum software that has been used for HIV burden estimates for over a decade (**Box 2.1**).

Until 2008, WHO estimates of TB mortality used VR data for only three countries. This was substantially improved to 89 countries in 2009; however most of the data were from countries in the European Region and the

FIGURE 2.10

Trends in estimated TB prevalence rates 1990–2012 and forecast TB prevalence rates 2013–2015, by WHO region. Shaded areas represent uncertainty bands. The horizontal dashed lines represent the Stop TB Partnership target of a 50% reduction in the prevalence rate by 2015 compared with 1990. The other dashed lines show projections up to 2015.



BOX 2.3

MDR-TB mortality – methods used to produce updated estimates

As part of a 2010 global report on the MDR-TB epidemic and the global response, it was estimated that there were 150 000 deaths (range: 53 000–270 000) from MDR-TB in 2008.[a] This was the first time WHO published a global estimate of MDR-TB mortality and, given limitations in the available evidence, annual updates have not been attempted.

In theory, the number of deaths from MDR-TB can be estimated as the product of total deaths from TB, the overall proportion of TB cases that have MDR-TB (5.7%), and the relative risk (RR) of dying among people with MDR-TB compared with those without MDR-TB. However, while estimates of total TB mortality and the prevalence of MDR-TB have been available for several years from VR data (i.e. for total TB deaths) and representative surveillance or survey data (for the proportion of cases with MDR-TB), an estimate of the RR was not.

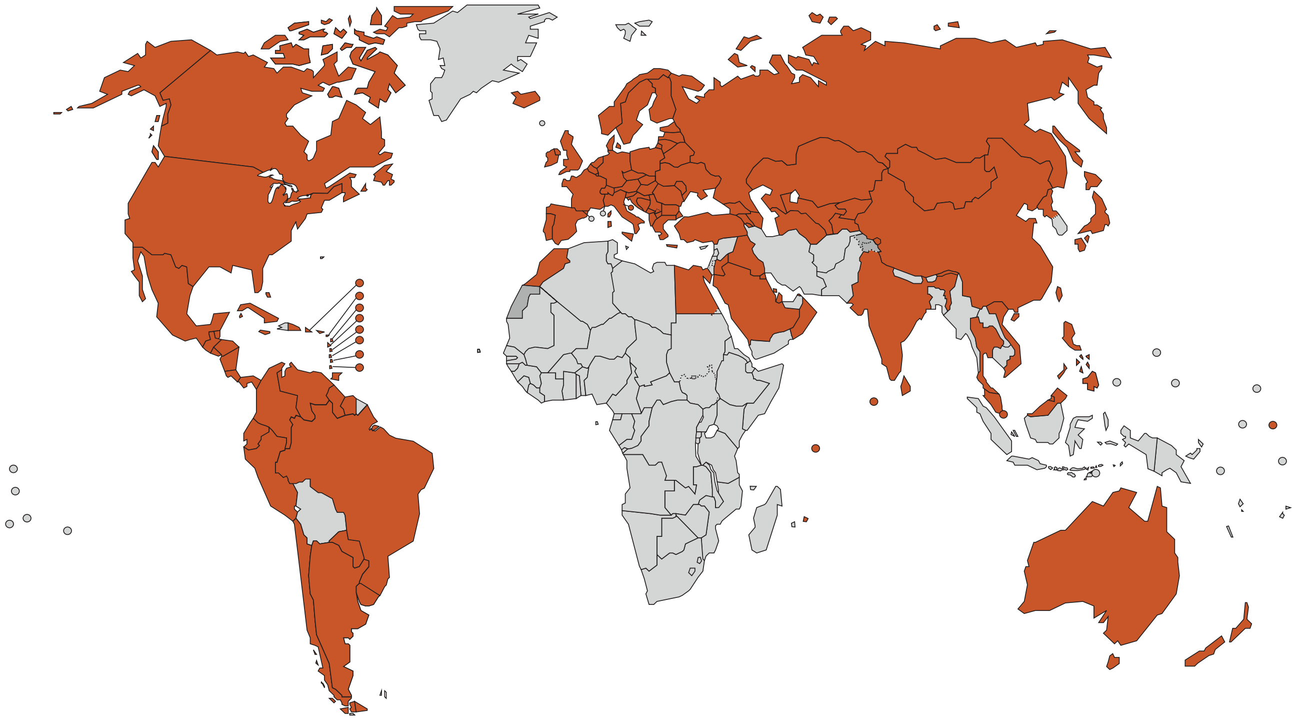
In 2013, WHO commissioned a systematic review of the RR of dying from MDR-TB compared with TB. Twenty-five studies that included data about mortality among patients enrolled on treatment for MDR-TB and TB (without MDR-TB), during and after treatment, were identified. These allowed calculation of a global estimate of the RR of dying from MDR-TB (2.36, range 1.67–3.05). The 25 studies had a broad geographical coverage and included countries with both high and low burdens of MDR-TB and HIV, but were insufficient to estimate region-specific RRs.

Based on the results of the meta-analysis, it is estimated that globally in 2012, there were 170 000 deaths (range: 100 000–240 000) from MDR-TB.

[a] *Multidrug- and extensively drug-resistant TB (M/XDR-TB): 2010 global report on surveillance and response* (WHO/HTM/TB/2010.3). Geneva, World Health Organization, 2010. Available at http://www.who.int/tb/publications/2010/978924599191/en/

FIGURE 2.11

Countries (in orange) for which TB mortality is estimated using measurements from vital registration (n=121) systems and/or mortality surveys (n=2, India and Viet Nam)



Region of the Americas, which accounted for less than 10% of the world's TB cases. In 2011, the first uses of sample VR data from China and survey data from India enabled a further major improvement to estimates of TB mortality. For the current report, VR data of sufficient coverage and quality were available for 121 countries. Combined with survey data from India and Viet Nam, this means that estimates of TB mortality are based on direct measurements of TB mortality in 123 countries (shown in **Figure 2.11**). Collectively, these 123 countries account for 45% of the estimated number of TB deaths globally. The parts of the world where there are major gaps in the availability of VR data are the African Region and parts of the South-East Asia Region; in the latter, Indonesia is currently building a sample VR system.

There were an estimated 1.3 million TB deaths in 2012 (**Table 2.1**, **Figure 2.2**): 940 000 among HIV-negative people and 320 000 among HIV-positive people (TB deaths among HIV-positive people are classified as HIV deaths in ICD-10).[1] These deaths included 410 000 among women and 74 000 among children (**Box 2.2**). There were approximately 170 000 deaths from MDR-TB (range, 102 000–242 000): methods used to produce this new global estimate of MDR-TB mortality are explained in **Box 2.3**.

Approximately 75% of total TB deaths occurred in the African and South-East Asia Regions in 2012 (both including and excluding TB deaths among HIV-positive people). India and South Africa accounted for about one-third of global TB deaths.

The number of TB deaths per 100 000 population averaged 13 globally in 2012 (**Table 2.2**) and 17.6 when TB deaths among HIV-positive people are included. There is considerable variation among countries (**Figure 2.12**), ranging from under 1 TB death per 100 000 population (examples include most countries in western Europe, Canada, the United States of America, Australia and New Zealand) to more than 40 deaths per 100 000 population in much of the African Region as well as three HBCs in Asia (Bangladesh, Cambodia and Myanmar).

Globally, mortality rates (excluding deaths among HIV-positive people)[2] have fallen by 45% since 1990; the current forecast suggests that the Stop TB Partnership target of a 50% reduction in TB mortality by 2015 compared with a baseline of 1990 will be achieved (**Figure 2.6**). Mortality rates are declining in all six WHO regions (**Figure 2.13**). The 2015 target has already been surpassed in the Region of the Americas (since 2004) and the Western Pacific Region (since 2002), and may have been reached in the Eastern Mediterranean Region. Among the other three regions, the South-East Asia Region appears best placed to achieve the target. Mortality rates appear to be falling in most of the 22 HBCs (**Figure 2.14**), although there is considerable uncertainty about the level of and trends in mortality in some countries, notably Mozambique, Nigeria, South Africa and Zimbabwe.

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1 *International statistical classification of diseases and related health problems, 10th revision (ICD-10), 2nd ed.* Geneva, World Health Organization, 2007.

2 Trends in TB mortality rates are restricted to TB deaths among HIV-negative people, given that TB deaths among HIV-positive people are classified as HIV deaths in ICD-10.

FIGURE 2.12

Estimated TB mortality rates excluding TB deaths among HIV-positive people, 2012

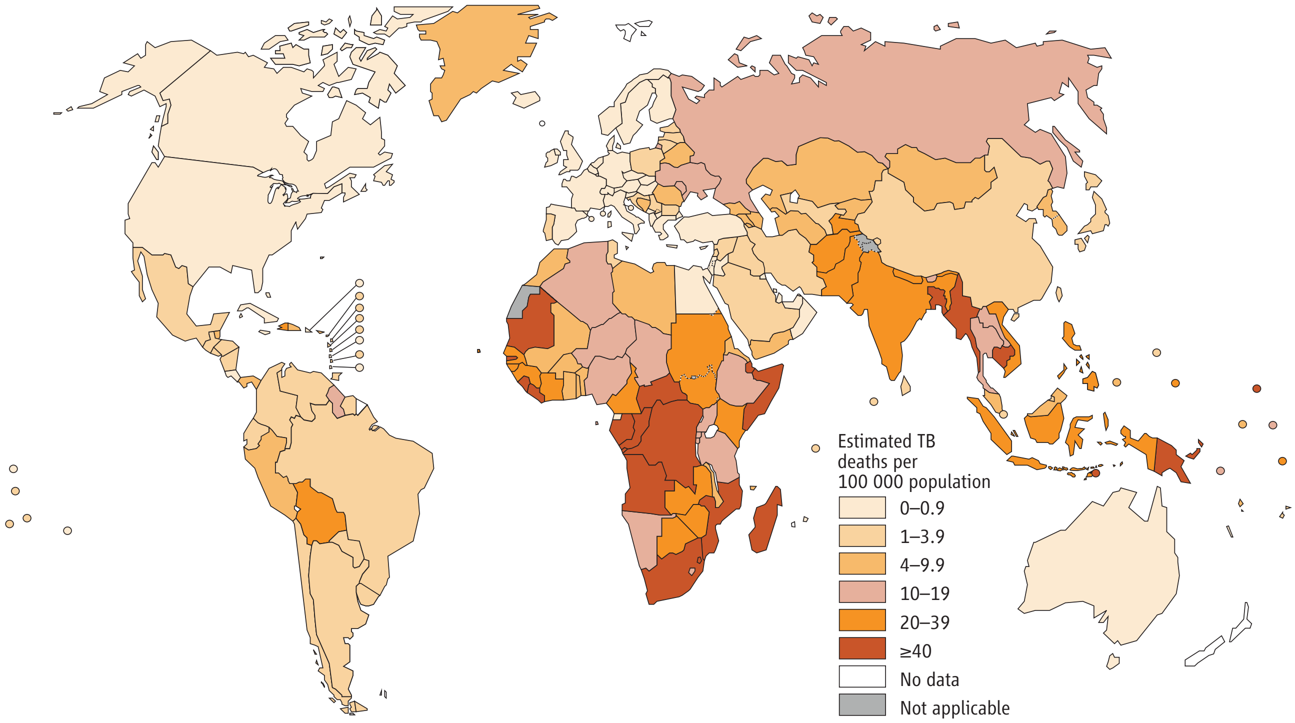
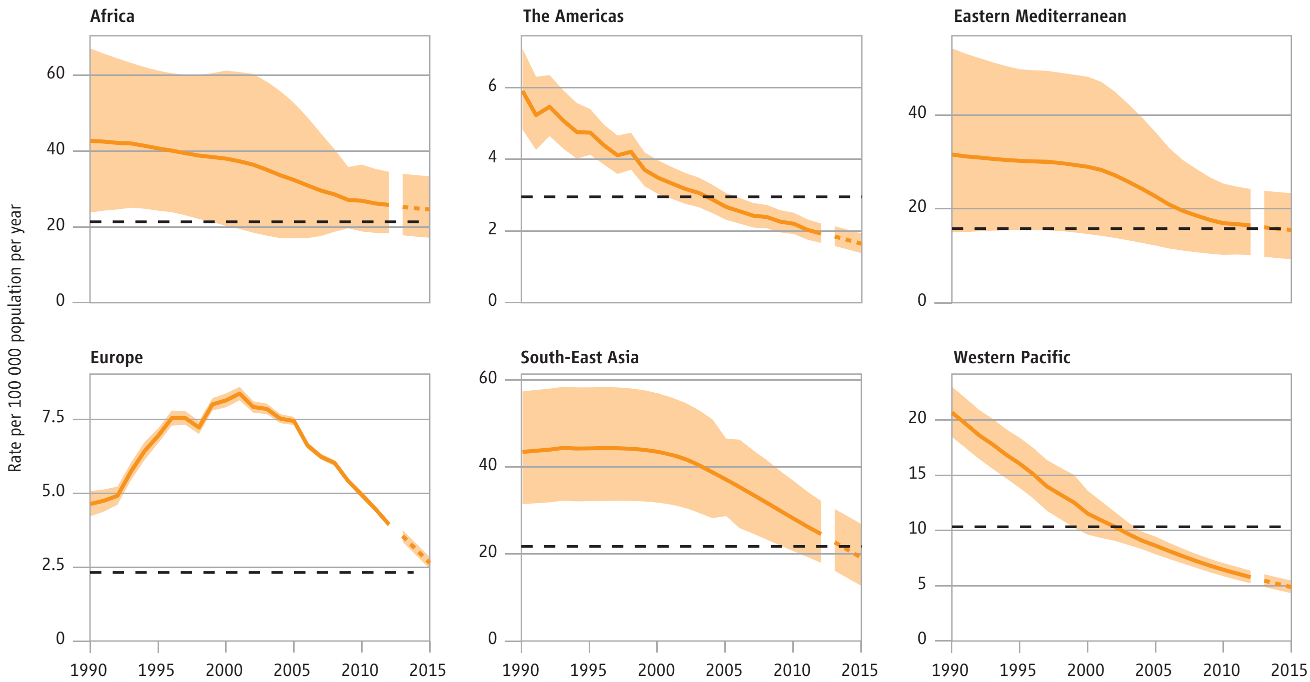


FIGURE 2.13

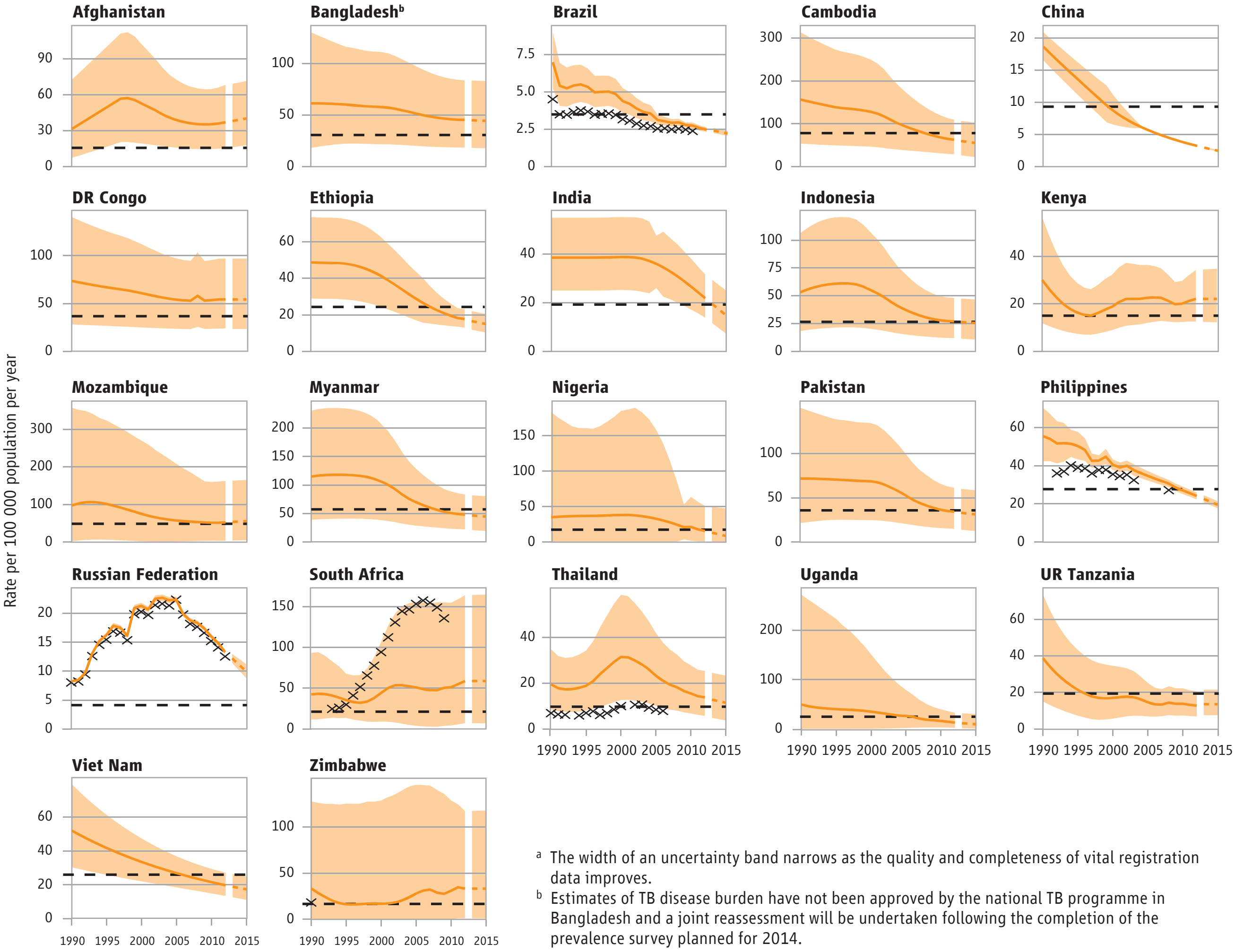
Trends in estimated TB mortality rates 1990–2012 and forecast TB mortality rates 2013–2015, by WHO region. Estimated TB mortality excludes TB deaths among HIV-positive people. Shaded areas represent uncertainty bands.[a] The horizontal dashed lines represent the Stop TB Partnership target of a 50% reduction in the mortality rate by 2015 compared with 1990. The other dashed lines show projections up to 2015.



[a] The width of an uncertainty band narrows as the proportion of regional mortality estimated using vital registration data increases or the quality and completeness of the vital registration data improves.

FIGURE 2.14

Trends in estimated TB mortality rates 1990–2012 and forecast TB mortality rates 2013–2015, 22 high-burden countries. Estimated TB mortality excludes TB deaths among HIV-positive people. The horizontal dashed lines represent the Stop TB Partnership target of a 50% reduction in the mortality rate by 2015 compared with 1990. The other dashed lines show projections up to 2015.[a] Uncertainty is due to adjustments made to the mortality data from vital registration systems that were reported by countries (mortality data from vital registration systems are represented by the "x" symbol). Further explanation of methods is provided in Annex 1.



[a] The width of an uncertainty band narrows as the quality and completeness of vital registration data improves.

[b] Estimates of TB disease burden have not been approved by the national TB programme in Bangladesh and a joint reassessment will be undertaken following the completion of the prevalence survey planned for 2014.

2.4 Strengthening measurement of the burden of disease caused by TB: the WHO Global Task Force on TB Impact Measurement

The estimates of TB incidence, prevalence and mortality and their trend presented in sections 2.1–2.3 are based on the best available data and analytical methods. Nonetheless, there remains considerable scope to improve measurement of the level of and trends in TB disease burden. This final section of the chapter describes the latest status of efforts to improve measurement of the burden of disease caused by TB, under the umbrella of the WHO Global Task Force on TB Impact Measurement. This task force was established in 2006 and includes representatives from leading technical and financial partners and countries with a high burden of TB.[1]

At its second meeting in December 2007, the Global Task Force on TB Impact Measurement defined three strategic areas of work:[2]

- strengthening surveillance towards the ultimate goal of direct measurement of incidence and mortality from notification and VR systems, respectively;

[1] Many countries with a high burden of TB are engaged in the work of the Task Force. Partners that are actively participating in the work of the Task Force include the Centers for Disease Control and Prevention in the USA, the European Centre for Disease Prevention and Control, the Global Fund, Public Health England, the KNCV Tuberculosis Foundation, the London School of Hygiene and Tropical Medicine in the UK, the Research Institute for Tuberculosis in Japan, the Union and the United States Agency for International Development (USAID).

[2] *TB impact measurement: policy and recommendations for how to assess the epidemiological burden of TB and the impact of TB control.* Geneva, World Health Organization, 2009 (Stop TB policy paper no. 2; WHO/HTM/TB/2009.416). Available at www.who.int/tb/publications/2009/impactmeasurementpolicy/

- conducting surveys of the prevalence of TB disease in a set of global focus countries that meet epidemiological and other relevant criteria; and
- periodic review and updating of the methods used to translate surveillance and survey data into estimates of TB incidence, prevalence and mortality.

In 2008 and 2009, methods were thoroughly reviewed and updated by an expert group convened by the task force. Updates were discussed and endorsed by the full task force in March 2010. Current methods are described in detail in **Annex 1**, and an updated review is planned in 2014 (**Box 2.1**). The following sections focus on the other two strategic areas of work: strengthened surveillance and national TB prevalence surveys. Further details are available on the task force's web site.[1]

2.4.1 Strengthening surveillance

Reasons for uncertainty in current estimates of TB incidence include use of expert opinion about both the number of cases that are diagnosed but not reported to national surveillance systems and the number of cases that are not diagnosed at all (**section 2.1**). Major challenges in estimating TB mortality include the lack of VR systems of sufficient coverage and quality in many countries, notably in Africa and parts of Asia (**Figure 2.11**). The long-term goal of directly measuring the level of and trends in TB disease burden from routine surveillance data, using notification data to measure TB incidence and VR data to measure TB mortality, requires strengthened surveillance in many countries. Countries for which more robust estimates of mortality were available in 2012 are shown in **Figure 2.11**.

TB surveillance checklist of standards and benchmarks

Strengthening surveillance to move towards the goal of direct measurement of TB incidence and mortality requires a clear understanding of what a 'model' surveillance system should look like and a method for assessing the current performance of TB surveillance. Following considerable work in 2011 and 2012, a TB surveillance checklist that defines the standards and associated benchmarks that need to be met for a country's notification and VR data to be used as a direct measure of TB incidence and mortality has been developed (**Box 2.4**).

Use of the checklist began in January 2013 and it is being applied in a growing number of countries (**Figure 2.15**) as the basis for identifying what standards are already met and the investments required to close remaining gaps. This work is being undertaken in close collaboration with the Global Fund so that use of the checklist is integrated into the fund's grant processes and findings can inform investments by the fund as well as national governments and other partners (**Box 2.5**). With more than 100 low- and middle-income countries receiving TB grants from the Global Fund, this approach has great potential to make a real difference to TB surveillance worldwide. An initial list of 25 priority countries has been defined.

Inventory studies to measure or estimate TB underreporting

One of the standards in the TB surveillance checklist is that all diagnosed cases of TB are reported to the national surveillance system. The two benchmarks that must be satisfied are that TB reporting is a legal requirement, and that ≥90% of TB cases are reported to national health authorities, as determined by a national-level investigation such as an inventory study. To date, few countries have implemented an inventory study but as the number doing so increases, estimates of the level of and trend in TB incidence will improve. Even when underreporting is considerable and notification data are not a good proxy for TB incidence, results from inventory studies can be used to quantify the gap and obtain more precise estimates of disease burden and provide valuable information about where efforts to collaborate with public and private sector providers are needed (see also **Chapter 3**, **section 3.2.1**). In 2012, the Global Task Force on TB Impact Measurement completed a guide on how to design and implement an inventory study, and how to analyse and report results.[2]

In the past 10 years, inventory studies combined with capture–recapture analysis have been implemented in the Netherlands, the UK, French Guiana, Egypt, Iraq, Pakistan and Yemen. Results from the study in Iraq are summarized in **Box 2.6**.

Electronic recording and reporting of data

Several of the standards in the TB surveillance checklist are about data quality. In all of the regional and country workshops held between 2008 and 2013, it was evident that it is much easier to assess the quality of TB surveillance data in countries with case-based electronic recording and reporting systems. Besides facilitating assessment of data quality, electronic recording and reporting systems have other major advantages compared to systems based solely on paper-based recording and reporting. These include:

- Better programme and resource management, by encouraging staff to use and act upon live data. This may help to prevent defaulting from treatment and assist with management of drug supplies (including avoidance of stock-outs).
- Improved surveillance by making it easier for facilities not traditionally linked to the NTP, such as hospitals, prisons and the private sector, to report TB cases, and by reducing the burden of compiling and submitting data through paper-based quarterly reports.
- Analysis and use of data is facilitated, since data can be readily imported into statistical packages. Results are then available to decision-makers more quickly and it is possible to detect outbreaks promptly.

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1 www.who.int/tb/advisory_bodies/impact_measurement_taskforce

2 *Assessing tuberculosis underreporting through inventory studies*. Geneva, World Health Organization, 2013 (WHO/HTM/TB/2012.12). Available at: www.who.int/tb/publications/inventory_studies/en/index.html

BOX 2.4

The TB surveillance checklist of standards and benchmarks

A major goal of TB surveillance is to provide an accurate measure of the number of new TB cases and TB deaths that occur each year, and to be able to assess trends over time. In some countries, TB surveillance already meets the standards necessary to do this, but in others there are important gaps. For example, TB cases that are diagnosed in the private sector are not reported in many settings, and in many low- and middle-income countries some people with TB may not easily access health care and therefore not be diagnosed at all. Furthermore, a large number of countries lack vital registration systems with the geographical coverage and quality required to accurately measure deaths caused by TB (**section 2.3**). The *Checklist of standards and benchmarks for TB surveillance and vital registration systems* was developed with the following objectives:

- To assess a national surveillance system's ability to accurately measure TB cases and deaths.
- To identify TB surveillance gaps in national surveillance systems that need to be addressed.

The outcomes of the checklist can be used to identify countries with surveillance systems that already provide an accurate measure of the number of TB cases and deaths that occur each year, and to define the actions necessary to strengthen surveillance in countries in which gaps are identified.[a] Countries in the former category can be certified as having surveillance data that provide a direct measure of TB incidence and/or mortality.

The checklist was developed by a team of experts in disease surveillance in conjunction with expert advice from meetings organized by WHO in September 2011 and May 2012. The checklist underwent two rounds of field-testing in eleven countries: Brazil, China, Egypt, Estonia, Japan, Kenya, the Netherlands, Thailand, Uganda, the United Kingdom and the United States of America.

The checklist is ten pages long and has two parts. Part A consists of eighteen questions that are used to characterise the national TB surveillance system; these provide the background for part B, which consists of thirteen standards and their associated benchmarks. The standards are general statements about the characteristics that define a high-performance TB surveillance system; nine standards are related to the measurement of TB cases and one is related to the measurement of TB deaths. There are three supplementary standards that can be used to assess whether a country's surveillance system provides a direct measure of the number of drug-resistant TB cases, HIV-positive TB cases, and TB cases among children. For each of the thirteen standards, benchmarks define (in quantitative terms wherever possible) the level of performance considered sufficient to meet the respective standard. An accompanying user guide explains the rationale for each standard and associated benchmark(s), and the methods that should be used to assess whether the benchmarks and hence the standard are met. Illustrative examples are also provided in the user guide.

Based on a completed assessment using the checklist, countries can identify key actions needed to address identified gaps in notification and vital registration systems. It is anticipated that an assessment of TB surveillance using the checklist would take place every three to five years, but could also be done more frequently.

Following the 2012 recommendations of the Global Fund's Technical Evaluation Reference Group and a collaborative agreement between the fund and WHO, assessments of TB surveillance using the checklist are increasingly being integrated within the fund's grant mechanisms. As such, assessments with the checklist should be timed to coincide with programme reviews, Global Fund grant renewals and the development of the concept notes required to access funding in the fund's new funding model (NFM) launched in 2013. Results can then be used to develop or update monitoring and evaluation investment plans that can be supported through grants from the Global Fund as well as by national budgets and by other partners. This collaborative effort with the Global Fund has great potential to help strengthen TB surveillance in more than a hundred countries receiving grants worldwide. Assessments in 15 high-burden and high-impact countries are being prioritized in 2013 and 2014; by August 2013, a total of eleven countries including eight of the fund's high-burden or high-impact countries had completed the assessment (**Figure 2.15**).

The checklist and user guide are available on the website of the WHO Global Task Force on TB Impact Measurement: http://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/en/

[a] The checklist is not intended to assess a system's ability to fulfil other programmatic requirements, e.g. patient care, delivery of laboratory results, or drug management.

- Higher quality data, since automated data quality checks can be used and duplicate or misclassified notifications can be identified and removed (which is very difficult or impossible to do nationally with paper-based systems). It is also easier to introduce new data items.
- Identification of clusters of cases in space and time, including clusters of drug-resistant cases, thus allowing early investigation and containment of epidemics.

Countries that have national electronic case-based databases of TB patients are shown in **Figure 2.16**. A recent example of the implementation of a case-based electronic recording and reporting system, in Kenya, is described in **Box 2.7**. Recent guidance on electronic recording and reporting for TB care and control, developed by WHO and partners in 2011, is available on the task force's website.[1]

[1] *Electronic recording and reporting for TB care and control*. Geneva, World Health Organization, 2013 (WHO/HTM/TB/2011.22). Available at www.who.int/tb/publications/electronic_recording_reporting

BOX 2.5

The TB surveillance checklist in Indonesia: from implementation to resource mobilization

A national assessment of the TB surveillance system in Indonesia using the *Checklist of standards and benchmarks for TB surveillance and vital registration systems* (see **Box 2.4**) was undertaken in February 2013, linked to a national programme review.

A thorough analysis of all available national, provincial and district level time series of TB notification and other available surveillance data was completed. A desk review of NTP manuals, guidelines, policy and training documents, annual reports, reporting forms and registers was conducted. Other information was collected through interviews with NTP staff, partners and other stakeholders.

The TB surveillance system is based on quarterly reporting of notified cases from health facilities, to districts, to provinces and finally to the national level. It is currently transitioning to a web- and case-based electronic recording and reporting system. TB case definitions were consistent with international guidelines. There were 483 out of 497 districts in the country that submitted all quarterly reports to the national level in 2011. The system produced externally but not internally consistent data. Since TB reporting is not a legal requirement, not all TB cases were reported to the NTP, but the level of underreporting of cases from the private to the public sector has not been measured nationally. There have been steady improvements in access to health care, but it is still not at a level sufficient to ensure that all TB cases have access to diagnosis and care. A nationally representative VR system with standard coding of causes of death is being developed. Only provincial level drug resistance surveys have been conducted so far, and while HIV testing of TB cases was improving the coverage remains low. Finally, childhood TB was diagnosed in limited settings.

Activities to address the gaps that were identified from the implementation of the checklist were defined (see **Table B2.7.1**). One of the top priorities is maintenance of the sample VR system, which costs US$ $0.5–1 per capita in the sampled areas (equivalent to about US$ 2.5–5 million per year for the population of 5 million to be covered). For the other activities in **Table B2.7.1**, the total budget requirement was estimated to be US$ 1 million, among which one top priority (identified in the key recommendations arising from the 2013 programme review) is implementation of a mandatory notification policy. Through continuous consultations between the NTP, WHO and the Global Fund, the financing required for the investment plan was identified and secured.

This example shows how the checklist can be used to conduct a standardized assessment of TB surveillance, highlight progress achieved as well as remaining gaps to be addressed, and to secure funding for an investment plan to close the gaps with support from the Global Fund.

TABLE B2.7.1

Investment plan for strengthening surveillance in Indonesia based on gaps identified through the implementation of the *Checklist of standards and benchmarks for TB surveillance and vital registration systems* (total budget US$ 1 million excluding VR system funded separately)

Activity
Vital registration (VR): maintaining and scaling up the nationally-representative sample VR system
Inventory study to measure the level of underreporting
Capacity building for data management and statistical analysis – through attending courses and extra staffing at the central level
Implementation of the *Service Availability and Readiness Assessment Tool* and health facility data quality assessment
Assessment of the Integrated Tuberculosis Information System (SITT) Phase 2 in 2014
Implementing mandatory notification policy
Analysis of available mortality data
Drug resistance survey or sentinel surveillance
Nationally representative survey of HIV prevalence among TB patients
Corrective actions required to compile all the reports from Papua

2.4.2 National surveys of the prevalence of TB disease

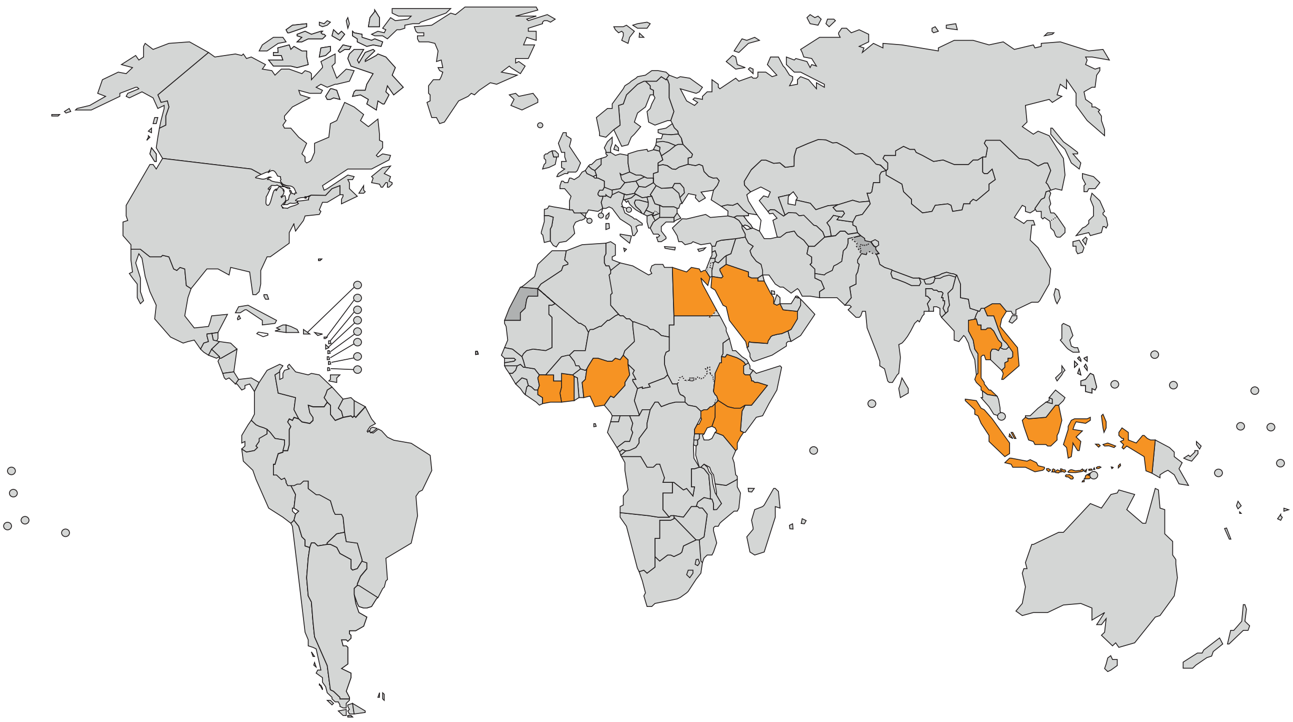
Before 2007, few countries had implemented nationwide prevalence surveys. In the 1990s, national surveys were confined to China, Myanmar, the Philippines and the Republic of Korea. Before 2009 and with the exception of Eritrea in 2005, the last national surveys in the African Region were undertaken between 1957 and 1961. From 2002 to 2008, there was typically one survey per year.

In 2007, WHO's Global Task Force on TB Impact Measurement identified 53 countries that met epidemiological and other criteria for implementing a survey. A set of 22 global focus countries were selected to receive particular support in the years leading up to 2015. The African countries were: Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Nigeria, Rwanda, Sierra Leone, South Africa, Uganda, the United Republic of Tanzania and Zambia. Countries in Asia were: Bangladesh, Cambodia, China, Indonesia, Myanmar, Pakistan, the Philippines, Thailand and Viet Nam. Since early 2008, substantial efforts to support countries to design, implement, analyse and report on surveys have been made. Examples include development of updated guidance,[1] coordination of technical assistance, expert reviews of protocols, organization of study tours and mid-term survey reviews, and global and regional workshops to support survey design and implementation and to share results and lessons learned among countries. As part of these efforts,

[1] *TB prevalence surveys: a handbook*. Geneva, World Health Organization, 2011 (WHO/HTM/TB/2010.17). Available at www.who.int/tb/advisory_bodies/impact_measurement_taskforce/resources_documents/thelimebook/

FIGURE 2.15

Countries (in orange) where the TB surveillance checklist of standards and benchmarks has been used: status in August 2013



BOX 2.6

Inventory studies to estimate TB underreporting: an example from Iraq

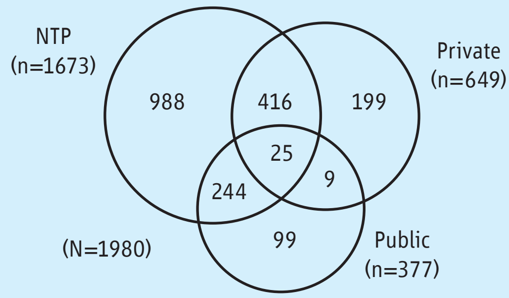
Inventory studies compare the number of TB cases meeting standard case definitions in all or in a sample of public and private health facilities with the records of TB cases notified to local and national authorities. This enables the level of underreporting of diagnosed cases to be quantified. In certain circumstances, the results from inventory studies can be combined with a type of modelling called capture–recapture analysis to estimate TB incidence. A WHO guide on the design and implementation of inventory studies, and analysis and reporting of results, was published in 2013.

The results from the survey in Iraq,[a] which was completed in 2011, are illustrated below. The number of TB cases that were detected by three types of health service providers was studied during a three-month period in eight randomly selected governorates (out of a total of 18). The total number of detected cases was 1980. Cases that were detected but not reported to the NTP accounted for 16% of total detected cases i.e. the level of underreporting was 16%. Capture–recapture modelling was used to estimate that an additional 473 cases (95% confidence interval: 394–565) had not been detected by any of the three types of health providers. These results were used to estimate that there were approximately 14 500 incident cases of TB in Iraq in 2011 (a downward revision compared with previous estimates) and that about 60% of cases were being detected (an upward revision from the previous best estimate of 48%).

The value of study results went beyond updates to estimates of TB incidence. Examples include:

FIGURE B2.6.1

Results from the 2011 inventory study in Iraq



- Updated estimates were crucial for the development of a sound national strategic plan and to assess progress towards the 2015 MDG target.
- The national strategic plan includes interventions designed to address the causes of underreporting that were identified during the study.
- The mapping of all health facilities delivering care to chest-symptomatic patients in study areas (that covered 50% of the country) provided a foundation for sustained engagement of all care providers through PPM initiatives.

[a] Huseynova S et al. Estimating tuberculosis burden and reporting in resource-limited countries: a capture-recapture study in Iraq. *International Journal of Tuberculosis and Lung Disease.* 2013;17(4):462–7.

FIGURE 2.16

Availability of national electronic case-based databases of TB patients, 2012

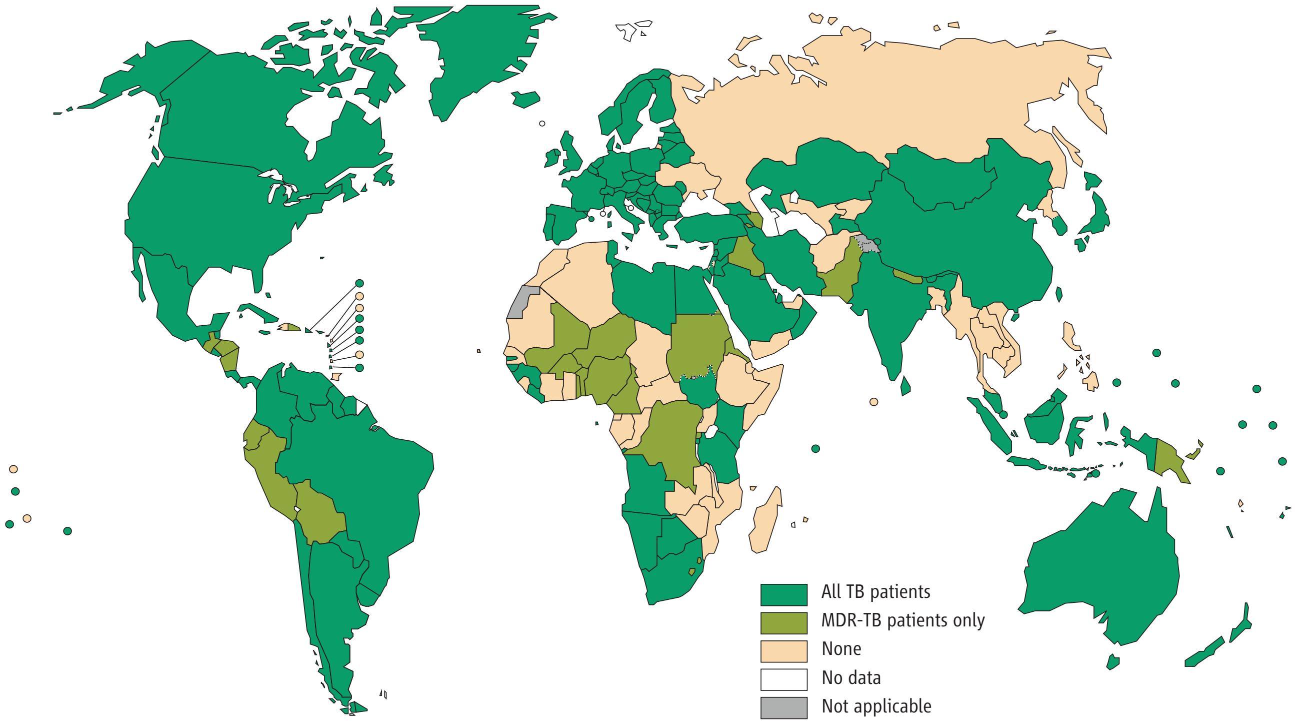
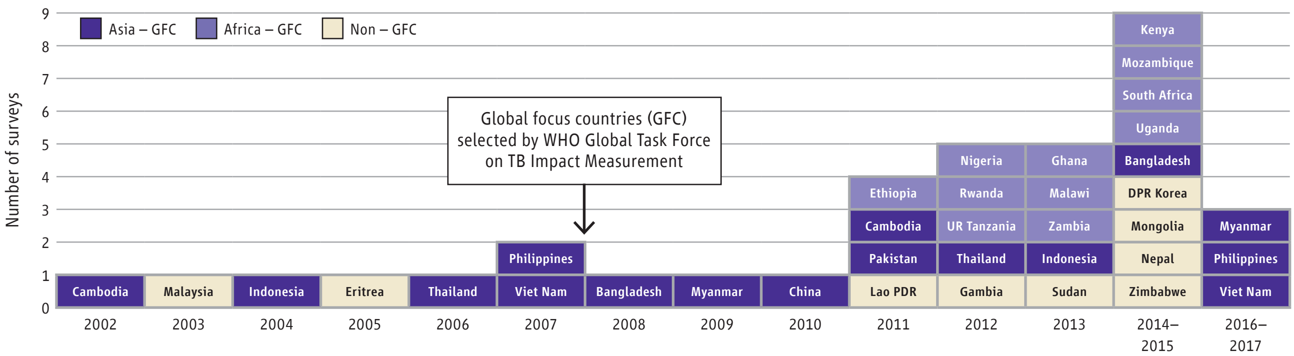


FIGURE 2.17

Global progress in implementing national surveys of the prevalence of TB disease, actual (2002–2013) and expected (2014–2017)



the concept of Asia–Asia, Asia–Africa and Africa–Africa ('AA') collaboration has been strongly promoted.

Following six years of substantial effort at country, regional and global levels, unprecedented progress has been achieved **(Figure 2.17)**. If surveys are implemented according to schedule, more than 20 surveys will be implemented between 2011 and 2015. Five national TB prevalence surveys were implemented in 2012 (Gambia, Nigeria, Rwanda, the United Republic of Tanzania and Thailand) and a further five will start or be completed in 2013 (Ghana, Indonesia, Malawi, Sudan and Zambia). These surveys provide an unbiased estimation of disease burden, often for the first time, and will be used to update estimates of disease burden once results are finalized (**Box 2.1**).

Surveys are also providing a rich source of data to inform programme policy and strategy. Although results remain provisional pending finalization of analyses in late 2013 (**Box 2.1**), an excellent recent example is provided by the 2012 survey in Nigeria (**Box 2.8**). For other recent surveys, some country-specific reports are already publicly available (for example, from China, Cambodia, Ethiopia and Myanmar) and others are in the pipeline. Papers for peer-reviewed journals are also in preparation, from these and other recent surveys.

WHO, together with countries and technical partners, started preparing or planning global and regional synthe-

BOX 2.7

Implementation of an innovative electronic surveillance and management system in Kenya

The NTP in Kenya has rolled out an innovative electronic system to support surveillance and management, called TIBU (which means *cure* in Swahili). In addition to running electronic versions of its standard district TB registers, the TIBU system makes use of the country's extensive mobile communications network and widespread use of mobile phones to make payments to MDR-TB patients that help to support their treatment through the popular *M-Pesa* mobile payment system. The system will also be used to manage drug supplies and laboratory data and consumables.

At TIBU's core is a national case-based database that stores details about each individual patient episode of TB (including cases of MDR-TB). Users access the system either through a web browser or by using an Android 'app'. The NTP has given each District TB and Leprosy Coordinator (DTLC) a tablet computer that runs the Android operating system and is fitted with a SIM card to connect to the internet through mobile telephone networks. DTLCs can access the system during their regular visits to all facilities providing TB diagnostic and treatment services within their district and enter TB patient details into the TIBU app during their visits to these facilities. Data are transmitted directly to the national database via the mobile network. Data remain stored on the tablet if no connection is available at a facility and are subsequently transmitted to the national database as soon as a connection is available. TIBU automatically generates various reports, including standard quarterly reports, charts and maps for all levels of the administrative chain.

The NTP and developers work closely with other parts of the Ministry of Health to ensure that TIBU complies with national standards, such that it can communicate with the ministry's other health information systems.[a] TIBU uses Kenya's national facility coding scheme (http://www.ehealth.or.ke/facilities/facilitytypes.aspx) and therefore the developers were able to build a seamless link to the *Kenya Health Information System*[b] that provides district, provincial and national health officials with indicators for multiple health areas, including TB. This allows standard TB indicators to be automatically updated every quarter in the ministry's system.

TIBU has been developed in phases. Development was initiated in 2007 and the original intention was to run the system on personal digital assistants (PDAs). However, problems with initial attempts to implement the system combined with the rapid rise, availability and falling costs of Android-based mobile devices, as well as the widespread adoption of mobile phones, led to a decision to switch to the development of an Android app for use on smartphones and tablet computers. Plans for future phases include extending coverage beyond TB and leprosy to patients with asthma and other lung diseases, integration with the laboratory management system and eventually, if resources allow, roll out of tablets to over 4000 health care facilities where TB diagnostic and treatment services are offered.

[a] In May 2013 the World Health Assembly adopted resolution WHA66.24 on promoting such *standardization and interoperability* of health information systems (http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_R24-en.pdf).
[b] Based on the open source DHIS2 platform http://www.dhis2.org/

BOX 2.8

The 2012 national TB prevalence survey in Nigeria: programmatic implications

Implementation of the first-ever national TB prevalence survey in Nigeria began in February 2012 and field activities (covering 70 geographic clusters) were completed in October 2012. Nigeria became the second African country to successfully complete a national survey according to current WHO guidelines, following Ethiopia in 2011. A total of 43 439 people (aged ≥15) participated in the study.

Survey results included that 75% of previously undetected cases found during the survey had sputum smear-positive TB and classic TB symptoms that met national screening criteria (this proportion was higher than in any other survey implemented since 2002). Comparison of the number of prevalent cases of sputum-smear positive TB with notification data for the same age group showed a prevalence:notification ratio of 5 (also higher than in any other survey implemented since 2002). The survey also illustrated that the burden of TB was geographically uneven, ranging from very low to extremely high levels among survey clusters.

An important conclusion already drawn from the survey results is that a top priority is to expand access to and improve the quality of basic TB diagnostic and treatment services. If high-quality DOTS services were readily available, it would be expected that both the percentage of prevalent cases with typical TB symptoms and the prevalence:notification ratio would be much lower. A second conclusion is that specific focus is needed on geographic 'hotspots' where the disease burden is highest.

ses of the main results and lessons learned from national TB prevalence surveys in 2012. A paper that summarizes the results and lessons learned from surveys conducted 1990–2012 in Asia is nearing completion and a similar paper about recent surveys in Africa is planned. An overall synthesis of the main implications of results from recent prevalence surveys implemented in Asia and Africa for post-2015 global TB policy and strategy is also in the pipeline. These global and regional summaries will be widely disseminated once available, starting in 2014.

CHAPTER 3

TB case notifications and treatment outcomes

KEY FACTS AND MESSAGES

- In 2012, 6.1 million cases of TB were notified by NTPs and reported to WHO: 5.7 million were individuals newly diagnosed in 2012 and 0.4 million were previously diagnosed TB patients whose treatment regimen was changed. India and China accounted for 39% of notified cases of TB worldwide in 2012, African countries for 23% and the 22 HBCs for 82%.

- In 2011, the treatment success rate was 87% among all new TB cases and 87% among new cases of sputum smear-positive pulmonary TB (the most infectious cases). Improvement in treatment outcomes is needed in the European Region, where the treatment success rate in 2011 was 72% and 65% for new cases and new smear-positive cases respectively.

- The provision of diagnosis and treatment according to the DOTS/*Stop TB Strategy* has resulted in major achievements in TB care and control. Between 1995 and 2012, 56 million people were successfully treated for TB in countries that had adopted the DOTS/*Stop TB Strategy*, saving 22 million lives.

- Notifications of TB cases have stabilized in recent years, and in 2012 represented 66% (range, 64–69%) of estimated incident cases. The gap between notifications and incident cases can be explained by a mixture of underreporting of diagnosed TB cases (for example, failure to notify cases diagnosed in the private sector) and under-diagnosis due to poor access to health care and/or failure to detect cases when people visit health care facilities. Major efforts are needed to ensure that all cases are detected, notified to national surveillance systems and treated according to international standards.

- In 2012, most notified TB patients were 15–44 years of age. Children (aged <15 years) accounted for 6% of notified cases. The male:female ratio was 1.7 globally, ranging from 1.0 to 2.1 among the six WHO regions.

Routine recording and reporting of the numbers of TB cases diagnosed and treated by NTPs and monitoring of treatment outcomes was one of the five components of the global TB strategy (DOTS) launched by WHO in the mid-1990s and it remains a core element of its successor, the *Stop TB Strategy* (**Chapter 1**). With the standard definitions of cases and treatment outcomes recommended by WHO and associated recording and reporting framework as a foundation, global monitoring of trends in case notifications and treatment outcomes has been possible since 1995. The number of people diagnosed and treated for TB and associated treatment outcomes is routinely monitored by NTPs in almost all countries, which in turn report these data to WHO in annual rounds of global TB data collection (**Chapter 1**).

This chapter has four parts. **Section 3.1** summarizes the total number of people diagnosed with TB and notified by NTPs in 2012, including disaggregation by case type, age and sex. The share of notifications accounted for by the prison sector in the European Region and the high case notification rates among the prison population are also highlighted. **Section 3.2** presents and discusses the contribution to total case notifications of public–public and public–private mix (PPM) initiatives in 29 countries and of community-based care in 13 countries. **Section 3.3** presents trends in notifications between 1990 and 2012 and compares these with trends in estimated TB incidence. Estimates of the ratio of notified:incident cases (an indicator known as the case detection rate or CDR) are provided for selected years. **Section 3.4** describes the latest data on treatment outcomes (for cases registered for treatment in 2011) as well as treatment outcomes achieved in each year since 1995.

3.1 Case notifications in 2012 by type of disease, age and sex

The definitions of TB cases recommended by WHO until the end of 2012, and that were used in the 2013 round of global TB data collection, are shown in **Box 3.1**. Although not used in the global TB report this year, it should be highlighted that after a two-year consultation process, WHO issued updated guidance on definitions of cases and treatment outcomes and an associated reporting framework in March 2013.[1] These updates were necessary to accommodate

[1] *Definitions and reporting framework for tuberculosis – 2013 revision* (WHO/HTM/TB/2013.2). Geneva, World Health Organization, 2013. (Available at www.who.int/iris/bitstream/10665/79199/1/9789241505345_eng.pdf).

TABLE 3.1

Case notifications, 2012

		NEW CASES							RETREATMENT CASES		
	TOTAL NOTIFIED	SMEAR-POSITIVE	SMEAR-NEGATIVE	SMEAR NOT DONE	EXTRA-PULMONARY	CASE TYPE UNKNOWN	PULMONARY CASES LABORATORY CONFIRMED	PERCENTAGE OF PULMONARY CASES LABORATORY CONFIRMED	RELAPSE	RETREATMENT EXCL. RELAPSE	NEW AND RELAPSE[a]
Afghanistan	29 578	13 319	4 740	2 665	6 906	702	13 319	62	1 049	197	29 381
Bangladesh	173 619	106 790	24 451	0	30 549	0	106 790	81	3 065	4 936	168 683
Brazil	82 755	40 152	12 178	8 592	10 297	11	42 489	70	3 867	7 633	75 122
Cambodia	40 258	14 838	8 509	0	15 290	0	14 838	64	446	73	40 185
China	900 678	316 332	533 977	2 073	6 479	0	316 332	37	31 784	10 033	890 645
DR Congo	112 499	71 124	13 214		20 669		71 124	84	3 977	3 515	108 984
Ethiopia	147 592	47 236	47 340	2 073	46 854	0	47 236	49	1 820	2 269	145 323
India	1 467 585	629 589	317 616		234 029	2 139	637 273	67	106 463	177 749	1 289 836
Indonesia	331 424	202 319	104 866		15 697		202 319	66	5 942	2 600	328 824
Kenya	99 149	36 937	28 574	8 123	15 934	0	36 937	50	3 419	6 162	92 987
Mozambique	50 827	20 951	19 797		5 542	0	20 951	51	1 451	3 086	47 741
Myanmar	148 149	42 909	73 042	0	20 661	0	42 909	37	4 558	6 979	141 170
Nigeria	97 853	52 901	32 972		4 432		52 901	62	2 513	5 035	92 818
Pakistan	273 097	110 545	109 425	0	41 410	0	110 545	50	6 095	5 622	267 475
Philippines	235 608	93 586	115 263	0	3 270	0	93 586	45	4 080	19 409	216 199
Russian Federation	149 921	27 467	59 019	1 039	10 017	0	41 123	47	8 211	44 168	105 753
South Africa	349 582	119 898	63 210	71 421	42 467	0	180 857	71	26 668	25 918	323 664
Thailand	61 208	30 998	17 537		8 852		30 998[b]	64	1 887	904	60 304
Uganda	47 211	24 916	11 487	1 783	5 143	0	24 916	65	1 334	2 548	44 663
UR Tanzania	63 892	25 138	21 393	0	14 595	0	25 138	54	1 052	1 714	62 178
Viet Nam	103 906	51 033	21 706		18 904	3 210	51 033	67	7 259	1 794	102 112
Zimbabwe	38 720	12 163	14 354	2 962	4 912	0	12 163	41	1 369	2 960	35 760
High-burden countries	**5 005 111**	**2 091 141**	**1 654 670**	**100 731**	**582 909**	**6 062**	**2 144 779**	**56**	**228 309**	**335 304**	**4 669 807**
AFR	1 412 639	600 355	345 947	100 537	234 539	977	656 272	63	60 497	67 770	1 344 869
AMR	232 695	122 606	35 606	14 564	34 400	1 669	132 070	76	9 949	13 862	218 833
EMR	430 789	173 963	135 346	8 523	90 943	702	175 025	55	11 208	10 020	420 769
EUR	337 167	78 336	118 614	6 257	39 029	30	112 577	55	25 185	67 662	269 505
SEAR	2 331 455	1 065 852	586 455	0	338 303	3 004	1 027 902	62	131 245	201 335	2 130 120
WPR	1 345 466	500 171	691 714	9 751	59 294	3 287	502 652	42	45 277	34 740	1 310 726
Global	**6 090 211**	**2 541 283**	**1 913 682**	**139 632**	**796 508**	**9 669**	**2 606 498**	**57**	**283 361**	**395 389**	**5 694 822**

Blank cells indicate data not reported.

[a] NEW AND RELAPSE includes cases for which the treatment history is unknown.

[b] LABORATORY CONFIRMED data for Thailand refer to smear-positive cases only. Data on cases that were laboratory confirmed using other methods were not reported.

diagnosis using Xpert MTB/RIF and other WHO-endorsed molecular tests (**Chapter 5**), as well as offering an opportunity to improve aspects of the existing (2006) framework, such as inclusion of more comprehensive reporting of TB cases among children. The updated definitions, which will be used in WHO's 2014 round of global TB data collection, are summarized in **Box 3.2**.

In 2012, 6.1 million people with TB were notified to NTPs and reported to WHO. Of these, 5.7 million had a new episode of TB (shown as the total of new and relapse cases in **Table 3.1**). Of these 5.7 million cases, 5.4 million had TB for the first time and 0.3 million were people who had a recurrent episode of TB after being previously cured of the disease. Besides a small number of cases whose history of treatment was not recorded, the remaining 0.4 million had already been diagnosed with TB but their treatment was changed to a retreatment regimen.

Among people who were diagnosed with TB for the first time (new cases), 2.5 million had sputum smear-positive pulmonary TB, 1.9 million had sputum smear-negative pulmonary TB, and 0.8 million had extrapulmonary TB; the remaining cases did not have a sputum smear done or their case type was unknown (**Table 3.1**). India and China accounted for 39% of the 5.7 million new and relapse cases of TB that were notified in 2012 (23% and 16%, respectively); the South-East Asia and Western Pacific Regions in which these countries are respectively located together accounted for 60% of such cases globally. African countries

BOX 3.1

WHO definitions of TB cases used until the end of 2012 (and in this global TB report)[a]

Definite case of TB A patient with *Mycobacterium tuberculosis* complex identified from a clinical specimen, either by culture or by a newer method such as molecular line probe assay (LPA). In countries lacking laboratory capacity to routinely identify *M. tuberculosis*, a pulmonary case with one or more initial sputum specimens positive for acid-fast bacilli (AFB) is also considered to be a 'definite' case, provided that there is functional external quality assurance with blind rechecking.

Case of TB A definite case of TB (defined above) or one in which a health worker (clinician or other medical practitioner) has diagnosed TB and decided to treat the patient with a full course of anti-TB treatment.

Case of pulmonary TB A patient with TB disease involving the lung parenchyma.

Smear-positive pulmonary case of TB A patient with one or more initial sputum smear examinations (direct smear microscopy) AFB-positive; or one sputum examination AFB-positive plus radiographic abnormalities consistent with active pulmonary TB as determined by a clinician. Smear-positive cases are the most infectious and thus of the highest priority from a public health perspective.

Smear-negative pulmonary case of TB A patient with pulmonary TB who does not meet the above criteria for smear-positive disease. Diagnostic criteria should include: at least two AFB-negative sputum smear examinations; radiographic abnormalities consistent with active pulmonary TB; no response to a course of broad-spectrum antibiotics (except in a patient for whom there is laboratory confirmation or strong clinical evidence of HIV infection); and a decision by a clinician to treat with a full course of anti-TB chemotherapy. A patient with positive culture but negative AFB sputum examinations is also a smear-negative case of pulmonary TB.

Extrapulmonary case of TB A patient with TB of organs other than the lungs (e.g. pleura, lymph nodes, abdomen, genitourinary tract, skin, joints and bones, meninges). Diagnosis should be based on one culture-positive specimen, or histological or strong clinical evidence consistent with active extrapulmonary disease, followed by a decision by a clinician to treat with a full course of anti-TB chemotherapy. A patient in whom both pulmonary and extrapulmonary TB has been diagnosed should be classified as a pulmonary case.

New case of TB A patient who has never had treatment for TB or who has taken anti-TB drugs for less than one month.

Retreatment case of TB There are three types of retreatment case: (i) a patient previously treated for TB who is started on a retreatment regimen after previous treatment has failed (treatment after failure); (ii) a patient previously treated for TB who returns to treatment having previously defaulted; and (iii) a patient who was previously declared cured or treatment completed and is diagnosed with bacteriologically-positive (sputum smear or culture) TB (relapse).

Case of multidrug-resistant TB (MDR-TB) TB that is resistant to two first-line drugs: isoniazid and rifampicin. For most patients diagnosed with MDR-TB, WHO recommends treatment for 20 months with a regimen that includes second-line anti-TB drugs.

[a] See *Treatment of tuberculosis guidelines*, 4th ed. Geneva, World Health Organization, 2010 (WHO/HTM/STB/2009.420). Available at http://whqlibdoc.who.int/publications/2010/9789241547833_eng.pdf

accounted for 24% of new and relapse TB cases globally (one quarter of these cases were from one country – South Africa). The WHO Eastern Mediterranean and European Regions and the Region of the Americas accounted for 16% of new and relapse TB cases notified in 2012 (7%, 5% and 4%, respectively); combined, the 22 HBCs accounted for 82% of such cases.

Among the 22 HBCs, the percentage of new pulmonary cases that were bacteriologically confirmed was highest in Bangladesh (81%) and the Democratic Republic of the Congo (84%), and relatively low in China (37%), the Philippines (45%), the Russian Federation (47%) and Zimbabwe (41%).

Almost all (96%) of the notifications of new cases of smear-positive pulmonary TB were disaggregated by age and sex (**Table 3.2**); 88% were aged 15–64 years, 59% were aged 15–45 years and 2% were children (aged <15 years). The global male:female sex ratio was 1.9, but among HBCs this varied from 0.5 in Afghanistan to 3.0 in Viet Nam. Variation among countries may reflect real differences in epidemiology as well as differential access to or use of health care services linked to the NTP.

Reporting of cases disaggregated by age and sex was much less complete for new smear-negative pulmonary and extrapulmonary cases. For example, data disaggregated by age and sex according to the categories shown in **Table 3.2** were not available for 11 HBCs. When the available data for all new cases were combined, most cases (82%) were aged 15–64 years, 55% were aged 15–45 years and 6% were among children (<15 years); the male:female ratio was 1.7, ranging from 1.0 to 2.1 among the six WHO regions. Further efforts are needed to improve reporting of all cases disaggregated by age and sex.

In the European Region, WHO and the European Centre for Disease Control and Prevention (ECDC) also request countries to report notifications in the civilian and prison sectors separately. These data show that notifications in the prison sector can be a considerable share of all cases, and that case notification rates in the prison population can be strikingly high. A summary of the latest data in the European Region and selected countries, and an example of success in reducing notification rates in the Russian Federation, are provided in **Box 3.3**.

BOX 3.2

WHO definitions of TB cases recommended for use starting in 2013 and that will be used in the 2014 global TB report[a]

Bacteriologically confirmed case of TB A patient from whom a biological specimen is positive by smear microscopy, culture or WHO-approved rapid diagnostic test (such as Xpert MTB/RIF). All such cases should be notified, regardless of whether TB treatment is started.

Clinically diagnosed case of TB A patient who does not fulfil the criteria for bacteriologically confirmed TB but has been diagnosed with active TB by a clinician or other medical practitioner who has decided to give the patient a full course of TB treatment. This definition includes cases diagnosed on the basis of X-ray abnormalities or suggestive histology and extrapulmonary cases without laboratory confirmation. Clinically diagnosed cases subsequently found to be bacteriologically positive (before or after starting treatment) should be reclassified as bacteriologically confirmed.

Case of pulmonary TB Any bacteriologically confirmed or clinically diagnosed case of TB involving the lung parenchyma or the tracheobronchial tree. Miliary TB is classified as pulmonary TB because there are lesions in the lungs. Tuberculous intra-thoracic lymphadenopathy (mediastinal and/or hilar) or tuberculous pleural effusion, without radiographic abnormalities in the lungs, constitute a case of extrapulmonary TB. A patient with both pulmonary and extrapulmonary TB should be classified as a case of pulmonary TB.

Case of extrapulmonary TB Any bacteriologically confirmed or clinically diagnosed case of TB involving organs other than the lungs, e.g. pleura, lymph nodes, abdomen, genitourinary tract, skin, joints and bones, meninges.

New case of TB A patient who has never been treated for TB or has taken anti-TB drugs for less than 1 month.

Retreatment case of TB A patient who has been treated for 1 month or more with anti-TB drugs in the past. Retreatment cases are further classified by the outcome of their most recent course of treatment into four categories.

1. *Relapse* patients have previously been treated for TB, were declared cured or treatment completed at the end of their most recent course of treatment, and are now diagnosed with a recurrent episode of TB (either a true relapse or a new episode of TB caused by reinfection).
2. *Treatment after failure* patients have previously been treated for TB and their most recent course of treatment failed.
3. *Treatment after loss to follow-up* patients have previously been treated for TB and were declared 'lost to follow-up' at the end of their most recent course of treatment (this category corresponds to the 'defaulted' category defined in **Box 3.1**).
4. *Other previously treated* patients are those who have previously been treated for TB but whose outcome after their most recent course of treatment is unknown or undocumented.

Case of multidrug-resistant TB (MDR-TB) As defined in **Box 3.1**

Case of rifampicin-resistant TB (RR-TB) A patient with TB that is resistant to rifampicin detected using phenotypic or genotypic methods, with or without resistance to other anti-TB drugs. It includes any resistance to rifampicin, whether mono-resistance, multidrug resistance, polydrug resistance or extensive drug resistance.

[a] Definitions and reporting framework for tuberculosis – 2013 revision (WHO/HTM/TB/2013.2). Geneva, World Health Organization, 2013. Available at www.who.int/iris/bitstream/10665/79199/1/9789241505345_eng.pdf

3.2 Contribution of public–public and public–private mix initiatives and community-based TB activities to TB case notifications in 2012

3.2.1 Public–public and public–private mix (PPM)

Ensuring proper diagnosis, standardized treatment and prompt notification of all TB cases to NTPs requires collaboration with the full range of health care providers. Engaging all care providers in TB care and control is component 4 of the *Stop TB Strategy* (**Chapter 1**). Its two subcomponents are:

- involving all public, voluntary, corporate and private providers through PPM approaches; and
- promoting the *International Standards for Tuberculosis Care*.[1]

Many countries have scaled up PPM initiatives. Demonstrating progress in terms of the contribution of non-NTP providers to total case notifications requires systematic recording of the source of referral and place of TB treatment locally, and reporting and analysis of aggregated data nationally.[2] In 2013, 73 countries reported summary data to WHO, and data for 29 of these countries (including 14 HBCs) are shown in **Table 3.3**. In most of these countries, PPM initiatives contributed about 10% to 40% of total notifications.

Considering that the private medical sector in Africa is much smaller compared with that in Asia, the contribution of private-for-profit and not-for-profit providers in Ethiopia, Kenya, Nigeria and the United Republic of Tanzania is noteworthy. Progress in parts of Asia is also noticeable – almost every fourth case in Indonesia and the Philippines was notified by non-NTP care providers in 2012. Large public sector hospitals have contributed sizeable proportions of cases in China and Indonesia as well as in the Philippines, and engagement of large hospitals is one of the major strategies required to improve detection and notification of TB

[1] http://www.istcweb.org/ISTC_Documents.html
[2] WHO recommends that the source of referral and the place of treatment should be routinely recorded and reported.

TABLE 3.2

TB case notifications by age and sex, 2012

	NEW SMEAR-POSITIVE CASES						ALL NEW CASES[a]					
	0–14 YEARS	15–44 YEARS	45–64 YEARS	≥65 YEARS	% AGED < 15 YEARS	MALE: FEMALE RATIO	0–14 YEARS	15–44 YEARS	45–64 YEARS	≥65 YEARS	% AGED < 15 YEARS	MALE: FEMALE RATIO
Afghanistan	588	8 469	3 106	1 156	4	0.5					15	0.6
Bangladesh	966	56 209	34 674	14 941	< 1	1.9	4 842	88 156	48 190	20 602	3	1.6
Brazil	580	25 209	11 129	3 190	1	2.3	2 388	42 306	20 056	6 322	3	2.0
Cambodia	53	6 000	6 064	2 724	< 1	1.2					–	–
China	1 091	138 667	110 614	65 960	< 1	2.5	5 625	397 615	284 934	170 687	< 1	2.2
DR Congo	3 138	47 722	17 066	3 198	4	1.3					–	–
Ethiopia					–	–					16	1.2
India	12 957	378 071	186 737	51 824	2	2.2					7	–
Indonesia	1 703	116 326	70 491	13 799	< 1	1.5	27 343	172 706	100 254	22 579	8	1.4
Kenya	996	29 779	5 114	1 048	3	1.6	5 368	58 234	13 853	3 994	7	1.4
Mozambique					–	–					13	–
Myanmar	338	24 076	14 405	4 090	< 1	1.9					–	–
Nigeria	1 187	38 590	10 571	2 553	2	1.6					–	–
Pakistan	3 947	66 901	29 149	10 548	4	1.1					10	1.0
Philippines	1 032	49 736	29 617	6 943	1	2.3					–	1.9
Russian Federation	48	17 039	8 793	1 587	< 1	2.7	3 688	62 298	26 302	5 254	4	2.2
South Africa	2 650	86 899	24 964	4 151	2	1.3	38 578	187 239	58 762	11 183	13	1.2
Thailand	117	13 525	11 435	5 921	< 1	2.4					–	–
Uganda	636	18 535	4 777	914	3	1.8					–	–
UR Tanzania	490	17 855	5 257	1 536	2	1.8					9	1.5
Viet Nam	142	23 310	18 363	9 218	< 1	3.0					–	–
Zimbabwe	293	9 568	1 870	432	2	1.3	2 911	23 541	5 954	1 985	8	1.2
High-burden countries	**32 952**	**1 172 486**	**604 196**	**205 733**	**2**	**1.9**	**231 674**	**1 724 885**	**894 852**	**343 231**	**6**	**1.7**
AFR	14 340	387 286	106 782	22 983	3	1.5	97 629	571 919	167 236	38 997	9	1.3
AMR	2 012	61 956	27 462	11 282	2	1.7	9 646	98 753	45 899	19 974	5	1.6
EMR	5 641	107 871	43 608	16 843	3	1.2	41 847	133 536	53 351	21 545	10	1.0
EUR	325	46 286	24 440	7 355	< 1	2.4	10 042	129 898	60 455	20 575	5	1.9
SEAR	17 116	617 926	336 069	94 741	2	2.0	119 186	739 149	397 219	112 503	6	1.8
WPR	2 693	230 572	172 377	88 191	< 1	2.4	13 945	498 524	351 268	195 965	1	2.1
Global	**42 127**	**1 451 897**	**710 738**	**241 395**	**2**	**1.9**	**292 295**	**2 171 779**	**1 075 428**	**409 559**	**6**	**1.7**

Blank cells indicate data that could not be reported for the age categories shown.
– indicates values that cannot be calculated.
[a] Numbers in each age category are only shown if data were reported for all four age categories for each category of TB case. For this reason, there are small discrepancies between numbers presented in this table and in the tables that appear in **Box 2.2** of **Chapter 2**.

cases. Experience from a project that was recently completed in five countries is profiled in **Box 3.4**.

Approaches to engage non-NTP care providers vary according to the local context, but there are some important cross-cutting elements. One is provision of standardized care by non-NTP providers according to national guidelines, in return for provision of free anti-TB drugs, supervision and quality assurance, and financial or non-financial incentives by NTPs. A second is the use of the *International Standards for Tuberculosis Care*, which facilitates the use of best practices in TB diagnosis and treatment among all care providers, especially those in the private sector. In the European Region and the Region of the Americas, contributions to case notifications from public sector providers outside the purview of the Ministry of Health, such as social security organizations and prison health services, are relatively large.

BOX 3.3

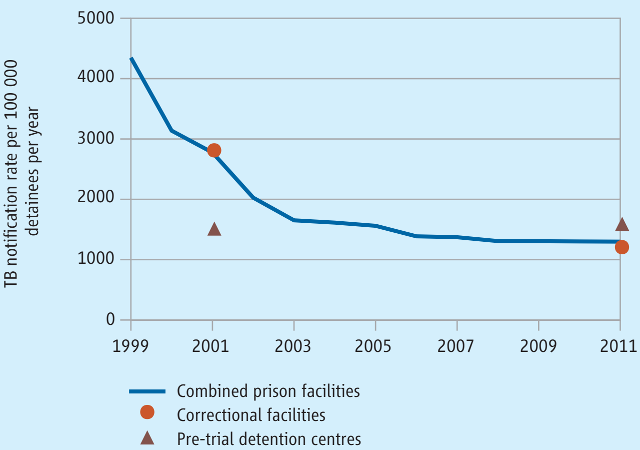
TB and prisons

As an airborne disease, TB thrives in the crowded, poorly-ventilated environments found in prisons in many parts of the world. Conditions of prison life including malnutrition and stress can also contribute to a higher risk of developing TB disease, and inadequate or inaccessible medical care can lead to poor treatment outcomes and acquisition of resistance. Prisoners disproportionately come from marginalized socioeconomic backgrounds – including substance users, homeless people, people with mental illness, ethnic minorities, asylum seekers and immigrants – and therefore often enter the prison system with an existing high prevalence of TB infection or even with active disease. Prisons also contribute to overall TB burden in that they are not entirely closed systems: TB can be spread to prison staff and visitors, and at some point most prisoners are released into the general population.

The WHO European Region is currently the only region that systematically collects and analyses data from Member States on the burden of TB in prisons.[a] As is likely the situation in most countries around the world, the burden of TB in prisons in European countries is disproportionately high and often makes a considerable contribution to overall country case notifications. Notification rates of new TB cases in prisons in all reporting countries were multiple times higher than the rates found in the general population (relative risks ranging from 4 to 180), and were over 1000 per 100 000 detainees in Azerbaijan, Georgia and Kyrgyzstan (2500, 3300 and 3000 per 100 000 detainees, respectively) in 2011. Among reporting countries, case notifications from prisons accounted for over 10% of national notifications of new TB cases in Georgia (19%) and the Russian Federation (11%) in 2011. Given that some countries in the region have not been able to report data on TB notifications in prisons and that limited data are available on trends, the contribution of TB notifications in prisons to overall TB notifications in the region is uncertain.

FIGURE B3.3.1

TB notification rate in the prison facilities of the Russian Federation (1999–2011), overall and disaggregated by pre-trial detention centres and correctional facilities



To reduce the burden of TB in prisons, a comprehensive package of measures is required.[b,c] These include early diagnosis using systematic screening[d] and rapid diagnostics, proper infection control, improved living conditions and nutrition, supervised and complete TB treatment with appropriate drugs, treatment of comorbidities including HIV, diabetes, hepatitis and substance use disorders, and continuity of care in the public sector when a prisoner under treatment is released.

The Russian Federation was successful in introducing several measures that significantly reduced the burden of TB in its penitentiary system (**Figure B3.3.1**).[e] By reinforcing systematic screening, improving infection control measures, strengthening treatment, and building cooperation between the Ministry of Justice, Ministry of Health institutions, and international partners, TB notification rates decreased sharply from 4347 cases per 100 000 detainees in 1999 (i.e., TB was detected in 1 of 25 detainees in 1999) to 1387 cases per 100 000 detainees in 2006. The decrease since 2006 has been gradual, reflecting the continuing challenges facing TB control in the penitentiary sector, including rising rates of TB/HIV coinfection and drug-resistant TB, as well as the continued concentration of socioeconomically marginalized people entering the prison system. Of note is the higher notification rate found in the pre-trial detention centres compared with correctional facilities in 2011 (1588 compared with 1179 per 100 000 detainees, respectively), reflecting in part the underlying high prevalence of TB infection and disease among socioeconomically marginalized people who enter the pre-trial detention centres from the general population.

In Eastern Europe, drug-resistant TB has been associated with detention and in many countries prisons have had to deal with substantial caseloads of MDR-TB patients.[f–h] The provision of effective MDR-TB care for prison inmates is therefore important. The possibility of close monitoring of imprisoned patients may also be conducive to achievement of good treatment outcomes. For example, data from the penitentiary sector in Azerbaijan show treatment success rates in the range 65%–81% in the 2007–2009 patient cohorts treated in accordance with WHO-recommended standards.[i]

a *Tuberculosis surveillance and monitoring in Europe 2012*. Stockholm, European Centre for Disease Prevention and Control/WHO Regional Office for Europe, 2012.

b See *Guidelines for the control of tuberculosis in prisons*. Geneva, World Health Organization, 1998 (WHO/TB/98.250).

c Dara M, Chadha SS, Melchers NV, van den Hombergh J, Gurbanova E, Al-Darraji H, van der Meer JBW. Time to act to prevent and control tuberculosis among inmates. *International Journal of Tuberculosis and Lung Disease*, 2013 Jan; 17(1):4–5.

d *Systematic screening for active tuberculosis: principles and recommendations*. Geneva, World Health Organization, 2013 (WHO/HTM/TB/2013.04).

e *Tuberculosis in the Russian Federation 2011: an analytical review of statistical indicators used in the Russian Federation and in the world* (in Russian). Moscow, Ministry of Health of the Russian Federation et al., 2013.

f Skrahina A, Hurevich H, Zalutskaya A, et al. Multidrug-resistant tuberculosis in Belarus: the size of the problem and associated risk factors. *Bulletin of the World Health Organization*, 2013;91:36–45.

g Aerts A, Habouzit M, Mschiladze L, et al. Pulmonary tuberculosis in prisons of the ex-USSR state of Georgia: results of a nation-wide prevalence survey among sentenced inmates. *International Journal of Tuberculosis and Lung Disease*, 2000 Dec; 4(12):1104–10.

h Shin SS, Pasechnikov AD, Gelmanova IY, Peremitin GG, Strelis AK, Mishustin S, et al. Treatment outcomes in an integrated civilian and prison MDR-TB treatment program in Russia. *International Journal of Tuberculosis and Lung Disease*, 2006 Apr; 10(4):402–8.

i *Review of tuberculosis prevention, control and care in Azerbaijan*. Copenhagen, World Health Organization, 2013.

TABLE 3.3

Contribution of public-private and public-public mix (PPM) to notifications of TB cases in 29 countries, 2012

COUNTRY	TYPES OF CARE PROVIDERS ENGAGED	NUMBER OF TB CASES NOTIFIED BY PUBLIC NON-NTP CARE PROVIDERS[a]	NUMBER OF TB CASES NOTIFIED BY PRIVATE CARE PROVIDERS[b]	CONTRIBUTION TO TOTAL NOTIFICATIONS OF TB CASES IN 2012 (%)
AFRICAN REGION				
Ethiopia	Diverse private providers	–	17 133	12
Ghana	Diverse non-NTP public and private providers	1 107	832	13
Kenya	Private clinics and hospitals, and prisons	817	10 364	12
Lesotho	Diverse private providers	–	1 044	10
Nigeria	Public non-NTP and NGO hospitals and private clinics	14 096	8 121	24
Swaziland	Diverse non-NTP public and private providers	1 489	841	33
United Republic of Tanzania	Private facilities and faith based organizations	–	13 734	22
REGION OF THE AMERICAS				
El Salvador	Diverse non-NTP public and private providers	761	50	40
Peru	Social security organizations and other non-NTP public providers	6 576	–	22
EASTERN MEDITERRANEAN REGION				
Afghanistan	Private clinics, hospitals, laboratories and pharmacies	1 362	2 128	12
Egypt	Health insurance organizations, NGOs and other public non-NTP providers	1 993	213	26
Iran (Islamic Republic of)	Health insurance organizations, prisons, military and private care providers	1 205	3 189	40
Iraq	Diverse non-NTP public and private providers	2 693	2 938	65
Pakistan	Private clinics and hospitals	925	56 363	21
Sudan	Diverse private and non-NTP public providers	450	1 475	10
Syrian Arab Republic	Diverse private and non-NTP public providers	175	2 400	86
Yemen	Public hospitals including university, military and police hospitals, prisons and private hospitals	3486	–	35
EUROPEAN REGION				
Georgia	Diverse non-NTP public and private providers, and prisons	673	1628	58
Tajikistan	Diverse non-NTP public providers and prisons	1 549	–	24
SOUTH-EAST ASIA REGION				
Bangladesh	Diverse private, non-NTP public and NGO providers	2 429	14 934	10
India[c]	Diverse private, non-NTP public and NGO providers	13 572	3 533	–
Indonesia	Public and private hospitals	77 376	5 432	25
Myanmar	Diverse private, non-NTP public and NGO providers	8 999	26 879	23
Nepal	Diverse private providers	–	5 366	15
Sri Lanka	Diverse non-NTP public and private providers	5 004	445	60
Thailand	Diverse non-NTP public and private providers	1 532	1 267	4.6
WESTERN PACIFIC REGION				
China	General public hospitals	388 487	–	44
Philippines	Private clinics and hospitals	11 804	36 744	24
Viet Nam	Diverse non-NTP public and private providers	3 404	4 724	8.0

[a] Includes all contributions from non-NTP providers, including public hospitals, public medical colleges, prisons/detention centres, military facilities, railways and public health insurance organizations.

[b] Private sector providers include private individual and institutional providers, corporate/business sector providers, mission hospitals, non-governmental organizations and faith-based organizations.

[c] Data for India are for smear-positive cases of pulmonary TB in 14 cities where PPM surveillance is in place.

BOX 3.4

Engaging hospitals to improve TB care and prevention

In 2009, WHO initiated a project to help intensify TB case detection in five countries in Africa and Asia. Intensified hospital engagement, mainly targeting large hospitals in urban areas, was the main intervention in all five countries. Through a consultative process involving NTPs, departments responsible for hospitals within the ministries of health, directors of participating hospitals, and WHO, a total of 86 hospitals covering a total population of 10 million were involved. This included 20 hospitals in Kinshasa in the Democratic Republic of the Congo; 10 in Accra, Ghana; 17 in Manila, The Philippines; 36 in Swaziland; and the 3 largest national general hospitals in three cities in Viet Nam (Hanoi, Ho Chi Minh City and Hue). The initiative was funded by the Department of Foreign Affairs, Trade and Development of Canada.

Prior to the project, hospitals provided TB diagnosis and treatment for many patients without following national guidelines or having formal referral and notification routines. The specific objectives of the project were to improve TB diagnosis and management of patients presenting to hospitals through setting up mechanisms for internal coordination, and to improve external networking to help intensify TB case detection and notification. The main activities were improving identification of people with suspected TB; standardization of diagnostic routines and introduction of external quality assurance in hospital laboratories; establishing a 'hospital DOTS unit'; a systematic approach to internal referrals so that cases diagnosed in hospitals would be referred to the hospital DOTS unit; formalization of routines for external referral of cases to health centres and feedback about referrals from health centres; ensuring proper treatment and follow up of patients started on treatment in hospitals; and introduction of standardized recording and reporting.

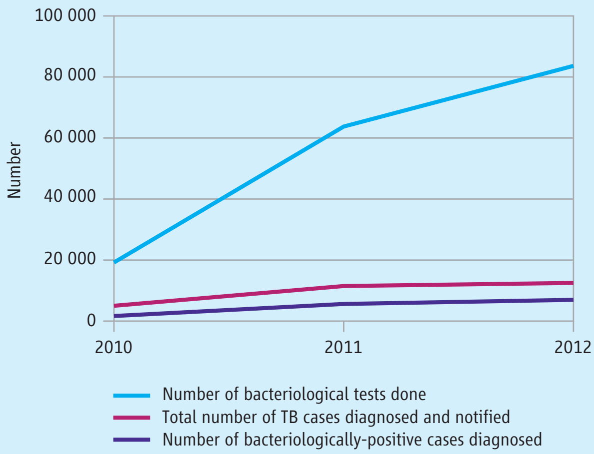
After successful implementation of project activities, total hospital notifications increased from about 2000 per year across the five sites before the project to about 12 000 per year in 2012. The documented number of people tested for TB with a bacteriological test increased in all sites, and the average increase was roughly fourfold (**Figure B3.4.1**).

Documentation of referrals for treatment and feedback to confirm treatment initiation demonstrated that the losses after referral were very large at baseline in the two Asian countries (the Philippines and Viet Nam). These losses were substantially reduced by the end of the third project year through improved communication between hospitals and the primary health care facilities to which they were making referrals. Treatment success rates among those started on treatment in hospitals were similar to those reported by the NTP.

This project helped to describe a baseline situation in which hospitals were not engaged. It then demonstrated that it is possible to proactively engage hospitals and align their services to national guidelines and in turn to improve detection of TB cases and notification to NTPs. All countries have either developed new national policies for hospital engagement or are in the process of doing so, based on the project results. Similar efforts are anticipated and needed in other countries.

FIGURE B3.4.1

Trends in bacteriological testing for TB and TB case notifications in project sites, 2010–2012



3.2.2 Community contributions to TB notifications and treatment support

Community-based TB activities can be defined as activities that are conducted outside the premises of formal health facilities, within community-based structures (for example, schools and places of worship) and homesteads. Such activities can be implemented by community health workers[1] and community volunteers,[2] regardless of whether they are employed and supervised by a government department or by a nongovernmental organization, and make an important contribution to health services including prevention, diagnosis, improved treatment adherence, care and support. In the specific context of TB, community activities can help to increase case notifications and improve treatment outcomes, especially in settings where people with TB have poor access to formal health services.

As shown in **section 3.3**, approximately one third of people with TB are diagnosed but not reported to national surveillance systems, or not diagnosed at all.

Accurate documentation of the contributions of communities to TB notifications and treatment support has been challenging. One reason has been the lack of standardization of indicators that can be used for routine recording and

1 Community health workers can be defined as people with some formal education who have been given training to contribute to community-based health services, including TB prevention and patient care and support. Their profile, roles and responsibilities vary greatly among countries, and their time is often compensated by incentives in kind or in cash.

2 Community volunteers can be defined as community members who have been systematically sensitized about TB prevention and care, either through a short, specific training scheme or through repeated, regular contact sessions with professional health workers.

BOX 3.5

The ENGAGE-TB approach

The ENGAGE-TB approach[a] describes the need for nongovernmental organizations and other civil society organizations to integrate community-based TB activities into their existing work. Pilot projects in five African countries (the Democratic Republic of the Congo, Ethiopia, Kenya, South Africa and the United Republic of Tanzania) are showing promising results. Selected nongovernmental organizations in these countries have started integrating TB services into community-based programmes for HIV, maternal, newborn and child health (MNCH), and cancer screening, with financial support from the Bristol Myers Squibb Foundation.

NGO	COUNTRY	PROJECT FOCUS
Femmeplus	Democratic Republic of the Congo	Integration of TB services into community-based HIV activities in two major cities (Kinshasa and Kikwit)
AMREF	Ethiopia	Integration of TB/HIV services into community-based MNCH activities in a pastoralist region
CUAMM	Ethiopia	Integrated community-based TB, HIV and cancer screening project
Save the Children	Ethiopia	Integration of community-based TB/HIV services into MNCH programmes in pastoralist communities
Centre for Positive Care	South Africa	Strengthening integration of TB into community-based HIV activities
Pathfinder	UR Tanzania	Integration of TB services into community-based HIV services

NGO: nongovernmental organization

The challenge is to scale up these experiences and significantly increase the number of community-based workers and volunteers who are providing screening for TB, referring those who might have TB for diagnosis and then providing follow-up care and support to those diagnosed with the disease. WHO is finalizing an implementation manual that will help to inform nongovernmental organizations and NTPs about how they can work together to implement integrated community-based TB activities, with a particular focus on nongovernmental organizations working on MNCH, HIV, primary health care, agriculture, livelihood development and education services.

[a] *ENGAGE-TB – Integrating community-based tuberculosis activities into the work of nongovernmental organizations*. Geneva, World Health Organization, 2012.

reporting. To address this challenge, WHO recently developed a minimum set of standardized indicators as part of its ENGAGE-TB approach (**Box 3.5**). In 2013, these indicators were used to collect standardized, comparable data from a set of 13 countries in which data were known to be routinely recorded and reported in at least some geographical areas.[1] Data collection was undertaken separately from the main round of global TB data collection, since most countries are not routinely recording and reporting such data and they are not relevant in all settings.

Among the 13 countries (**Table 3.4**), notified TB patients referred from the community as a share of total notifications in the areas covered by reporting ranged from 2% in Myanmar (in 92/330 districts) to 33% in Ethiopia (in 98 out of 821 districts). It is possible that these figures are an underestimate, pending optimization of recording and reporting systems. Nonetheless, the finding that the contribution of communities in referring people with TB was under 10% in several countries suggests that there may be opportunities to use untapped community resources in TB prevention, diagnosis and treatment. In settings where access to formal health services is limited, more emphasis in policy and practice on the role of community referrals of people with presumptive TB as early as possible is warranted.

The share of patients receiving treatment support in the community was generally high: for example, 50% countrywide in India and 88% countrywide in Kenya.

Kenya also provides an interesting example of the untapped potential of communities. While 88% of all TB patients were reported as having received support for treatment adherence, demonstrating the spread and reach of community workers and volunteers in the country, only 5% of TB case notifications had been referred by community members. This suggests that more could be done to increase community engagement in and contribution to TB screening and referral.

It is evident that data on community contributions to referrals and treatment adherence are not collected uniformly or systematically, even in the 13 countries shown in **Table 3.4**. Only three of the 13 countries reported data for both indicators that covered all districts in the country (Burkina Faso, Kenya and Rwanda). The remaining countries reported data that covered only parts of the country (sometimes very limited areas) or data were not available for both indicators. Better understanding of the contribution of communities to TB services will require more routine collection of data; this is of greatest relevance in settings where community contributions are considered a necessary and integral part of TB services.

[1] There was no attempt to compile data about the contribution of communities to programme design and implementation (including advocacy activities at local levels). Such data are not routinely available.

TABLE 3.4

Community contributions to TB case notifications and treatment adherence support, 2011–2012

COUNTRY	NOTIFIED PATIENTS FROM COMMUNITY REFERRALS, 2012		PATIENTS WHO RECEIVED TREATMENT SUPPORT IN THE COMMUNITY (2011 COHORT UNLESS SPECIFIED)	
	SHARE OF TOTAL NOTIFICATIONS IN AREAS FOR WHICH DATA WERE REPORTED (%)	GEOGRAPHIC COVERAGE OF DATA	SHARE OF COHORT IN AREAS FOR WHICH DATA WERE REPORTED (%)	GEOGRAPHIC COVERAGE OF DATA
Burkina Faso	9%	All districts	33%	All districts
Côte d'Ivoire	16%	59/82 districts	Not available	
DR Congo	10%	45/515 districts	3%	8/515 districts
Ethiopia	33%	98/821 districts	40%[a]	98/821 districts
India	3%	374/662 districts	50%	All districts
Kenya	5%	All districts	88%	All districts
Malawi	20%	2/28 districts	91%	2/28 districts
Myanmar	2%	92/330 districts	2%	92/330 districts
Nigeria	Not available		5%	36/774 districts
Rwanda	28%	All districts	46%	All districts
Senegal	6%	All districts	Not available	
Uganda	Not available		35%	All districts
UR Tanzania	14%	63/162 districts	86%	All districts

[a] Data are for the 2012 cohort.

3.3 Trends in case notifications since 1990 and estimates of the case detection rate

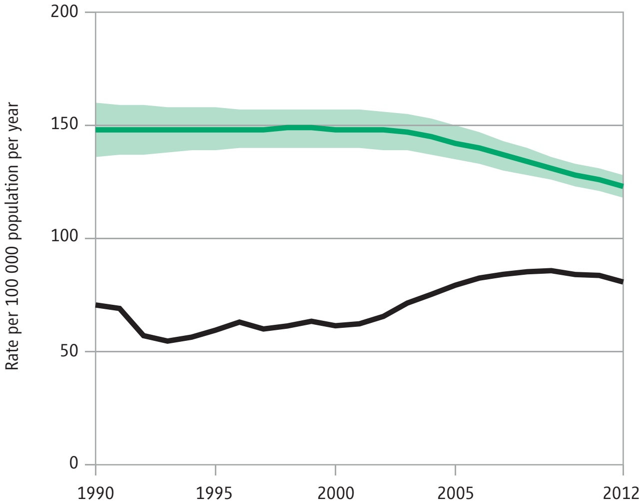
Globally, the number of TB cases diagnosed and notified per 100 000 population was relatively stable between 1990 and 2000, rose sharply between 2000 and 2008 and has subsequently started to fall slowly (**Figure 3.1**). Globally and in all WHO regions, a clear gap exists between the numbers of notified cases and the estimated numbers of incident cases, although this has narrowed in the past decade globally and in all six WHO regions (**Figure 3.2**). Trends in the 22 HBCs are shown in **Figure 3.3**, and for other countries are illustrated in country profiles that are available online.[1]

The case detection rate (CDR)[2] for TB is an indicator that is included within the MDGs (**Chapter 1**). For a given country and year, the CDR is calculated as the number of new and relapse TB cases (see **Box 3.1** for definitions) that were notified by NTPs (**Table 3.1**), divided by the estimated number of incident cases of TB that year. The CDR is expressed as a percentage; it gives an approximate[3] indication of the proportion of all incident TB cases that are actually diagnosed, reported to NTPs and started on treatment.

The best estimate of the CDR for all forms of TB globally in 2012 was 66% (range, 64–69%), up from 53–59% in 2005 and 38–43% in 1995 – the year in which the DOTS strategy began to be introduced and expanded (**Table 3.5**). The highest CDRs in 2012 were estimated to be in the Region of the Americas (best estimate 79%; range, 74–85%), the Western

FIGURE 3.1

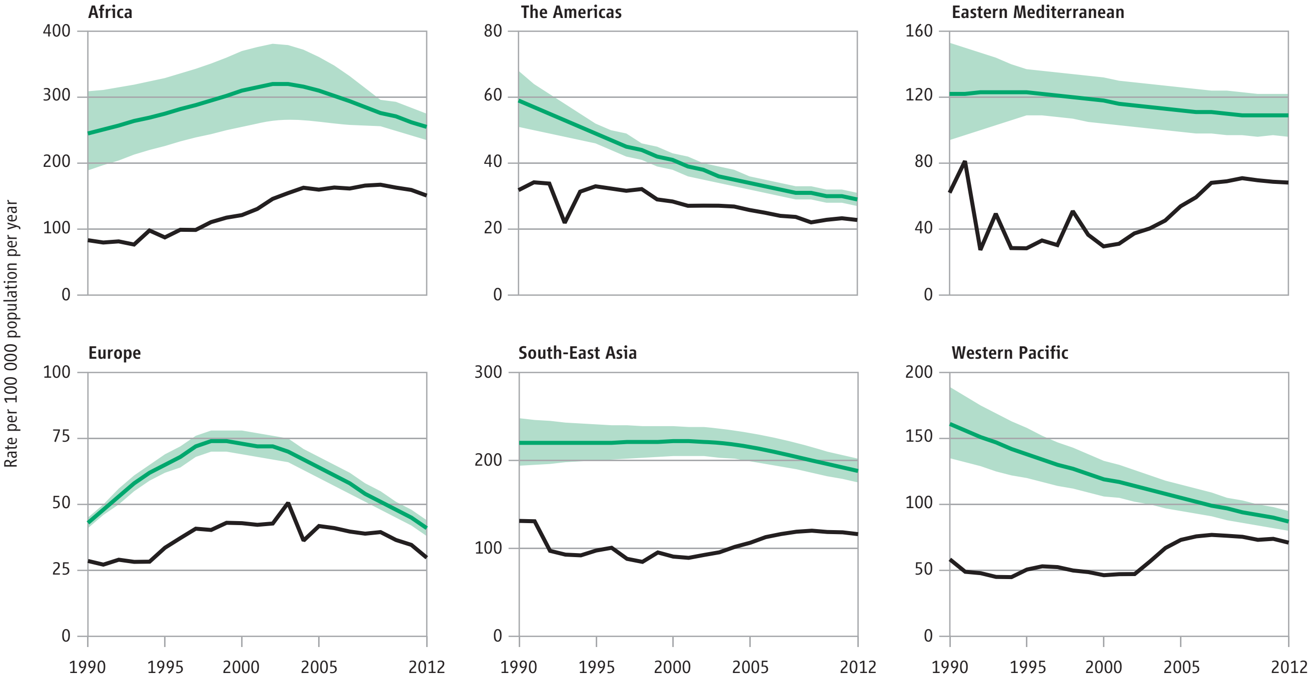
Global trends in case notification (black) and estimated TB incidence (green) rates, 1990–2012. Case notifications include new and relapse cases (all forms).



1 www.who.int/tb/data
2 The CDR is actually a ratio rather than a rate, but the term 'rate' has become standard terminology in the context of this indicator.
3 It is approximate because of uncertainty in the underlying incidence of TB and because notified cases are not necessarily a subset of incident cases that occurred in the same year; see **Chapter 2** for further discussion.

FIGURE 3.2

Case notification and estimated TB incidence rates by WHO region, 1990–2012. Regional trends in case notification rates (new and relapse cases, all forms) (**black**) and estimated TB incidence rates (**green**). Shaded areas represent uncertainty bands.



Pacific Region (best estimate 81%; range, 75–89%) and the European Region (best estimate 74%; range, 70–79%). The other regions had estimated CDRs in the range of 55–71%, with best estimates of around 60%. All regions have improved their estimated CDRs since the mid-1990s, with improvements particularly evident since 2000. Among the 22 HBCs, the highest rates of case detection in 2012 were estimated to be in Brazil, China, Kenya, the Philippines and the Russian Federation. The lowest rates, with best estimates of around 50%, were in Afghanistan, Bangladesh, the Democratic Republic of the Congo, Mozambique, Nigeria and Zimbabwe.

The gap between notifications to national surveillance systems and the true number of incident cases can be explained by two factors. The first is underreporting of diagnosed TB cases, for example because private sector providers fail to notify cases. The second is under-diagnosis of people with TB for reasons such as poor access to health care and failure to recognize TB signs and symptoms and test for TB when people do present to health care facilities. Achieving the goal of universal health coverage, implementing PPM initiatives such as those described in **section 3.2**, and ensuring that there is an effective regulatory framework that includes mandatory notification of cases are essential to reduce underreporting and under-diagnosis. A point-of-care diagnostics test would also help.

3.4 Treatment outcomes

Definitions of the categories used to report treatment outcomes in this report are provided in **Box 3.6**. The updated definitions that will be used from 2014 are explained in **Box 3.7**.

3.4.1 New cases of smear-positive pulmonary TB

Data on treatment outcomes for new sputum smear-positive cases of pulmonary TB are shown in **Table 3.6** and **Figure 3.4**. Globally, the rate of treatment success for the 2.6 million new cases of sputum smear-positive pulmonary TB who were treated in the 2011 cohort was 87%. This was the fifth successive year that the target of 85% (first set by the World Health Assembly in 1991) was met or exceeded globally. It is also impressive that as the size of the global treatment cohort grew from 1.0 million in 1995 to 2.7 million in 2009 and 2010 and 2.6 million in 2011, the treatment success rate progressively improved.

Among the six WHO regions, three met or exceeded the 85% target: the Eastern Mediterranean Region, the South-East Asia Region and the Western Pacific Region. The treatment success rate was 82% in the African Region (where there has been steady improvement since 1999), 78% in the Region of the Americas (similar to the previous seven years) and 65% in the European Region (where major efforts to increase treatment success rates are needed).

Of the 22 HBCs, 16 reached or exceeded the 85% target in 2011, including Ethiopia and Nigeria for the first time. Five HBCs reported lower rates of treatment success: Brazil (76%), the Russian Federation (52%), South Africa (79%), Uganda (77%) and Zimbabwe (81%). Nonetheless, among these five countries all except the Russian Federation sustained their level or made progress compared with 2010.

FIGURE 3.3

Case notification and estimated TB incidence rates, 22 high-burden countries, 1990–2012. Trends in case notification rates (new and relapse cases, all forms) (**black**) and estimated TB incidence rates (**green**). Shaded areas represent uncertainty bands.

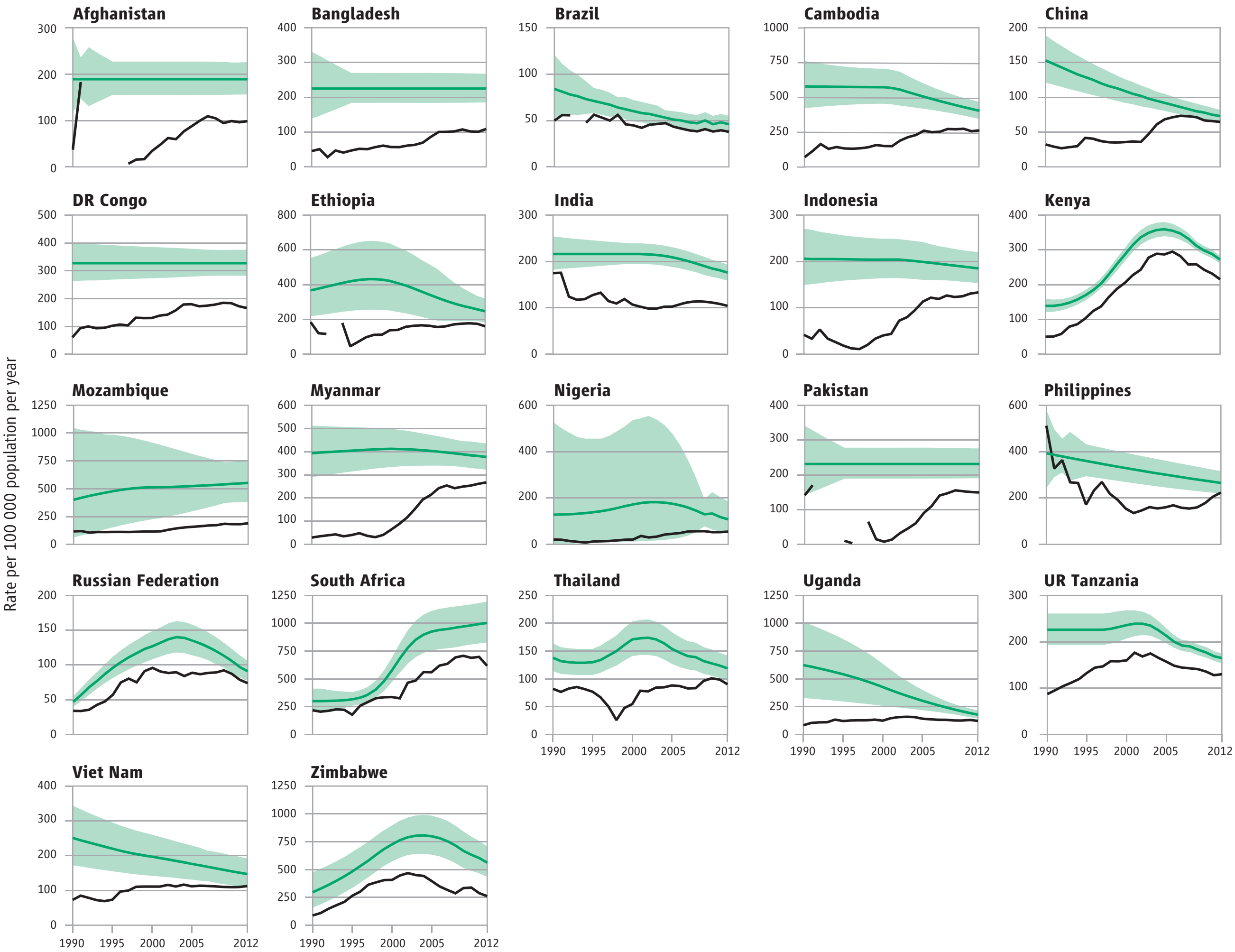


FIGURE 3.4

Treatment outcomes by WHO region, 2011 cohorts

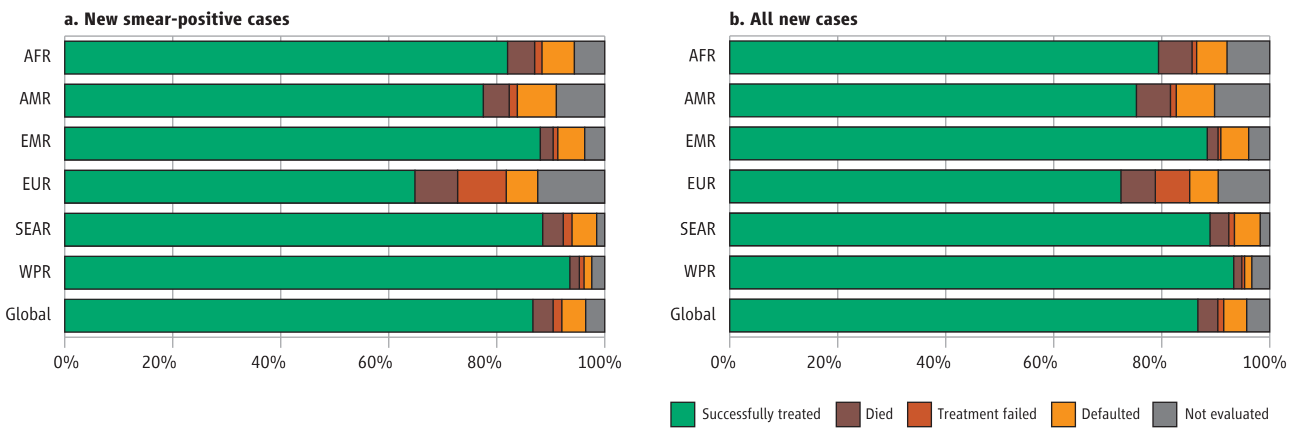


TABLE 3.5

Estimates of the case detection rate for new and relapse cases (%), 1995–2012[a]

	1995			2000			2005			2010			2012		
	BEST[b]	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH
Afghanistan	–	–	–	18	15	22	46	39	57	52	44	63	52	44	63
Bangladesh	21	17	26	25	21	31	38	32	47	45	38	55	49	41	59
Brazil	79	66	97	74	62	91	85	72	100	82	69	99	82	69	99
Cambodia	23	19	30	27	22	34	52	44	63	64	56	75	66	57	77
China	32	27	39	33	28	38	74	65	85	86	76	98	89	79	100
DR Congo	31	26	38	40	34	48	55	47	64	56	49	65	51	44	59
Ethiopia	11	7.2	18	33	22	55	48	32	80	66	49	93	64	49	87
India	59	52	67	49	45	55	49	44	55	60	54	66	59	54	66
Indonesia	8.9	7.1	12	20	16	25	57	47	71	66	56	80	72	61	87
Kenya	61	56	66	72	67	77	80	76	85	81	78	85	79	76	83
Mozambique	23	11	73	23	13	51	30	20	53	33	25	48	34	25	50
Myanmar	10	8.0	13	15	13	19	53	45	63	66	57	77	71	62	83
Nigeria	8.9	2.7	170	12	3.9	170	26	9.6	200	40	23	82	51	29	110
Pakistan	4.5	3.7	5.5	3.3	2.8	4.1	39	32	48	66	55	80	65	54	78
Philippines	48	40	58	47	39	57	53	44	65	65	54	79	84	71	100
Russian Federation	60	51	70	75	65	89	66	56	78	83	71	98	81	70	96
South Africa	56	47	69	59	49	72	61	50	74	70	59	85	62	52	75
Thailand	59	50	72	32	27	39	57	48	69	79	66	95	76	64	92
Uganda	23	14	41	29	20	48	47	36	65	60	50	75	69	57	85
UR Tanzania	59	51	69	68	60	77	74	69	80	77	72	82	79	74	84
Viet Nam	33	25	47	56	43	78	63	49	86	70	54	95	76	59	100
Zimbabwe	55	40	79	56	45	71	50	40	63	53	43	69	46	37	60
High-burden countries	**38**	**36**	**42**	**39**	**37**	**42**	**55**	**51**	**58**	**66**	**63**	**69**	**66**	**63**	**70**
AFR	32	27	39	39	33	48	52	44	61	60	56	65	59	55	64
AMR	67	63	72	70	65	75	75	71	81	76	71	82	79	74	85
EMR	23	21	26	25	22	28	48	43	54	64	57	72	63	56	71
EUR	51	49	54	59	55	62	65	61	70	77	72	82	74	70	79
SEAR	44	40	49	41	38	44	50	46	53	61	56	65	62	58	66
WPR	37	32	42	39	35	44	70	63	77	80	73	87	81	75	89
Global	**40**	**38**	**43**	**41**	**39**	**44**	**56**	**53**	**59**	**66**	**63**	**68**	**66**	**64**	**69**

– indicates values that cannot be calculated.
[a] Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published previously.
[b] Best, low and high indicate best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations.

Data for Mozambique were not reported to WHO, but the level in 2010 was 85%. In the Russian Federation, improvement of treatment outcomes has been identified as a high priority by the Ministry of Health and actions to improve it have been defined. These include ensuring earlier detection of MDR-TB and enrolment of patients on second-line treatment, and strengthening patient support to improve adherence to treatment (especially among the most socially and economically disadvantaged patients). It is expected that the introduction of a patient-based monitoring system for those with MDR/XDR-TB and patients coinfected with HIV in the near future will also help to improve the quality of care and treatment outcomes.

3.4.2 All new cases

Data on treatment outcomes for all new cases of TB are shown in **Table 3.7** and **Figure 3.4**. Globally, the rate of treatment success was 87% in 2011. Among the six WHO regions, the highest rates were in the Eastern Mediterranean Region (88%), the South-East Asia Region (89%) and Western Pacific Region (93%). The treatment success rate was 79% in the African Region, a big improvement from 73% in 2010. In the Region of the Americas and the European Region it was 75% and 72%, respectively.

Of the 22 HBCs, 15 reached or exceeded a treatment success rate of 85% among all new cases in 2011, including Ethiopia (following a major improvement from 77% in

BOX 3.6

Definitions of treatment outcomes for drug-susceptible TB until the end of 2012 and in this global TB report[a]

Cured A patient who was initially sputum smear-positive and who was sputum smear-negative in the last month of treatment and on at least one previous occasion.

Completed treatment A patient who completed treatment but did not meet the criteria for cure or failure. This definition applies to sputum smear-positive and sputum smear-negative patients with pulmonary TB and to patients with extrapulmonary disease.

Died A patient who died from any cause during treatment.

Failed A patient who was initially sputum smear-positive and who remained sputum smear-positive at month 5 or later during treatment. Also included in this definition are patients found to have a multidrug-resistant strain at any point in time during treatment, whether they are smear-negative or smear–positive.

Defaulted A patient whose treatment was interrupted for two consecutive months or more.

Not evaluated A patient whose treatment outcome is not known.

Successfully treated A patient who was cured or who completed treatment.

Cohort A group of patients in whom TB has been diagnosed, and who were registered for treatment during a specified time period (e.g. the cohort of new sputum smear-positive cases registered in the calendar year 2010). This group forms the denominator for calculating treatment outcomes. The sum of the above treatment outcomes, plus any cases for whom no outcome is recorded (including those 'still on treatment' in the European Region) and 'transferred out' cases should equal the number of cases registered. Some countries monitor outcomes among cohorts defined by sputum smear and/or culture, and define cure and failure according to the best laboratory evidence available for each patient.

[a] See *Treatment of tuberculosis guidelines, 4th ed*. Geneva, World Health Organization, 2010 (WHO/HTM/STB/2009.420). Available at http://whqlibdoc.who.int/publications/2010/9789241547833_eng.pdf

BOX 3.7

WHO definitions of treatment outcomes for drug-susceptible TB recommended for use starting in 2013 and that will be used in the 2014 global TB report[a]

Cured A pulmonary TB patient with bacteriologically-confirmed TB at the beginning of treatment who was smear- or culture-negative in the last month of treatment and on at least one previous occasion.

Completed treatment A TB patient who completed treatment without evidence of failure but with no record to show that sputum smear or culture results in the last month of treatment and on at least one previous occasion were negative, either because tests were not done or because results are unavailable.

Died A patient who died from any cause during treatment.

Failed A TB patient whose sputum smear or culture is positive at month 5 or later during treatment.

Lost to follow-up A TB patient who did not start treatment or whose treatment was interrupted for two consecutive months or more.

Not evaluated A TB patient for whom no treatment outcome is assigned. This includes cases 'transferred out' to another treatment unit as well as cases for whom the treatment outcome is unknown to the reporting unit.

Successfully treated A patient who was cured or who completed treatment.

Cohort As defined in **Box 3.6**. In addition, it should be highlighted that *any patient found to have drug-resistant TB and placed on second-line treatment is removed from the drug-susceptible TB outcome cohort*. This means that management of the standard TB register and of the second-line TB treatment register needs to be coordinated to ensure proper accounting of the outcomes of treatment. (See also **Box 4.4**)

[a] *Definitions and reporting framework for tuberculosis – 2013 revision* (WHO/HTM/TB/2013.2). Geneva, World Health Organization, 2013. Available at www.who.int/iris/bitstream/10665/79199/1/9789241505345_eng.pdf

BOX 3.8

Achievements in global TB care and control, 1995–2012

WHO began systematic monitoring of TB control progress in 1995. Data compiled on an annual basis since then allow achievements in TB care and control to be assessed.

Between 1995 and 2012, 56 million people were successfully treated for TB in countries that had adopted the DOTS/*Stop TB Strategy*. This saved approximately 22 million lives.[a]

The number of lives saved is based on the estimate that in the absence of treatment, approximately one third of people with TB would die of the disease. This estimate allows for differences in the mortality rates for smear-positive compared with other types of TB disease (see **Chapter 1**), and for differences in mortality rates between HIV-negative and HIV-positive people.

[a] For estimates of the incremental number of lives saved by improvements in TB care associated with implementation of the DOTS and Stop TB Strategy compared with pre-1995 standards of care, see Glaziou P et al. Lives saved by tuberculosis control and prospects for achieving the 2015 global target for reducing tuberculosis mortality. *Bulletin of the World Health Organization*, 2011, 89:573–582.

TABLE 3.6

Treatment success for new smear-positive cases (%) and cohort size (thousands), 1995–2011

a. Treatment success (%)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Afghanistan	–	–	45	33	86	85	84	87	86	89	90	84	87	88	86	90	91
Bangladesh	71	63	73	77	79	81	83	84	85	90	91	92	92	91	92	92	92
Brazil	17	20	27	40	78	71	55	80	77	76	76	73	72	71	72	74	76
Cambodia	91	94	91	95	93	91	92	92	93	91	93	93	94	95	95	94	93
China	93	94	95	95	95	93	95	92	93	94	94	94	94	94	95	96	95
DR Congo	74	48	64	70	69	78	77	78	83	85	85	86	87	87	88	90	87
Ethiopia	61	71	72	74	74	80	76	76	70	79	78	84	84	84	84	83	90
India	25	21	18	27	21	34	54	60	76	82	86	86	87	87	88	88	88
Indonesia	91	81	54	58	50	87	86	86	87	90	91	91	91	91	91	90	90
Kenya	75	77	65	77	79	80	80	79	80	80	82	85	85	85	86	87	88
Mozambique	39	55	65	–	71	75	78	78	76	77	79	83	79	84	85	85	–
Myanmar	67	79	82	82	81	82	81	81	81	84	84	84	85	85	85	86	86
Nigeria	49	32	73	73	75	79	79	79	78	73	75	76	82	78	83	84	85
Pakistan	70	–	67	23	70	74	77	78	79	82	83	88	91	90	91	91	92
Philippines	60	35	78	71	87	88	88	88	88	87	89	88	89	88	89	91	90
Russian Federation	65	57	67	68	65	68	67	67	61	60	58	58	58	57	55	53	54
South Africa	58	61	68	72	57	63	61	68	67	69	71	74	74	76	73	79	79
Thailand	64	78	58	68	77	69	75	74	73	74	75	77	83	82	86	85	85
Uganda	44	33	40	62	61	63	56	60	68	70	73	70	75	70	67	71	77
UR Tanzania	73	76	77	76	78	78	81	80	81	81	82	85	88	88	88	90	88
Viet Nam	89	89	85	92	92	92	93	92	92	93	92	93	92	92	92	92	93
Zimbabwe	53	32	69	70	73	69	71	67	66	54	68	60	78	74	78	81	81
High-burden countries	**53**	**50**	**56**	**62**	**60**	**67**	**72**	**75**	**81**	**84**	**86**	**87**	**87**	**87**	**88**	**88**	**88**
AFR	60	56	64	70	68	71	70	73	73	74	76	75	80	80	80	81	82
AMR	50	51	58	67	79	76	69	81	80	79	79	76	79	77	76	75	78
EMR	79	66	73	57	79	81	82	84	82	83	83	86	88	88	88	88	88
EUR	67	58	72	63	75	75	74	74	75	71	72	70	71	70	69	67	65
SEAR	33	31	29	40	34	50	63	68	79	84	87	87	88	88	89	88	89
WPR	80	72	91	92	91	90	91	90	91	91	92	92	92	92	93	93	94
Global	**57**	**54**	**60**	**64**	**64**	**69**	**73**	**76**	**80**	**83**	**85**	**84**	**86**	**86**	**86**	**87**	**87**

b. Cohort size (thousands)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Afghanistan			2.0	2.9	2.0	3.1	6.3	7.8	6.8	10	10	12	13	13	12	13	14
Bangladesh	11	30	34	38	38	38	41	47	54	63	85	102	104	106	109	106	99
Brazil	46	45	43	30	27	34	41	29	38	43	42	48	38	41	41	42	43
Cambodia	4.4	9.1	12	13	16	15	14	17	19	19	21	19	19	20	18	17	16
China	131	175	189	210	208	214	190	194	267	385	473	470	466	464	449	430	377
DR Congo	16	25	26	33	35	36	41	45	54	62	65	63	66	66	72	73	71
Ethiopia	5.1	11	12	15	21	30	32	37	40	41	39	37	38	41	45	47	41
India	265	291	293	284	345	349	384	396	420	489	507	553	592	616	625	630	642
Indonesia	3.0	12	21	40	46	52	54	76	93	129	159	175	161	166	169	183	198
Kenya	6.5	13	19	22	27	28	31	31	34	41	40	39	38	37	37	36	37
Mozambique	11	13	11		12	13	14	15	16	17	18	18	18	19	20	20	
Myanmar	7.9	9.7	9.2	10	12	17	21	24	27	31	37	40	43	41	42	42	42
Nigeria	9.5	24	11	13	15	16	17	21	28	34	35	40	44	46	45	45	47
Pakistan	0.8		2.8	29	3.0	4.1	6.3	15	20	32	48	66	89	100	102	104	106
Philippines	90	126	27	21	37	50	55	59	68	78	81	86	87	85	89	89	94
Russian Federation	0.05	43	0.7	0.7	1.5	3.6	4.1	5.2	6.3	26	26	31	32	32	32	30	37
South Africa	28	45	55	37	81	86	101	99	114	127	135	140	143	144	139	134	133
Thailand	20	0.1	3.7	8.0	14	23	20	27	28	28	30	29	30	33	28	30	31
Uganda	15	15	18	13	14	14	17	19	20	21	21	20	21	23	23	23	26
UR Tanzania	20	21	22	24	24	24	24	24	25	26	25	25	25	24	25	24	24
Viet Nam	38	48	54	55	53	53	54	57	56	58	55	56	54	53	51	52	51
Zimbabwe	9.7	12	12	13	13	14	17	16	14	15	13	16	11	10	10	12	13
High-burden countries	**739**	**967**	**879**	**912**	**1 044**	**1 119**	**1 186**	**1 260**	**1 450**	**1 776**	**1 965**	**2 087**	**2 132**	**2 181**	**2 184**	**2 185**	**2 140**
AFR	178	233	268	235	323	365	409	452	491	552	564	566	577	591	606	599	579
AMR	129	134	125	111	110	111	102	105	110	121	119	132	116	109	123	126	127
EMR	46	51	60	89	66	64	52	76	81	98	114	132	156	167	167	170	171
EUR	34	94	24	48	22	41	50	54	60	80	81	98	108	114	105	99	97
SEAR	318	360	376	399	473	512	550	604	661	780	856	938	974	1 011	1 022	1 045	1 065
WPR	296	372	294	313	353	360	346	357	439	575	663	663	661	657	641	622	560
Global	**1 001**	**1 245**	**1 147**	**1 195**	**1 347**	**1 453**	**1 510**	**1 649**	**1 842**	**2 206**	**2 396**	**2 529**	**2 591**	**2 649**	**2 665**	**2 662**	**2 599**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.

TABLE 3.7

Treatment success for all new cases (%) and cohort size (thousands), 1995–2011

a. Treatment success (%)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Afghanistan	–	–	45	33	86	85	84	87	86	89	90	84	87	88	86	86	88
Bangladesh	71	63	73	77	79	81	83	84	85	90	90	91	90	91	91	91	91
Brazil	17	20	27	40	78	71	55	80	77	72	72	69	72	69	70	72	73
Cambodia	91	94	91	95	93	91	92	92	93	91	91	92	93	94	94	89	94
China	93	94	95	95	95	93	95	92	93	92	92	92	93	93	94	95	95
DR Congo	74	48	64	70	69	78	77	78	83	85	85	60	86	86	88	89	87
Ethiopia	61	71	72	74	74	80	76	76	70	79	78	84	84	80	81	77	89
India	25	21	18	27	21	34	54	60	76	81	87	87	88	88	89	89	89
Indonesia	91	81	54	58	50	87	86	86	87	87	89	90	90	90	89	89	88
Kenya	75	77	65	77	79	80	80	79	80	77	81	83	83	84	84	86	87
Mozambique	39	55	65	–	71	75	78	78	76	77	79	83	79	84	85	85	–
Myanmar	67	79	82	82	81	82	81	81	81	82	83	83	84	84	84	88	88
Nigeria	49	32	73	73	75	79	79	79	78	73	75	76	82	78	84	81	85
Pakistan	70	–	67	23	70	74	77	78	79	80	82	86	90	89	91	90	92
Philippines	60	35	78	71	87	88	88	88	88	78	89	88	88	84	85	90	87
Russian Federation	65	57	67	68	65	68	67	67	61	65	67	69	69	69	68	66	65
South Africa	58	61	68	72	57	63	61	68	67	65	69	70	71	73	68	53	77
Thailand	64	78	58	68	77	69	75	74	73	71	71	75	81	80	84	83	82
Uganda	44	33	40	62	61	63	56	60	68	70	73	68	72	67	64	68	73
UR Tanzania	73	76	77	76	78	78	81	80	81	82	83	85	88	88	88	89	88
Viet Nam	89	89	85	92	92	92	93	92	92	92	92	92	91	92	92	92	93
Zimbabwe	53	32	69	70	73	69	71	67	66	48	66	67	78	70	75	76	80
High-burden countries	**53**	**50**	**56**	**62**	**60**	**67**	**72**	**75**	**81**	**82**	**85**	**85**	**87**	**87**	**86**	**86**	**88**
AFR	60	56	64	70	68	71	70	73	73	70	74	72	77	77	76	73	79
AMR	50	51	58	67	79	76	69	81	80	76	75	73	78	73	73	73	75
EMR	79	66	73	57	79	81	82	84	82	82	82	86	87	87	87	88	88
EUR	67	58	72	63	75	75	74	74	75	76	77	75	76	76	75	74	72
SEAR	33	31	29	40	34	50	63	68	79	83	87	87	88	88	89	89	89
WPR	80	72	91	92	91	90	91	90	91	88	90	90	91	91	91	92	93
Global	**57**	**54**	**60**	**64**	**64**	**69**	**73**	**76**	**80**	**81**	**84**	**84**	**85**	**85**	**85**	**84**	**87**

b. Cohort size (thousands)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Afghanistan			2.0	2.9	2.0	3.1	6.3	7.8	6.8	10	10	12	13	13	12	26	26
Bangladesh	11	30	34	38	38	38	41	47	54	63	119	141	144	106	156	150	148
Brazil	46	45	43	30	27	34	41	29	38	81	78	81	47	73	75	78	71
Cambodia	4.4	9.1	12	13	16	15	14	17	19	30	34	34	35	38	39	40	37
China	131	175	189	210	208	214	190	194	267	644	788	847	889	932	923	877	856
DR Congo	16	25	26	33	35	36	41	45	54	62	65	92	89	93	106	109	92
Ethiopia	5.1	11	12	15	21	30	32	37	40	41	39	37	38	139	139	152	91
India	265	291	293	284	345	349	384	396	420	1 066	1 071	1 137	1 199	1 226	1 244	1 229	1 209
Indonesia	3.0	12	21	40	46	52	54	76	93	206	244	266	263	293	289	296	314
Kenya	6.5	13	19	22	27	28	31	31	34	97	98	101	99	99	99	90	82
Mozambique	11	13	11		12	13	14	15	16	17	18	18	18	19	20	20	
Myanmar	7.9	9.7	9.2	10	12	17	21	24	27	66	73	84	85	90	91	127	135
Nigeria	9.5	24	11	13	15	16	17	21	28	34	35	40	44	46	86	78	84
Pakistan	0.8		2.8	29	3.0	4.1	6.3	15	20	84	117	149	191	206	212	256	255
Philippines	90	126	27	21	37	50	55	59	68	126	81	123	136	140	141	162	190
Russian Federation	0.05	43	0.7	0.7	1.5	3.6	4.1	5.2	6.3	39	74	97	99	103	101	94	89
South Africa	28	45	55	37	81	86	101	99	114	243	259	271	247	236	367	338	292
Thailand	20	0.1	3.7	8.0	14	23	20	27	28	47	49	47	47	54	43	48	49
Uganda	15	15	18	13	14	14	17	19	20	21	21	31	37	39	38	40	43
UR Tanzania	20	21	22	24	24	24	24	24	25	61	59	58	25	59	60	59	59
Viet Nam	38	48	54	55	53	53	54	57	56	92	55	91	91	91	88	88	89
Zimbabwe	9.7	12	12	13	13	14	17	16	14	54	43	43	39	40	45	46	40
High-burden countries	**739**	**967**	**879**	**912**	**1 044**	**1 119**	**1 186**	**1 260**	**1 450**	**3 183**	**3 430**	**3 799**	**3 872**	**4 134**	**4 374**	**4 403**	**4 252**
AFR	178	233	268	235	323	365	409	452	491	846	886	940	930	1 087	1 297	1 215	1 094
AMR	129	134	125	111	110	111	102	105	110	191	187	197	157	168	191	200	188
EMR	46	51	60	89	66	64	52	76	81	178	226	259	307	320	331	391	398
EUR	34	94	24	48	22	42	50	55	60	184	221	274	276	279	248	250	217
SEAR	318	360	376	399	473	512	550	604	661	1 530	1 639	1 758	1 835	1 880	1 940	1 980	1 986
WPR	296	372	294	313	353	360	346	357	439	963	1 030	1 163	1 216	1 261	1 259	1 240	1 213
Global	**1 001**	**1 245**	**1 147**	**1 195**	**1 347**	**1 453**	**1 511**	**1 649**	**1 843**	**3 892**	**4 188**	**4 592**	**4 720**	**4 995**	**5 267**	**5 275**	**5 096**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.

BOX 3.9

Outcomes of TB treatment by HIV status

In 2013, 96 countries with 331 000 HIV-positive TB patients reported treatment outcomes for 2011 that were disaggregated by HIV status. These countries accounted for 58% of all HIV-positive TB patients registered in that year. This was a considerable increase from 2010, when countries that reported outcomes disaggregated by HIV status accounted for 25% of TB patients with a documented HIV-positive test result. Much of the improvement is due to the reporting of data disaggregated by HIV status for the first time by high TB/HIV burden countries such as South Africa and Uganda. Of the 41 TB/HIV priority countries (listed in **Table 6.1** of **Chapter 6**), 19 reported treatment outcomes disaggregated by HIV status: Burundi, Burkina Faso, Brazil, Botswana, China, Ghana, Haiti, India, Kenya, Lesotho, Mali, Myanmar, Namibia, Nigeria, South Africa, Swaziland, Thailand, the United Republic of Tanzania and Viet Nam.

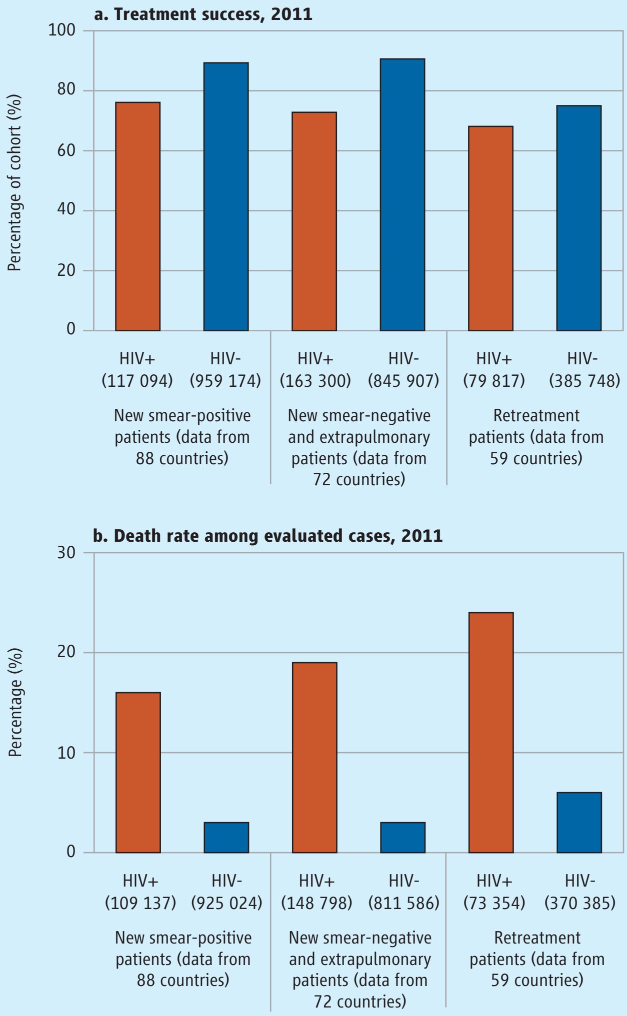
Data for 2011 show that treatment outcomes for HIV-positive TB patients continue to be worse than those of HIV-negative TB patients. The treatment success rate for all new HIV-positive TB patients was 73% compared with 87% among HIV-negative TB patients (**Figure B3.9.1**). If it is assumed that HIV-positive TB patients who defaulted from treatment would have died from TB, the death rate was 19% among HIV-positive TB patients compared with 3% among HIV-negative TB patients. Such findings are consistent with two autopsy studies in South Africa, which showed that undiagnosed TB remains the main cause of death among HIV-positive people.[a,b]

[a] Mutevedzi P et al. *Early mortality following initiation of ART in rural South Africa: the contribution of existing co-morbidities*. 20th Conference on Retroviruses and Opportunistic Infections. Atlanta, Georgia, USA, 3–6 March 2013 (Paper 832; www.retroconference.org/2013b/Abstracts/46910.htm, accessed 3 June 2013).

[b] Martinson N et al. *Undiagnosed infectious TB in adult home deaths: South Africa 2013*. 20th Conference on Retroviruses and Opportunistic Infections. Atlanta, Georgia, USA, 3–6 March 2013 (Paper 837; www.retroconference.org/2013b/Abstracts/45780.htm, accessed 3 June 2013).

FIGURE B3.9.1

Treatment success (a) and death rates (b) among HIV-positive and HIV-negative TB patients, 2011



2010 to 89% in 2011) and Nigeria for the first time. The six countries that reported lower rates of treatment success were Brazil (73%), the Russian Federation (65%), South Africa (77%), Thailand (82%), Uganda (73%) and Zimbabwe (80%). Data were not reported for Mozambique.

Treatment outcomes are worse among HIV-positive TB patients compared with HIV-negative TB patients (**Box 3.9**). Further efforts are needed to narrow the gap.

CHAPTER 4

Drug-resistant TB

KEY FACTS AND MESSAGES

- By the end of 2012, data on anti-TB drug resistance were available for 136 countries (70% of 194 WHO Member States), either from continuous surveillance (mostly high-income countries and other countries of the WHO European Region) or special surveys.
- Surveys underway in 2013 in the group of 36 high TB and/or MDR-TB burden countries and from which results are expected in 2014 include the first nationwide surveys in Azerbaijan, India, Pakistan, Turkmenistan and Ukraine, and repeat surveys in China, Ethiopia, Kenya, the Philippines, South Africa, Thailand and Viet Nam.
- Globally, an estimated 3.6% (95% CI: 2.1–5.1%) of new cases and 20.2% (95% CI: 13.3–27.2%) of previously treated cases have MDR-TB. The highest levels are in eastern Europe and central Asia where in several countries, more than 20% of new cases and more than 50% of previously treated cases have MDR-TB.
- There were an estimated 450 000 (range: 300 000–600 000) new cases of MDR-TB worldwide in 2012. Among patients with pulmonary TB notified in 2012 i.e. the group of patients known to NTPs and that can be tested for drug resistance using WHO-recommended diagnostic tests, there were an estimated 300 000 (range: 220 000–380 000) MDR-TB cases in 2012. More than half of these cases were in India, China and the Russian Federation.
- Extensively drug-resistant TB (XDR-TB) has been reported by 92 countries. On average, an estimated 9.6% (95% CI: 8.1%–11%) of MDR-TB cases have XDR-TB.
- A total of 94 000 TB cases eligible for MDR-TB treatment (84 000 with MDR-TB and 10 000 with rifampicin resistance detected using Xpert MTB/RIF) were notified globally in 2012, mostly by European countries, India and South Africa. This represented progress compared with 2011, when 62 000 MDR-TB cases and 4 000 rifampicin-resistant TB cases were detected; the largest increases between 2011 and 2012 were in India, South Africa and Ukraine. However, worldwide and in most countries with a high burden of MDR-TB, less than one-third of the TB patients estimated to have MDR-TB were actually detected in 2012.
- Countries detecting close to 100% of the notified TB patients estimated to have MDR-TB in 2012 included Estonia, Kazakhstan, Latvia, Lithuania, South Africa and Ukraine. The lowest figures were in the South-East Asia Region (21%) and the Western Pacific Region (6%), which combined have 55% of the world's cases of MDR-TB.
- Just over 77 000 people with MDR-TB were started on second-line treatment in 2012, equivalent to 82% of the 94 000 newly detected cases that were eligible for such treatment globally. Diagnostic:treatment gaps were much larger in some countries, especially in the African Region (51% of detected cases enrolled on treatment), and widened between 2011 and 2012 in China, Pakistan and South Africa.
- The 2015 treatment success target of ≥75% set in the *Global Plan to Stop TB 2011–2015* for MDR-TB was reached by 34 of 107 countries that reported outcome data for the 2010 patient cohort. However, overall only 48% of patients were successfully treated.
- Intensified global and national efforts to detect cases of MDR-TB, to enrol them on treatment, and to improve treatment outcomes are urgently required.

Drug-resistant TB (DR-TB) threatens global TB control and is a major public health concern in several countries. This chapter summarizes the progress made in global surveillance of anti-TB drug resistance, using the most recent data on MDR-TB and XDR-TB gathered from special surveys and continuous surveillance systems, and summarizes global estimates of disease burden associated with MDR-TB based on these data (**section 4.1**). It also includes an assessment of national progress in diagnosing and treating MDR-TB, using data on diagnostic testing for DR-TB, enrolment on treatment with second-line drugs for those found to have MDR-TB, and treatment outcomes (**section 4.2**).

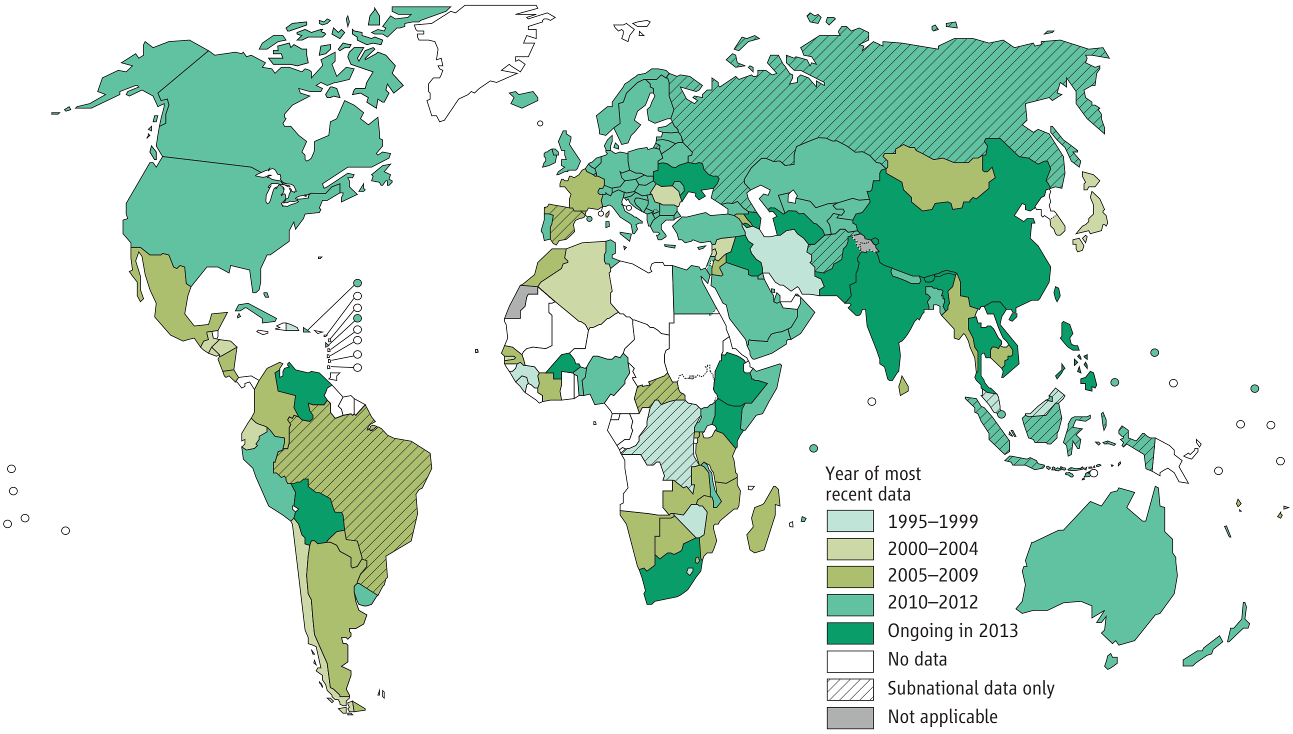
4.1 Surveillance of drug-resistant TB

4.1.1 Progress in the coverage of drug resistance surveillance

Since the launch of the Global Project on Anti-tuberculosis Drug Resistance Surveillance in 1994, data on drug resistance have been systematically collected and analysed from 136 countries worldwide (70% of WHO Member States). This includes 70 countries that have continuous surveillance systems based on routine diagnostic drug susceptibility testing (DST) of all TB patients and 66 countries that rely on special epidemiological surveys of representative samples of patients. The progress towards achieving global coverage of drug resistance data is shown in **Figure 4.1**.

FIGURE 4.1

Progress in global coverage of data on drug resistance, 1994–2013



Continuous surveillance for MDR-TB, based on routine DST of TB patients and systematic collection, collation and analysis of data, is the most effective approach to monitor trends in drug resistance over time. Additionally, such systems can detect outbreaks that might otherwise be undetected, even during the course of a survey if the outbreak site was not among those sites selected for patient enrolment.

The number of countries that can rely on data generated by continuous surveillance systems is increasing, due to efforts invested in scaling up the availability of culture and DST services. Several high MDR-TB burden countries in the European Region, including Belarus, Georgia, Kazakhstan, Republic of Moldova, Ukraine and the Baltic States, have put in place high quality surveillance systems to monitor drug resistance both in new and previously treated TB cases. A group of countries – Bolivia, Chile, Colombia, Costa Rica, Ecuador, Egypt, El Salvador, Kyrgyzstan, Lebanon, Mongolia, Nicaragua, Rwanda, Sri Lanka, Syrian Arab Republic and Tajikistan – that previously relied on special surveys to monitor drug resistance, have now established routine surveillance systems for all previously treated cases. This is the first step towards achieving routine DST for all TB patients.

Special surveys still represent the most common approach to investigating the burden of drug resistance in resource-limited settings where routine DST is not accessible to all TB patients due to lack of laboratory capacity or resources. Between 2010 and 2012, drug resistance surveys were completed for the first time in 16 countries: Afghanistan (Central region), Albania, Bangladesh, Belarus, Benin, Bulgaria, Kyrgyzstan, Malawi, Nigeria, Saudi Arabia, Somalia, Tajikistan, Tunisia, Uganda, Uzbekistan and Yemen. In addition, Egypt, Brazil, Nepal and Zambia completed a repeat survey.

In mid-2013, drug resistance surveys were ongoing in 12 high TB and MDR-TB burden countries. These include the first nationwide surveys in Azerbaijan, India, Pakistan, Turkmenistan, Ukraine, and repeat surveys in China, Ethiopia, Kenya, the Philippines, South Africa, Thailand and Viet Nam.

Molecular technologies are increasingly being used in drug resistance surveys to simplify logistics and reduce laboratory workload. GenoType® MTBDRplus (Hain Lifescience, Germany) was used in the national survey completed in 2012 in Nigeria and Xpert® MTB/RIF (Cepheid, USA) is being used in the surveys underway in Pakistan and Papua New Guinea. Several more countries are planning to use Xpert MTB/RIF as a screening tool in drug resistance surveys. Though not a complete surrogate for MDR-TB, particularly in settings where levels of drug resistance are low, rifampicin resistance is the most important indicator of MDR-TB, with serious clinical implications for affected patients. In countries where there is not yet the capacity for culture and DST using conventional methods or where laboratories cannot cope with the large workload generated by a drug resistance survey, Xpert MTB/RIF can play an important role. It can be used to screen specimens for rifampicin resistance and identify those requiring further testing to be performed at national or supranational TB reference laboratories, also reducing the cost of initial screening by conventional commercial DST systems.

Five high TB and MDR-TB burden countries (Afghanistan, Brazil, Democratic Republic of the Congo, Indonesia and the Russian Federation) still rely on drug resistance surveillance data gathered from sub-national areas only. These countries should consider conducting nationwide drug resistance surveys in the short term to better understand the burden of MDR-TB and to guide the planning of diagnostic and treatment services. A further six countries (Dominican Republic, Guinea, Iran, Lesotho, Sierra Leone and Zimbabwe) rely on drug resistance data gathered from studies conducted in the late 1990s and should consider implementing repeat surveys. Central and Francophone Africa remain the parts of the world where drug resistance surveillance data are most lacking, largely as a result of the current weak laboratory infrastructure. Efforts should be made to increase diagnostic and surveillance capacity in these settings so that a drug resistance survey can be conducted.

Of the 136 countries with surveillance data on drug resistance, 35% (48 countries) have only one data point and should consider repeating surveys to assess time trends.

Data on time trends in drug resistance were available from 88 countries and 10 territories worldwide for a total of 870 country-year data points. Among the 36 high TB and high MDR-TB burden countries, 11 countries (Cambodia, Estonia, Georgia, Latvia, Lithuania, Mozambique, Myanmar, Republic of Moldova, the Russian Federation (7 Federal Subjects), Thailand and Viet Nam) have completed at least two surveys at least five years apart, allowing trends over time to be evaluated. However, for five of these countries (Cambodia, Mozambique, Myanmar, Thailand and Viet Nam) the most recent data are more than five years old. Among the six countries with recent data, in Estonia and Latvia, surveillance data show that the rates of both TB and MDR-TB have been declining. These data suggest that MDR-TB can indeed be controlled once effective policy decisions are put into practice, and the necessary prevention and control measures are implemented. In Lithuania, Georgia, Republic of Moldova and most Federal Subjects of the Russian Federation, MDR-TB rates appear to be stable whereas in Ivanovo Oblast and Mary-El Republic MDR-TB rates are increasing. Extending trend analyses to other countries requires more data from repeat surveys or continuous surveillance systems. NTPs should plan to repeat drug resistance surveys regularly, approximately every five years, until capacity for continuous surveillance is established.

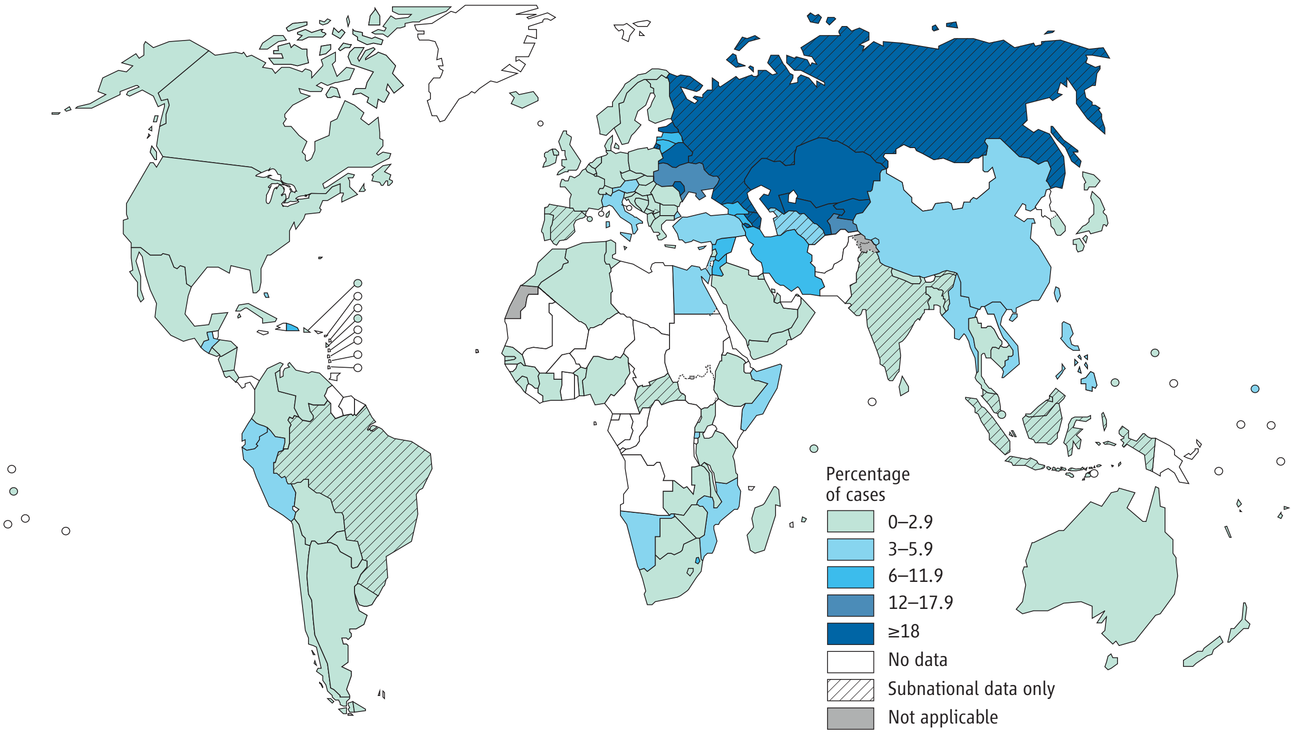
4.1.2 Percentage of new and previously treated TB cases that have MDR-TB

Globally, 3.6% (95% CI: 2.1–5.1%) of new TB cases and 20.2% (95%CI: 13.3–27.2%) of previously treated cases are estimated to have MDR-TB (**Table 4.1**). These estimates are essentially unchanged from 2011.

The proportions of new and previously treated TB cases with MDR-TB at the country level are shown in **Figure 4.2** and **Figure 4.3**, and for the 27 high MDR-TB burden countries in **Table 4.1**. Eastern European and especially central Asian countries continue to have the highest levels of MDR-TB. Among new cases, examples include Azerbaijan (22.3% in 2007), Belarus (34.8% in 2012), Estonia (19.7% in 2012),

FIGURE 4.2

Percentage of new TB cases with MDR-TB[a]



[a] Figures are based on the most recent year for which data have been reported, which varies among countries.

TABLE 4.1

Estimated proportion of TB cases that have MDR-TB, globally and for 27 high MDR-TB burden countries and WHO regions

	ESTIMATED % OF NEW TB CASES WITH MDR-TB[a]	CONFIDENCE INTERVAL	ESTIMATED % OF RETREATMENT TB CASES WITH MDR-TB[a]	CONFIDENCE INTERVAL
Armenia	9.4	7.0–12	43	38–49
Azerbaijan	22	19–27	56	50–62
Bangladesh	1.4	0.7–2.5	29	24–34
Belarus	35	33–37	69	66–71
Bulgaria	2.3	1.3–3.8	23	17–31
China	5.7	4.5–7.0	26	22–30
DR Congo	*2.5*	*0.1–5.0*	*10*	*3.5–17*
Estonia	20	14–26	50	35–65
Ethiopia	1.6	0.9–2.8	12	5.6–21
Georgia	9.2	7.9–11	31	27–35
India	2.2	1.9–2.6	15	11–19
Indonesia	1.9	1.4–2.5	12	8.1–17
Kazakhstan	23	22–24	55	54–56
Kyrgyzstan	26	23–31	68	65–72
Latvia	11	8.8–14	32	23–42
Lithuania	11	9.5–14	44	39–49
Myanmar	4.2	3.1–5.6	10	6.9–14
Nigeria	2.9	2.1–4.0	14	10–19
Pakistan	*3.5*	*0.1–12*	*32*	*7.5–56*
Philippines	4.0	2.9–5.5	21	14–29
Republic of Moldova	24	21–26	62	59–65
Russian Federation	23	21–25	49	45–53
South Africa	1.8	1.4–2.3	6.7	5.4–8.2
Tajikistan	13	9.8–16	56	52–61
Ukraine	14	14–15	32	31–33
Uzbekistan	23	18–30	62	53–71
Viet Nam	2.7	2.0–3.7	19	14–25
High MDR-TB burden countries	**4.2**	**2.1–6.2**	**21**	**12–30**
AFR	2.3	0.2–4.4	11	4.4–17
AMR	2.2	1.4–3.0	14	4.7–22
EMR	3.5	0.1–11	33	12–54
EUR	16	10–22	45	39–52
SEAR	2.2	1.6–2.8	16	11–21
WPR	4.7	3.3–6.1	22	18–27
Global	**3.6**	**2.1–5.1**	**20**	**13–27**

[a] Best estimates are for the latest available year. Estimates in italics are based on regional data.

Kazakhstan (22.9% in 2012), Kyrgyzstan (26.4% in 2011), the Republic of Moldova (23.7% in 2012), the Russian Federation (average: 23.1%, with Yamalo-Nenets Autonomous Area being the highest: 41.9% in 2011) and Uzbekistan (23.2% in 2011). Among previously treated cases, examples include Azerbaijan (Baku City: 55.8% in 2007), Belarus (68.6% in 2012), Estonia (50.0% in 2012), Kazakhstan (55.0% in 2012), Kyrgyzstan (68.4% in 2012), the Republic of Moldova (62.3% in 2012), Tajikistan (56.0% in 2012) and Uzbekistan (62.0% in 2011). In the Russian Federation, even though the average proportion of cases with MDR-TB does not exceed 50%, the proportion is well above 50% in several Federal Subjects (with Ulyanovsk Oblast at the highest level: 74.0% in 2011).[1]

BOX 4.1

MDR-TB in children

TB in children poses a diagnostic challenge, as paucibacillary disease is more likely. Specimens suitable for culture and DST are more difficult to obtain, particularly from the youngest children who cannot expectorate sputum. Consequently, little is known about the burden of MDR-TB in children.

The relationship between MDR-TB and age group (children aged less than 15 years versus adults aged 15 years or older) was recently assessed using representative drug resistance surveillance data reported to WHO between 1994 and 2012. Data were analysed for 376 293 TB cases for whom age and DST data were available. Odds ratios were derived by logistic regression with robust standard errors, as described in detail elsewhere.[a] Of the 85 countries reporting data from nationwide surveys or surveillance systems, 34 reported at least one paediatric MDR-TB case.

A child with TB was shown to be as likely as an adult with TB to have MDR-TB. It is therefore essential that the identification of MDR-TB in children be strengthened. Efforts should be made to systematically conduct household contact investigation of all patients with MDR-TB, including children. Additionally, children must be routinely included in all drug resistance surveillance activities, including drug resistance surveys.

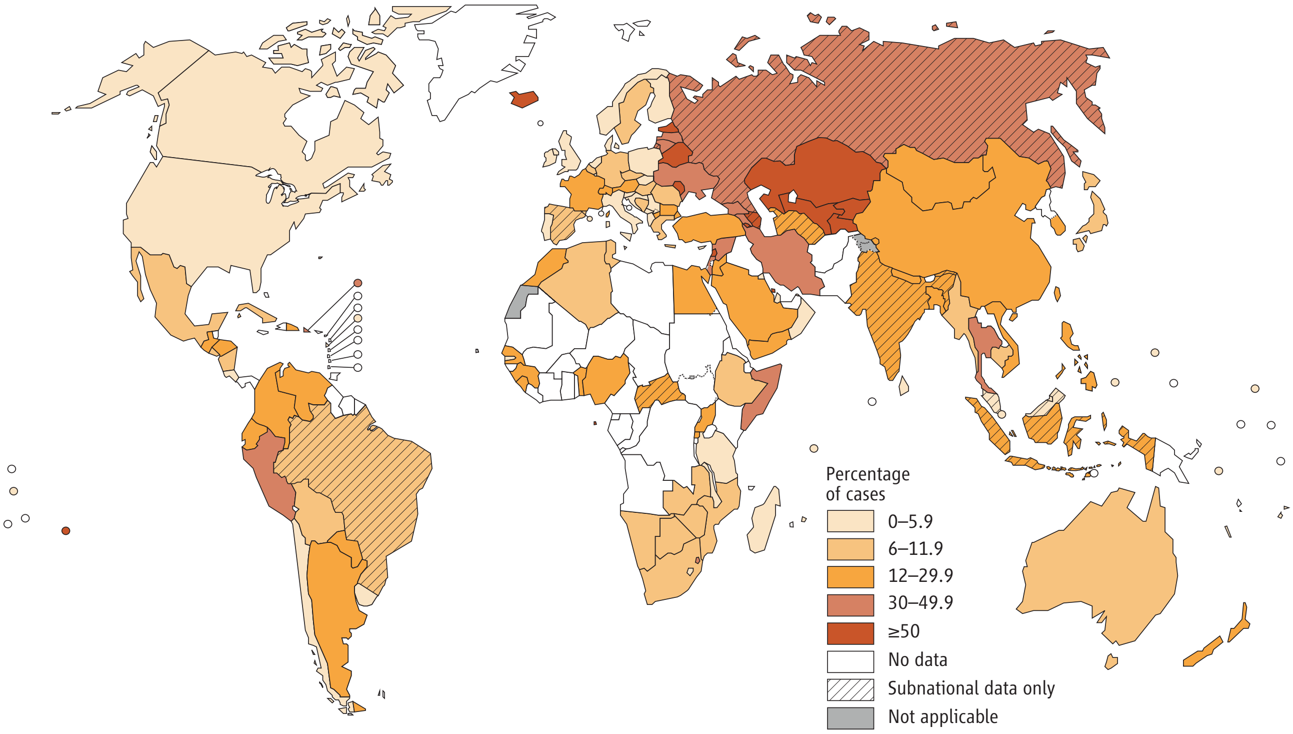
[a] Zignol et al. Multidrug-resistant tuberculosis in children: evidence from global surveillance. *European Respiratory Journal* 2013; 42:701–7.

More positively, levels of drug resistance among new cases remain low (<3%) in many parts of the world, including almost all countries in the Region of the Americas, most African countries where drug resistance surveys have been conducted, most of the South-East Asia Region, most of western Europe, and several countries in the Western Pacific Region (examples include Australia, Cambodia, Japan, New Zealand and Viet Nam).

[1] *Tuberculosis in the Russian Federation 2011: an analytical review of statistical indicators used in the Russian Federation and in the world* (in Russian). Moscow: Ministry of Health of the Russian Federation et al., 2013.

FIGURE 4.3

Percentage of previously treated TB cases with MDR-TB[a]



[a] Figures are based on the most recent year for which data have been reported, which varies among countries. The high percentages of previously treated TB cases with MDR-TB in Bahrain, Bonaire – Saint Eustatius and Saba, Cook Islands, Iceland, Sao Tome and Principe, and Lebanon refer to only a small number of notified cases (< 10).

4.1.3 Estimated global incidence of MDR-TB and estimated number of MDR-TB cases among notified TB patients in 2012

The data compiled from surveillance of drug resistance among TB patients allow estimation of the total number of incident cases of MDR-TB worldwide in 2012. The number of incident cases includes not only cases among notified TB patients, but also cases among people diagnosed with TB that were not notified to NTPs (and in whom MDR-TB may not have been detected) and cases among people not yet diagnosed with TB. Globally in 2012, there were an estimated 450 000 (range: 300 000–600 000) new cases of MDR-TB. Methods used to produce this estimate are explained in **Annex 1**.

Data compiled from surveillance of drug resistance among TB patients also allow production of global as well as country-specific estimates of the number of MDR-TB cases among notified TB patients with pulmonary TB. These are the MDR-TB cases that could be found by NTPs if all notified patients were tested for drug resistance to rifampicin and isoniazid using WHO-recommended diagnostic tests, and is a useful indicator for assessing country performance in detecting cases of MDR-TB and enrolling them on treatment. Globally in 2012, there were an estimated 300 000 (range: 220 000–380 000) MDR-TB cases among notified TB patients. Country-specific estimates are discussed in **section 4.2**.

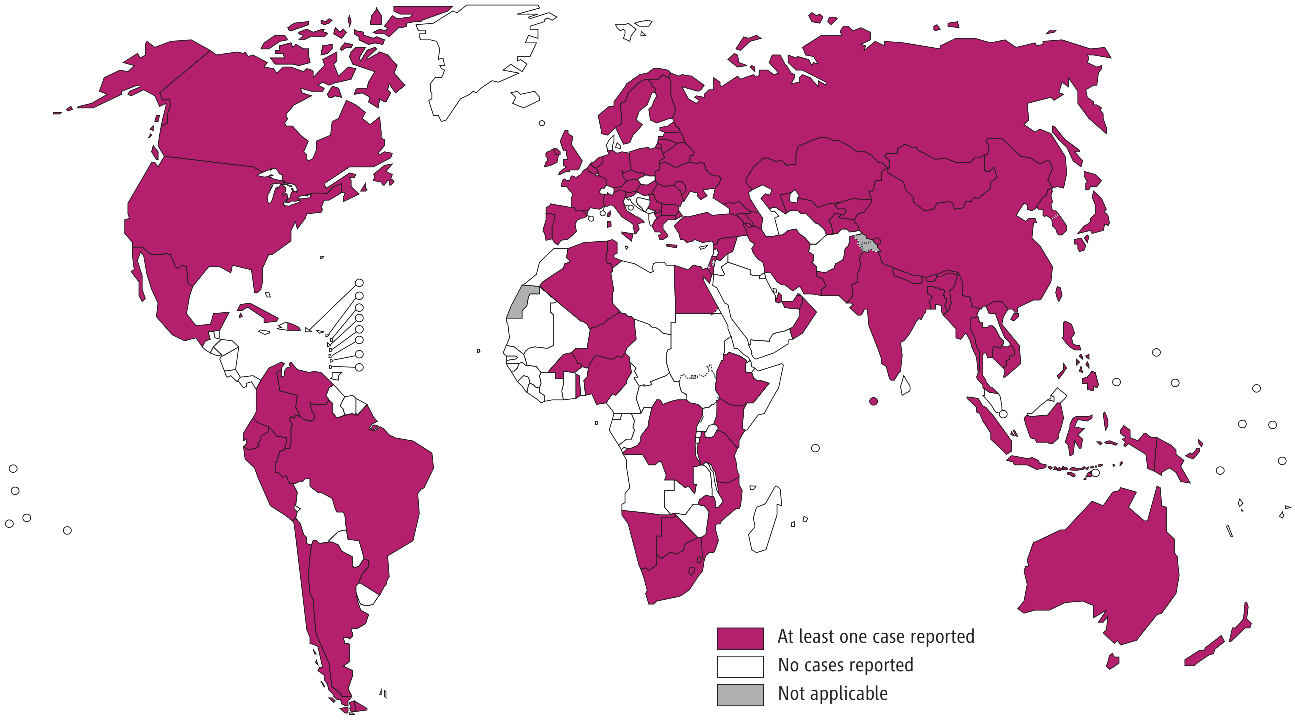
4.1.4 Resistance to second-line drugs

Extensively drug-resistant TB (XDR-TB) had been reported by 92 countries globally by the end of 2012 (**Figure 4.4**). A total of 75 countries and 4 territories reported representative data from continuous surveillance or special surveys regarding the proportion of MDR-TB cases that had XDR-TB. Combining their data, the average proportion of MDR-TB cases with XDR-TB was 9.6% (95% CI: 8.1%–11%), similar to the estimate from 2011 (9.0%). Thirteen of these countries reported more than 10 XDR-TB cases in the most recent year for which data were available. Among those countries, the proportion of MDR-TB cases with XDR-TB was highest in Azerbaijan (Baku city: 12.8%), Belarus (11.9%), Latvia (16.0%), Lithuania (24.8%) and Tajikistan (Dushanbe city and Rudaki district: 21.0%).

The proportion of MDR-TB cases with resistance to fluoroquinolones and second-line injectable agents was 16.5% (95% CI: 12.3–20.7) and 22.7% (15.4%–30.0%), respectively. A total of 32.0% (21.9%–42.1%) of patients with MDR-TB have resistance to a fluoroquinolone, a second-line injectable agent, or both. These patients would likely be eligible to receive bedaquiline, the new bactericidal drug recently approved for use in patients with MDR-TB when options to treat using existing drugs have been exhausted (see **Box 8.2** in **Chapter 8**).

FIGURE 4.4

Countries that had notified at least one case of XDR-TB by the end of 2012



4.2 Management of drug-resistant TB

4.2.1 Coverage of drug susceptibility testing (DST)

The diagnosis of DR-TB requires TB patients to be tested for susceptibility to drugs. Notification data combined with data from drug resistance surveillance suggest that if all notified TB patients with pulmonary TB had been tested in 2012, around 300 000 cases of MDR-TB would have been found (**section 4.1.3**).

Targets included in the *Global Plan to Stop TB 2011–2015* are that by 2015 all new cases of TB considered at high risk of MDR-TB (estimated to be about 20% of all new bacteriologically-positive TB cases globally), as well as all previously treated cases, should undergo DST for at least the first-line drugs rifampicin and isoniazid. Similarly, all patients with MDR-TB should be tested for XDR-TB.

First-line DST results were reported by just over 50% of countries in 2012 and overall for a small proportion of cases (**Table 4.2**). Globally, only 5% of new bacteriologically-confirmed TB cases and 9% of those previously treated for TB were tested for MDR-TB in 2012. The proportion of new cases with DST results has increased slightly in recent years but remains below the target envisaged for 2012 by the Global Plan (**Figure 4.5**). Coverage was highest in the European Region, where 72% of new cases and 41% of previously treated cases were tested for MDR-TB in 2012, reflecting the relatively better access to TB laboratory services than elsewhere. Levels of testing were particularly low in the African and South-East Asia Regions (0.3% and 0.1% of new bacteriologically cases and 3.1% and 0.7% of previously treated cases, respectively).

Among the 27 high MDR-TB burden countries – which account for >85% of estimated MDR-TB cases in the world – the proportion of TB patients who were tested ranged from 56 to 100% among new cases in 13 of the 14 European countries reporting data (17% in Tajikistan; no data reported by Azerbaijan), and exceeded 60% among previously treated cases in nine of these countries. Among non-European high MDR-TB burden countries, testing for MDR-TB among new cases was highest in China (3.6%). In previously treated cases, the coverage of testing was higher and reached 10% in Indonesia and 12% in China and the Philippines. In South Africa, 16% of TB cases overall were tested for MDR-TB although DST data were not available separately for new and previously treated cases. Five other countries did not report data, including India, the country estimated to have the highest number of MDR-TB cases among notified TB patients (**Table 4.2**).

Among TB patients who were notified and confirmed to have MDR-TB in 2012, 23% were reported to have DST performed for both fluoroquinolones and second-line injectable drugs. Second-line DST coverage exceeded 90% in Armenia, Bulgaria, the Democratic Republic of the Congo, Georgia and Latvia. South Africa accounted for most of the global cases for which second-line DST data were reported, as well as the highest proportion observed in the African Region (the regional figure drops from 62% to 1% when South Africa is excluded). Second-line DST reports were available for 53% of MDR-TB cases in the Western Pacific Region, 47% in the Region of the Americas and 3–8% in the other regions.

Improving the coverage of diagnostic DST is urgently needed to improve the detection of MDR-TB and XDR-TB.

TABLE 4.2

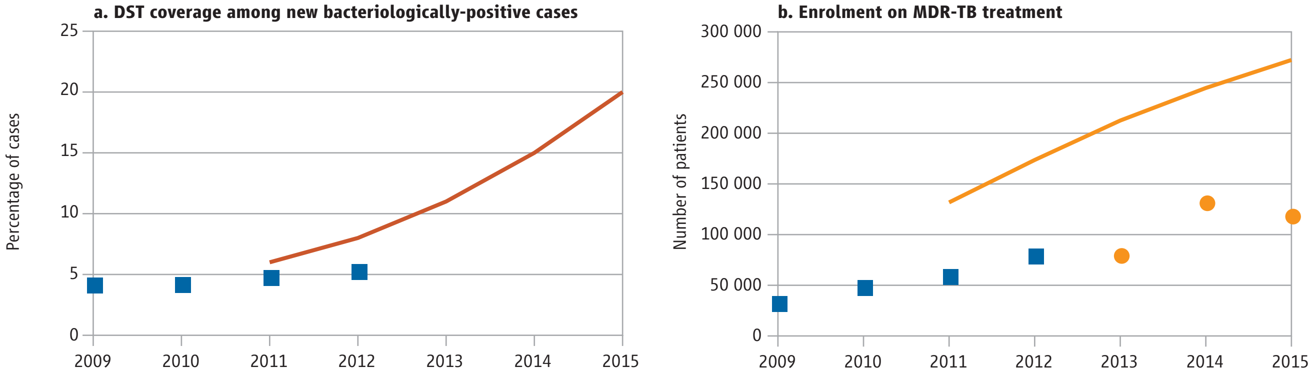
DST coverage among TB and MDR-TB cases, globally and for 27 high MDR-TB burden countries and WHO regions, 2012

	NEW BACTERIOLOGICALLY-POSITIVE CASES		RETREATMENT CASES		CONFIRMED MDR-TB CASES	
	NUMBER WITH DST[a] RESULTS	% OF CASES WITH DST RESULTS	NUMBER WITH DST[a] RESULTS	% OF CASES WITH DST RESULTS	NUMBER WITH DST[b] RESULTS	% OF CASES WITH DST RESULTS
Armenia	286	64	108	27	92	100
Azerbaijan		–		–		–
Bangladesh	41	<0.1	557	7.0	142	28
Belarus	2 164	90	1 183	84		–
Bulgaria	687	71	142	45	49	100
China	11 472	3.6	4 861	12	2 042	68
DR Congo	12	<0.1	95	1.3	65	100
Estonia	193	100	46	82	55	89
Ethiopia	469	1.0	180	4.4		–
Georgia	1 931	84	541	45	341	99
India		–		–	597	3.6
Indonesia	2	<0.1	821	10	184	43
Kazakhstan[c]	8 154	>100	10 443	93		–
Kyrgyzstan	958	57	662	61	511	53
Latvia	666	97	100	88	106	96
Lithuania	1 017	100	350	100	210	77
Myanmar		–		–	84	11
Nigeria	11	<0.1	94	1.2		–
Pakistan	461	0.4	154	1.3		–
Philippines	35	<0.1	2 038	8.7		–
Republic of Moldova	1 264	67	933	63		–
Russian Federation	32 647	79	12 324	24		–
South Africa		–		–	11 046	72
Tajikistan	919	17	496	66	345	50
Ukraine	11 185	77	5 925	72		–
Uzbekistan	2 703	56	798	30	356	21
Viet Nam		–		–		–
High MDR-TB burden countries	**77 277**	**3.9**	**42 851**	**7.7**	**16 225**	**21**
AFR	2 216	0.3	3 969	3.1	11 303	62
AMR	28 625	22	5 481	23	1 384	47
EMR	1 990	1.1	1 617	7.6	51	3.2
EUR	85 962	72	37 774	41	2 523	6.7
SEAR	1 352	0.1	2 292	0.7	1 619	8.4
WPR	16 485	3.3	8 134	10	2 365	53
Global	**136 630**	**5.1**	**59 267**	**8.7**	**19 245**	**23**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.
[a] DST is for isoniazid and rifampicin.
[b] DST is for a fluoroquinolone and a second-line injectable drug.
[c] A possible explanation for why the percentage for new cases in Kazakhstan exceeds 100% is inadequate linkages between clinical and laboratory registers.

FIGURE 4.5

DST coverage among new cases and enrolment on MDR-TB treatment, compared with the targets in the Global Plan to Stop TB, 2011–2015. Lines indicate the planned targets, **blue** squares show the situation in 2009–2012 and **orange** circles the projected enrolments 2013–2015. Data on projected enrolments in 2015 were incomplete.



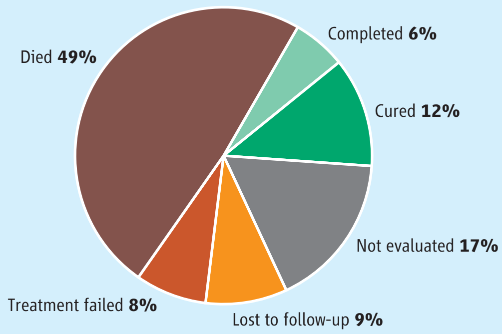
BOX 4.2

XDR-TB in Africa

In 2006, a cluster of XDR-TB patients in rural South Africa made international headlines.[a] All of the patients from this cluster who were tested for HIV were found to be infected. Most of these patients died very quickly. South Africa remains the country that reports the most XDR-TB cases in the world and annual notifications have increased from 467 in 2009 to 1 596 in 2012. About 10% of MDR-TB cases reported in this country have XDR-TB.

FIGURE B4.2.1

Treatment outcomes for 623 TB patients with XDR-TB in South Africa, 2010



By the end of 2012, 15 countries in the African region had identified and reported at least one case of XDR-TB (**Figure 4.4**). In 2012, two high MDR-TB burden countries in the African Region – the Democratic Republic of the Congo and Nigeria – each reported their first XDR-TB case. Seven African countries reported starting XDR-TB patients on treatment in 2011 or 2012, most of them in South Africa. Treatment outcomes reported by South Africa reveal the very low likelihood of a favourable outcome in such patients and the high proportion of patients lost to or not evaluated by the health services (see **Figure B4.2.1**).

[a] Gandhi NR, Moll A, Sturm AW, Pawinski R, Govender T, Lalloo U, et al. Extensively drug-resistant tuberculosis as a cause of death in patients co-infected with tuberculosis and HIV in a rural area of South Africa. *The Lancet*. 2006; 368(9547):1575–80.

This requires the strengthening of laboratory capacity, the introduction of new rapid diagnostics and improved reporting from diagnostic centres (see **Chapter 5**). The identification of XDR-TB cases in countries worldwide (**Box 4.2**, **Figure 4.4**) reflects the risk of acquisition of additional second-line drug resistance and the transmission of resistant strains when TB care and prevention (including infection control) are inadequate.

4.2.2 Notification of MDR-TB cases and enrolment on treatment

The low coverage of DST in many countries is one of the main constraints limiting the detection of MDR-TB among people diagnosed with TB. Globally, 83 715 cases of MDR-TB were notified to WHO in 2012, with India, the Russian Federation and South Africa reporting more than a half of these cases (**Table 4.3**). In addition, just over 10 000 rifampicin-resistant TB (RR-TB) cases were reported to have been detected using rapid molecular techniques.[1] India, Kyrgyzstan, the Philippines and Uzbekistan each reported >500 of such cases.

The 83 715 reported cases of MDR-TB cases represented 28% of the 300 000 (range, 220 000–380 000) pulmonary TB patients estimated to have MDR-TB in 2012 (**Table 4.3**), up from 20% in 2011, and 19% of the 450 000 (range: 300 000–600 000) estimated incident MDR-TB cases in the world in 2012. Much of the increase between 2011 and 2012 was accounted for by India (4237 to 16 588), South Africa (10 085 to 15 419)[2] and Ukraine (4305 to 6934), although increases were reported by a total of 17 high MDR-TB burden countries and all WHO regions with the exception of the Region of the Americas. In the Democratic

[1] These are in addition to other rifampicin-resistant cases detected by Xpert MTB/RIF, which were included under MDR-TB notifications following subsequent testing for isoniazid resistance.

[2] In South Africa, the number of cases detected was above the estimated number of cases among pulmonary TB patients; this could reflect either that the estimates of the number of MDR-TB cases among TB patients are too conservative and/or the absence of linkages between the clinical and laboratory registers.

TABLE 4.3

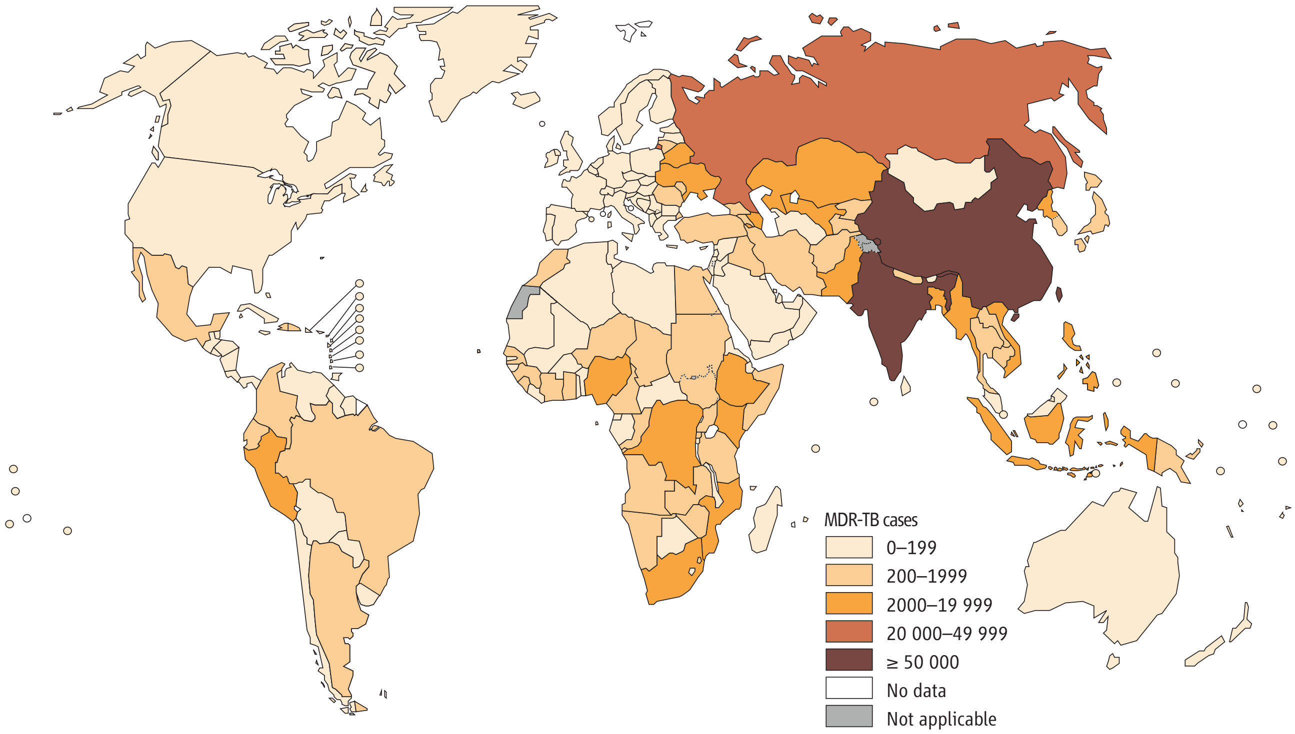
Estimated MDR-TB cases in 2012, notified cases of MDR-TB and enrolments on MDR-TB treatment 2009–2012, and treatment outcome reporting for 2010 cohort, globally and for 27 high MDR-TB burden countries and WHO regions

	ESTIMATED MDR-TB AMONG NOTIFIED PULMONARY TB CASES, 2012			NOTIFIED CASES					CASES ENROLLED ON MDR-TB TREATMENT				MDR-TB CASES REPORTED WITH TREATMENT OUTCOME DATA, 2010 COHORT	
	BEST	LOW	HIGH	2009	2010	2011	2012	2012 NOTIFIED / ESTIMATED (%)[a]	2009	2010	2011	2012	N	%[b]
Armenia	250	220	280	156	177	79	92	37	134	154	88	101	132	75
Azerbaijan	2 800	2 600	3 000		552	811	596	21		286	592	406	263	48
Bangladesh	4 200	3 100	5 200		339	509	513	12	352	339	390	513	329	97
Belarus	2 200	2 100	2 200	1 342	1 576	1 594	1 604	73		200	1 446	2 478	1 442	91
Bulgaria	100	78	130	43	56	55	49	49	43	56	42	36	56	100
China	59 000	52 000	66 000	474	2 792	1 601	3 007	5.1	458	1 222	1 155	1 906	1 222	44
DR Congo	2 900	670	5 100	91	87	121	65	2.2	176	191	128	179	105	121
Estonia	70	56	85	86	63	78	62	89	86	63	75	54	64	102
Ethiopia	2 100	1 200	3 000	233	140	212	284	14	88	120	199	289	114	81
Georgia	630	570	690	369	359	475	346	55	266	618	737	665	504	140
India	64 000	49 000	79 000	1 660	2 967	4 237	16 588	26	1 136	2 967	3 384	14 143	2 182	74
Indonesia	6 900	5 200	8 500		182	383	428	6.2	20	142	260	426	140	77
Kazakhstan	8 800	8 700	9 000	3 644	7 387	7 408	7 608	86	3 209	5 705	5 261	7 213	5 777	78
Kyrgyzstan	1 800	1 600	1 900	785	566	806	958	53	545	566	492	790	441	78
Latvia	120	100	140	131	87	105	110	92	124	87	103	110	88	101
Lithuania	300	270	330	322	310	296	271	90	322	310	296	271	310	100
Myanmar	6 000	4 600	7 500	815	192	690	778	13	64	192	163	442	188	98
Nigeria	3 600	2 700	4 500	28	21	95	107	3.0	0	23	38	125	23	110
Pakistan	11 000	0	29 000	49	444	344	1 602	15	368	424	344	1 045	195	44
Philippines	13 000	10 000	16 000	1 073	522	1 148	679	5.2	501	548	2 397	1 918	783	150
Republic of Moldova	1 700	1 600	1 800	1 069	1 082	1 001	894	53	334	791	765	853		–
Russian Federation	46 000	43 000	49 000	14 686	13 692	13 785	13 612	30	8 143	13 692	18 902	18 452	4 681	34
South Africa	8 100	6 900	9 400	9 070	7 386	10 085	15 419	>100	4 143	5 402	5 643	6 494	4 882	66
Tajikistan	910	800	1 000	319	333	604	694	76	52	245	380	535	245	74
Ukraine	6 800	6 500	7 000	3 482	5 336	4 305	6 934	>100	3 186	3 870	4 950	7 672	3 902	73
Uzbekistan	4 000	3 700	4 300	654	1 023	1 385	1 728	43	464	628	855	1 491	628	61
Viet Nam	3 800	3 000	4 600	217	101	601	273	7.2	307	101	578	713	97	96
High MDR-TB burden countries	**270 000**	**180 000**	**350 000**	**40 798**	**47 772**	**52 813**	**75 301**	**28**	**24 521**	**38 942**	**49 663**	**69 320**	**28 793**	**60**
AFR	38 000	14 000	62 000	10 741	9 340	12 384	18 129	48	5 994	7 209	7 467	9 303	6 166	66
AMR	7 100	4 500	9 600	2 884	2 661	3 474	2 967	42	3 153	3 249	3 087	3 102	2 374	89
EMR	18 000	0	42 000	496	873	841	2 236	12	707	967	756	1 602	676	77
EUR	74 000	60 000	88 000	28 157	33 776	34 199	36 708	50	17 169	28 336	36 313	42 399	19 496	58
SEAR	90 000	71 000	110 000	2 560	3 942	6 615	19 202	21	2 040	3 901	4 597	15 845	3 113	79
WPR	74 000	57 000	91 000	2 059	4 295	4 394	4 473	6.0	1 429	2 210	4 946	5 070	2 456	57
Global	**300 000**	**220 000**	**380 000**	**46 897**	**54 887**	**61 907**	**83 715**	**28**	**30 492**	**45 872**	**57 166**	**77 321**	**34 281**	**62**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.
[a] Notified cases of MDR-TB in 2012 as a percentage of the best estimate of MDR-TB cases among all cases of pulmonary TB in the same year. The percentage may exceed 100% if estimates of the number of MDR-TB are too conservative and if linkage between the clinical and laboratory registers is inadequate.
[b] The percentage of MDR-TB cases originally notified in 2010 with outcomes reported. The percentage may exceed 100% as a result of updated information about MDR-TB cases in 2010, inadequate linkages between notification systems for TB and MDR-TB, and the inclusion in the treatment cohort of cases of MDR-TB cases from a year prior to 2010.

FIGURE 4.6

Number of MDR-TB cases estimated to occur among notified pulmonary TB cases, 2012



Republic of the Congo, the Philippines and Viet Nam, which detected less than 30% of their estimated burden in 2012, MDR-TB notifications decreased between 2011 and 2012. Of the MDR-TB cases reported globally in 2012, most (82%) were detected in either the European Region (36 708), India (16 588) or South Africa (15 419).

Countries detecting close to 100% of the TB patients estimated to have MDR-TB in 2012 included Estonia, Kazakhstan, Latvia, Lithuania, South Africa and Ukraine (**Table 4.3**). In the African and European Regions and the Region of the Americas, about 50% of the TB patients estimated to have MDR-TB were detected in 2012. The lowest figures were in the two regions with the largest number of cases: the South-East Asia region (21%) and the Western Pacific Region (6%). India and China, the two countries estimated to have the largest numbers of TB patients with MDR-TB (both over 50 000, **Figure 4.6**), strongly influence the overall figures for the South-East Asia and Western Pacific Regions. China and India, together with the Russian Federation – which ranks third globally in total cases of MDR-TB – detected and reported less than one third of the TB patients estimated to have MDR-TB (5%, 26% and 30% respectively).

The absolute numbers of TB cases started on second-line treatment for MDR-TB increased from 30 492 in 2009 to 77 321 in 2012 (+154%). There was a 40% increase in enrolments between 2011 and 2012 in the 27 high MDR-TB burden countries, which reflected progress in 20 of these countries and especially in India, Kazakhstan and Ukraine (**Table 4.3**). The ratio of the numbers of patients starting treatment with second-line drug regimens for MDR-TB, to those notified with MDR-TB in 2012, was 92% globally (82% when RR-TB cases are included), but was lower in the African (51%) and South-East Asia (83%) Regions (**Table 4.3**). Waiting lists of people requiring treatment for MDR-TB are persisting or growing in several countries, particularly when additional RR-TB cases diagnosed using Xpert MTB/RIF are taken into account. Diagnosis:treatment gaps of 5% or more were evident in 14 of the high MDR-TB burden countries in 2012 (**Figure 4.7**), and the ratio of MDR-TB cases diagnosed to enrolments on MDR-TB treatment increased by more than 10% between 2011 and 2012 in China, Pakistan and South Africa. The number of XDR-TB cases reported worldwide increased from 1464 to 2230 between 2011 and 2012. All the WHO regions reported more XDR-TB cases enrolled on treatment in 2012 than in 2011, reaching 1557 globally in 2012.

Common constraints to treatment scale up include a critical shortage of trained staff, insufficient availability of second-line medications, inadequate numbers of facilities for treatment and monitoring, incomplete diagnosis of patients and other weaknesses in the coordination of activities required for effective programmatic management of DR-TB. There is a global shortfall in capacity to place people diagnosed with MDR-TB on treatment, and increased resources for the programmatic management of MDR-TB are urgently required.

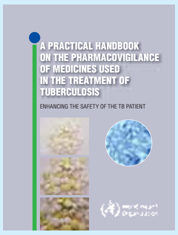
In a few countries, such as Georgia, the Russian Federation and Ukraine, enrolments have outstripped notifications of MDR-TB in recent years. Possible explanations for this include frequent empirical treatment of TB patients considered at risk of having MDR-TB but for whom a laboratory-confirmed diagnosis is missing, incomplete report-

FIGURE 4.7

MDR-TB cases (orange) and additional rifampicin-resistant TB cases (blue) detected compared with TB cases enrolled on MDR-TB treatment (green) 2009–2012, globally and in 27 high MDR-TB burden countries, 2009–2012

BOX 4.3

Pharmacovigilance for TB care



Pharmacovigilance is defined by WHO as: *"The science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other drug-related problem."*

Adverse drug reactions (ADRs) can lead to a TB patient interrupting treatment before completion, thus contributing to avoidable morbidity, drug resistance, treatment failure, reduced quality of life, or death. It is important to routinely monitor the occurrence of ADRs in TB patients on treatment in NTPs. This is particularly relevant in the care of patients with DR-TB and patients who are HIV-positive.

Three approaches to pharmacovigilance are in use:

- Spontaneous reporting. This involves the reporting of ADRs – e.g. ototoxicity associated with aminoglycosides – to the national pharmacovigilance centre.
- Targeted spontaneous reporting. This is an extension of spontaneous reporting that can be focused on the surveillance of serious adverse events in specific patient groups, such as patients with MDR-TB.
- Cohort event monitoring (CEM). This is an active form of surveillance, similar in design and management to an epidemiological cohort study. CEM is particularly well suited to the post-marketing surveillance of new drugs.

In 2012, WHO produced a handbook on pharmacovigilance for TB.[a] WHO offers technical assistance to countries for the introduction and strengthening of pharmacovigilance in their programmes. The handbook explains how pharmacovigilance can be effectively implemented in a TB programme through key stakeholders, including regulators and manufacturers, and provides a step-by-step approach to identifying signals, assessing the relationship between an event and a drug, determination of causality, acting on observations and communication of findings.

[a] *A practical handbook on the pharmacovigilance of medicines used in the treatment of tuberculosis: enhancing the safety of the TB patient.* Geneva, World Health Organization, 2012 (www.who.int/medicines/publications/pharmacovigilance_tb/).

ing of laboratory data, or enrolment of 'backlogs' or waiting lists of MDR-TB patients who were detected before 2012.

Among 119 countries reporting sex-disaggregated data for enrolments, the median male:female ratio was 2. Most countries that reported data on MDR-TB patient enrolments did not report the inclusion of any children. In the 44 countries that did, the proportion of children ranged from <1% to 33% of total enrolments.

Many countries envisage increases in the number of patients enrolled on treatment for MDR-TB between 2013 and 2015. However, global projections remain well below Global Plan targets, partly as a result of slow rates of increase as well as incomplete information regarding forecasts, notably for China (2015) and the Russian Federation (2013) (**Figure 4.5b**). To reach the targets set out in the Global Plan and advance towards universal access to treatment, a bold and concerted drive is still needed on many fronts of TB care, particularly in the countries where the burden is highest. The capacity to address this challenge has increased in recent years as a result of the intensified technical assistance provided by international organizations. With the reform of the Green Light Committee (GLC) structure in 2011, and the creation of regional level committees (rGLCs) in all six WHO regions, international support to national efforts to strengthen programmatic management of DR-TB is now focused on devolving available resources and technical assistance closer to countries.

4.2.3 Treatment outcomes for MDR-TB and XDR-TB

Standardized monitoring methods and indicators have allowed countries to report MDR-TB treatment outcomes in a comparable manner for several years. In 2013, the definitions for treatment outcomes were simplified and the reporting requirements changed to allow for the inclusion of RR-TB cases in the MDR-TB cohort (**Box 4.4**).

The number of cases reported in annual MDR-TB treatment outcome cohorts has tripled between 2007 and 2010, reflecting increases in all regions (**Figure 4.8**). All high MDR-TB burden countries have now reported treatment outcomes for at least one annual cohort since 2007.

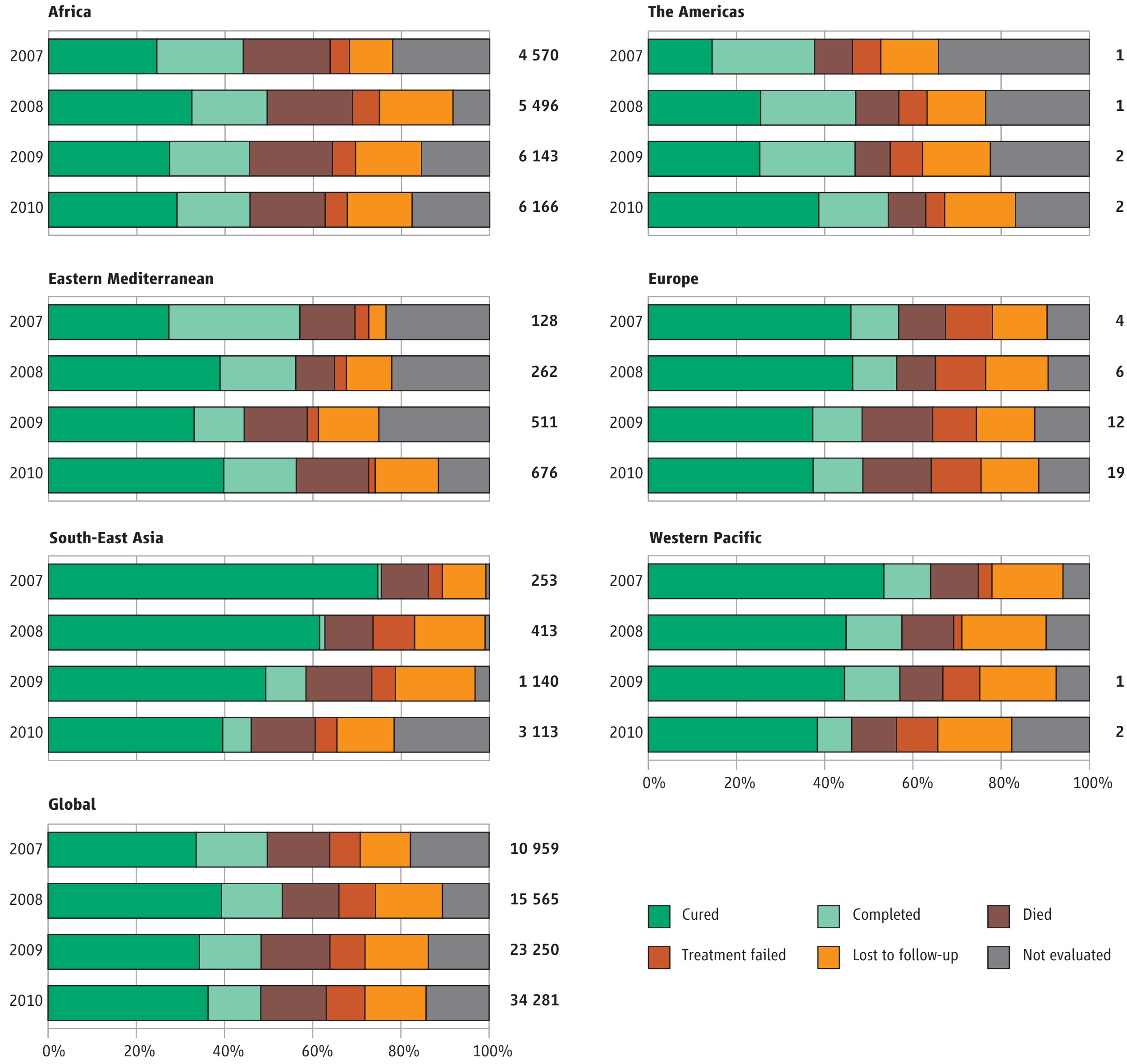
A total of 107 countries reported outcomes for more than 34 000 MDR-TB cases started on treatment in 2010 (**Table 4.3**). This is equivalent to 62% of the number of MDR-TB cases notified by countries in the same year. The low proportion reflects weaknesses in reporting systems to reconcile outcome data with notifications. The Global Plan envisages that by 2015, all countries will report outcomes for all notified MDR-TB cases. In 2010, only 71 countries – including 13 high MDR-TB burden countries – reported outcomes for a cohort whose size exceeded 80% of the original number of MDR-TB notifications in 2010.

Overall, the proportion of MDR-TB patients in the 2010 cohort who successfully completed treatment was 48%, while 28% of cases were reported as lost to follow-up or had no outcome information. Treatment success was highest in the Eastern Mediterranean Region (56%), as well as in the Region of the Americas (54%) where this proportion has increased steadily since 2007 alongside a reduction in the proportion of patients whose treatment outcome was not evaluated. In the 2010 cohort, deaths were highest in the African Region (17%) and the proportion of patients whose treatment failed was highest in the European Region (11%). The Global Plan's target of achieving at least 75% treatment success in MDR-TB patients by 2015 was only reached by 34/107 countries reporting outcomes for the 2010 cohort, but included three high MDR-TB burden countries: Bangladesh, Ethiopia and Viet Nam.

Among a subset of 795 XDR-TB patients in 26 countries, treatment success was 20% overall and 44% of patients died; excluding South Africa, the figures were 27% and 28% respectively (**Box 4.2**).

FIGURE 4.8

Treatment outcomes for patients diagnosed with MDR-TB by WHO region, 2007–2010 cohorts.
The total numbers of cases with outcome data are shown beside each bar.



Progressing towards the target for treatment success requires the scale up of treatment programmes globally, enhancing the effectiveness of drug regimens, support to patients to avoid treatment interruption and improved data collection. In particular, countries need to analyse the poor treatment outcomes observed in MDR-TB cases and intensify measures to improve adherence and monitoring. TB programmes need to apply a package of services for MDR-TB patients that include free TB and ancillary medications, free laboratory testing, enablers and social support, and the use of short treatment regimens following current WHO policy in selected patients. The treatment of XDR-TB patients in particular remains very unsatisfactory and more effective regimens for this condition are urgently required.

4.2.4 Other aspects of MDR-TB programme management

During their illness, patients with MDR-TB may be cared for as either outpatients or within hospitals, usually secondary or tertiary facilities. WHO recommends that, where possible, patients with MDR-TB should be treated using ambulatory or community-based care rather than models of care based principally on hospitalization.

National policies and practices differ in the predominant model of care that is employed. Among the high MDR-TB burden countries, the lowest level of hospitalization was reported by the Philippines (5% of MDR-TB patients), while levels in Eastern European countries ranged between 75 and 100% but were lower in Central Asia (30–50% in Kazakhstan, Tajikistan and Uzbekistan). In the African Region, there is wide variation in the extent to which patients with MDR-TB are hospitalized, ranging from 10% of patients (Democratic Republic of the Congo) to 100% (Ethiopia and Nigeria). Globally, the average duration of hospital stay ranged from 7 to 240 days (median: 84 days). The number of visits to a health facility after diagnosis of MDR-TB also varies markedly among countries, from 30 or less (Bangladesh, the Democratic Republic of the Congo, Estonia, Pakistan, and Viet Nam) to over 600 (Bulgaria, Indonesia, Latvia, Tajikistan and Uzbekistan).

Palliative and end-of-life care delivered through home-based or institutional services is fundamental to alleviate the suffering associated with MDR-TB, particularly in patients with advanced disease that is not responding to treatment. Only eleven high MDR-TB burden countries –10 in the European region plus South Africa – reported that they provided such care within the scope of their NTPs. When considered in the context of the poor outcomes reported in patients with MDR-TB and especially XDR-TB, this finding attests to the persistent, huge unmet need for palliative care services in countries with the largest burdens of drug-resistant TB.

Among 18 high MDR-TB burden countries providing information on the quality of second-line drugs in the public sector in 2012, two countries reported that all of the drugs that they used conformed only to national regulatory norms. In the other 16 countries, most reported conformity to international standards for all supplies of kanamycin (11), capreomycin (9, with 2 other countries not using it), levofloxacin (10, with 1 other not using it), ethionamide/prothionamide (12), cycloserine/terizidone (11) and *p*-aminosalicylic acid (10, with 2 others not using it).

More information is required to adequately monitor TB patients on MDR-TB treatment than is needed for drug-susceptible TB. The definitions for monitoring of RR-TB and MDR-TB and their outcomes were revised in 2013 (see **Chapter 3** and **Box 4.4**). The employment of electronic systems to manage patient data is therefore strongly encouraged. One of the Global Plan's targets is that all 27 high MDR-TB countries manage their data on treatment of MDR-TB patients electronically by 2015. By 2012, 19 reported that national databases were in place for MDR-TB patients (see **Figure 2.16** in **Chapter 2**). These systems differ markedly from one country to another, varying from individual patient medical records accessible online to the periodic collation of records from registers across the country. Before introducing electronic systems to handle patient data, WHO recommends that NTPs undertake a detailed assessment of their needs and expectations and then try to match these with the best suited informatics solution. A fragmentary approach with parallel systems dealing with different programme components (for example, management of data for patients with drug-susceptible and drug-resistant TB in separate systems) should be avoided. Guidance on the design and implementation of electronic systems for recording and reporting data was produced by WHO and technical partners in 2012.[1]

BOX 4.4

WHO definitions of treatment outcomes for RR-TB, MDR-TB and XDR-TB

Cured Treatment completed as recommended by the national policy without evidence of failure AND three or more consecutive cultures taken at least 30 days apart are negative after the intensive phase.

Treatment completed Treatment completed as recommended by the national policy without evidence of failure BUT no record that three or more consecutive cultures taken at least 30 days apart are negative after the intensive phase.

Treatment failed Treatment terminated or need for permanent regimen change of at least two anti-TB drugs because of:

- lack of conversion by the end of the intensive phase; or
- bacteriological reversion in the continuation phase after conversion to negative; or
- evidence of additional acquired resistance to fluoroquinolones or second-line injectable drugs; or
- adverse drug reactions.

Died A patient who died for any reason during the course of treatment.

Lost to follow-up A patient whose treatment was interrupted for two consecutive months or more.

Not evaluated A patient for whom no treatment outcome is assigned (this includes cases 'transferred out' to another treatment unit and whose treatment outcome is unknown).

Successfully treated The sum of cured and treatment completed.

Cohort A group of patients where RR-TB has been diagnosed (including MDR-TB and XDR-TB), and who were started on a full course of a second-line MDR-TB drug regimen during a specified time period (e.g. the cohort of MDR-TB cases registered in the calendar year 2010). This group forms the denominator for calculating treatment outcomes. With the revised definitions, *any patient found to have drug-resistant TB and placed on second-line treatment is removed from the drug-susceptible TB outcome cohort*. This means that management of the basic management unit TB register and of the second-line TB treatment register needs to be coordinated to ensure proper accounting of the outcomes of treatment.

More details on the definition of conversion, reversion and the end of the intensive phase are provided in the WHO guidance.[a]

[a] *Definitions and reporting framework for tuberculosis – 2013 revision* (WHO/HTM/TB/2013.2). Geneva, World Health Organization, 2013 (www.who.int/iris/bitstream/10665/79199/1/9789241505345_eng.pdf).

[1] Electronic recording and reporting for TB care and control. Geneva, World Health Organization, 2013 (WHO/HTM/TB/2011.22).

Diagnostics and laboratory strengthening

KEY FACTS AND MESSAGES

- The conventional laboratory tests for the diagnosis of TB, which have been used for decades, are sputum smear microscopy and bacterial culture. Diagnosis based on cultured specimens is the reference standard but results take weeks to obtain. Drug susceptibility testing (DST) on cultures is used to detect resistance to first- and second-line TB drugs.
- There have been important breakthroughs in TB diagnostics in recent years. In 2010, WHO endorsed the first rapid molecular test that can be used to simultaneously test for pulmonary TB and rifampicin resistance, Xpert® MTB/RIF. The sensitivity of the test is much better than smear microscopy and is comparable to solid culture. In 2013, a review of the 2010 policy was initiated, to examine the substantial body of new evidence on the use and positioning of Xpert MTB/RIF for the diagnosis of pulmonary, extrapulmonary and paediatric TB. Updated guidance is expected in 2014.
- Xpert MTB/RIF is being rapidly adopted by countries. By the end of June 2013, 1402 GeneXpert machines and 3.2 million Xpert MTB/RIF cartridges had been procured by 88 of the 145 countries eligible for concessional prices. Almost half (49%) of reporting low- and middle-income countries and territories indicated that WHO policy guidance on Xpert MTB/RIF had been incorporated into their national guidelines. South Africa is the first country to adopt Xpert MTB/RIF as the primary diagnostic test for TB, replacing smear microscopy.
- Laboratory capacity to conduct high-quality sputum smear microscopy requires significant strengthening. Only 14 of the 22 HBCs met the target of having 1 microscopy centre per 100 000 population in 2012, and only eight reported a programme for external quality assessment that covered at least 95% of all centres in the country.
- Globally, laboratory capacity to perform DST continues to be low and is not growing quickly enough to ensure that TB patients with MDR-TB are promptly diagnosed. From 2009 to 2012, the percentage of new and previously treated TB patients receiving DST increased from 4% to 5% and from 6% to 9%, respectively. The EXPAND-TB project, which started in 2009 and has entered a phase of routine testing in 25 countries, shows how it is possible to introduce routine testing for drug resistance and achieve considerable increases in the number of MDR-TB cases detected.
- The national reference laboratory of Uganda has become the newest member of the WHO/Global Laboratory Initiative (GLI) Supranational Reference Laboratory (SRL) Network, filling a critical geographical gap in East Africa.

The early, rapid and accurate detection of TB and drug resistance relies on a well-managed and equipped laboratory network. Laboratory confirmation of TB and drug resistance is critical to ensure that people with TB signs and symptoms are correctly diagnosed and have access to the correct treatment as soon as possible.

The conventional laboratory tests for the diagnosis of TB, which have been used for decades, are sputum smear microscopy and culture. Diagnosis based on culture is the reference standard but results take weeks to obtain. Drug susceptibility testing (DST) on cultured specimens is the conventional method used to detect resistance to first- and second-line TB drugs. Following increased investments in TB research and development in the past decade (**Chapter 8**), there have been important breakthroughs in TB diagnostics. In 2008, rapid molecular tests (line probe assays, or LPAs) for detection of RR-TB and MDR-TB using positive sputum specimens or cultures were recommended by WHO. In 2010, the first rapid molecular test that can be used to simultaneously test for TB and rifampicin resistance, Xpert® MTB/RIF (Cepheid, Sunnyvale, CA, USA), was recommended for diagnosis of pulmonary TB and rifampicin resistance in adults. The sensitivity of the test is much better than smear microscopy and similar to solid culture.[1]

Although laboratories play a fundamental role in TB care and control, only 57% of the 4.6 million new pulmonary TB patients notified globally in 2012 were bacteriologically confirmed using a WHO-recommended diagnostic method. Low coverage of laboratory confirmation may result in people without TB needlessly being enrolled on TB treatment, while true TB cases are being missed. Furthermore, the 5.7 million incident (new and relapse) TB patients diagnosed and notified to NTPs in 2012 represent only 66% of the estimated 8.6 million incident TB cases globally. The gap reflects both underreporting of diagnosed TB cases and failure to diagnose cases at all; the latter can be attributed in part to weak laboratory capacity in many countries.

Detection of TB without investigating for drug resistance can lead to poor treatment outcomes, additional and unnecessary suffering and costs for patients and further spread of drug-resistant strains. While there was a small increase between 2011 and 2012, only 5.1% of new cases and 8.7% of previously treated cases received DST in 2012.

[1] Steingart KR et al. Xpert® MTB/RIF assay for pulmonary tuberculosis and rifampicin resistance in adults (Review). *Cochrane Database of Systematic Reviews 2013*, Issue 1. Art. No.: CD009593. 2013.

Of the 300 000 cases of MDR-TB estimated to exist among notified TB patients with pulmonary TB in 2012 (i.e. the group of patients known to NTPs and that could be tested for drug resistance using WHO-recommended diagnostic tests), only 83 715 received a laboratory-confirmed diagnosis of MDR-TB and were notified in 2012. In addition, just over 10 000 RR-TB cases were detected using rapid molecular methods, though without results for isoniazid DST at the time of reporting. Given the large burden of undiagnosed DR-TB, strengthening DST capacity is a high priority for NTPs (see also **Chapter 4**).

This chapter has three parts. **Section 5.1** summarizes the key developments in WHO guidance on TB diagnostics and laboratory strengthening during 2012–2013. **Section 5.2** provides the status of laboratory capacity globally, regionally and nationally based on data reported to WHO by countries in 2013. The focus is on the 36 countries in the combined list of 22 HBCs and 27 high MDR-TB burden countries. Innovative public–private mix (PPM) laboratory initiatives are highlighted as well. **Section 5.3** describes recent achievements in strengthening TB laboratories, covering incorporation of WHO guidance into policy and practice at country level and the latest status of progress of two multinational projects (EXPAND-TB and TBXpert) that are helping to introduce new diagnostics.

5.1 Developments in WHO policy guidance on TB diagnostics and laboratory strengthening, 2012–2013

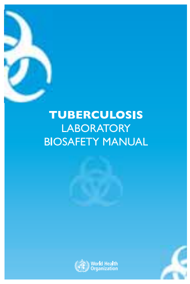
WHO follows a systematic process for policy development on TB diagnostics, involving synthesis of the available evidence through systematic reviews and meta-analyses where possible, assessment of the evidence by an external Expert Group using the GRADE approach,[1] and development of policy guidance[2] for dissemination to Member States and other stakeholders.[3] Policy documents are reviewed every 3–5 years, and revised as necessary when new evidence becomes available.

The first WHO policy guidance on the use of Xpert® MTB/RIF was issued in December 2010. The recommendations were that Xpert MTB/RIF should be used as the initial diagnostic test in individuals at risk of having MDR-TB or HIV-associated TB (strong recommendation), and that Xpert MTB/RIF could be used as a follow-on test to microscopy in settings where MDR and/or HIV is of lesser concern, especially in smear-negative specimens (this was a conditional recommendation, recognizing major resource implications). The 2010 recommendations applied to the use of Xpert MTB/RIF in sputum specimens only, as data on its performance (sensitivity and specificity) for testing of extrapulmonary specimens at that time were limited. The recommendations applied to children, but only based on generalization of data from adults.

Following rapid uptake of Xpert MTB/RIF (see **section 5.2**), a substantial body of new evidence had been generated by 2013.[4] This included much more data about the test's performance characteristics (sensitivity and specificity) in a wide range of laboratory and epidemiological settings, additional data on test accuracy in detection of extrapulmonary and paediatric TB, and more evidence about affordability and cost-effectiveness from early implementers in a limited number of settings. WHO therefore embarked on a review of policy guidance in 2013. Three systematic reviews were commissioned on the sensitivity and specificity of Xpert MTB/RIF for the diagnosis of pulmonary and extrapulmonary TB and RR-TB, in adults and children. A review of published studies on the affordability and cost-effectiveness of Xpert MTB/RIF was also conducted.

An Expert Group convened by WHO met in May 2013 to review the expanded body of evidence, according to GRADE procedures. Based on the outcomes of the review and the recommendations of the Expert Group, which were also supported by WHO's Strategy and Technical Advisory Group for TB (STAG-TB) in June 2013, updated WHO policy guidance was under development at the time that the current report went to press. Upon finalization, the recommendations are expected to have a major impact on further country adoption of Xpert MTB/RIF into diagnostic and clinical algorithms.

Several other new TB diagnostic tests are on the horizon, in various stages of research and development (see **Chapter 8**). Once data on their performance are available in varying epidemiological settings, WHO will be in a position to evaluate their performance and develop corresponding policy guidance. A comprehensive list of existing WHO policy documents, including those on the use of microscopy, culture, DST and non-commercial and molecular methods, can be found at: http://www.who.int/tb/laboratory/policy_statements



In addition to diagnostics, WHO also develops guidance in other areas of laboratory strengthening. In 2013, the WHO *Tuberculosis laboratory biosafety manual* was issued, featuring a risk-based approach that guides the essential biosafety measures required for performing different technical procedures. The manual describes the combination of good laboratory practices together with administrative controls, containment principles, safety equipment and laboratory facilities that are required to minimize the generation of infectious aerosols and thus prevent laboratory-acquired infections. The risk-based approach to laboratory biosafety is framed around a three-tiered system of 'low', 'moderate' and 'high' TB risk precautions:

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1 www.gradeworkinggroup.org

2 *WHO handbook for guideline development*. Geneva, World Health Organization, 2012.

3 WHO policies on TB diagnostics are available at: www.who.int/tb/laboratory/policy_statements

4 Weyer K et al. Rapid molecular TB diagnosis: evidence, policy-making and global implementation of Xpert® MTB/RIF. *European Respiratory Journal*. November 22, 2012, doi: 10.1183/09031936.00157212

- Low TB risk precautions. These apply to direct acid-fast bacilli (AFB) microscopy and to Xpert MTB/RIF.
- Moderate TB risk precautions. These apply to the processing of sputum specimens for primary culture inoculation, direct testing (i.e. on sputum smear-positive samples) using direct non-commercial drug susceptibility assays and LPAs.
- High TB risk precautions in TB containment laboratories. These apply to procedures used to manipulate cultures (solid and liquid) for identification and DST, and for indirect testing (i.e. on culture isolates) using LPA and non-commercial DST.

5.2 Status of laboratory capacity globally, regionally and nationally

Diagnosis of TB in most low- and middle-income countries still relies on low-cost sputum smear microscopy, despite its relatively low sensitivity and inability to detect drug resistance. The *Global Plan to Stop TB 2011–2015* includes the target that countries maintain at least one smear microscopy centre per 100 000 population. Globally the target has been met (1.1 centres per 100 000 population in 2012), but considerable disparities remain at regional and country levels (**Table 5.1**). Eight of the 22 HBCs did not meet the target in 2012: Bangladesh, China, Myanmar, Nigeria, Pakistan, the Russian Federation, South Africa and Viet Nam. Overall, the Western Pacific and Eastern Mediterranean Regions had less than one centre per 100 000 population.

Given the continued critical role of microscopy in TB detection and monitoring of treatment, ensuring high-quality performance of smear microscopy is essential. Of the 153 countries and territories that reported data on the number of smear microscopy centres in 2012, only 39% indicated the existence of an external quality assessment programme that covered all centres in the country. Among the 22 HBCs, only three reported such a programme that encompassed all centres in 2012 (Bangladesh, India and Viet Nam), five reported a programme that included at least 95% of centres (Cambodia, China, Myanmar, the Russian Federation and South Africa), and 14 reported a programme that included at least 80% of centres.

In 2009, WHO recommended the use of the more sensitive fluorescent light-emitting diode (LED) microscopy as a replacement for traditional Ziehl–Neelsen (ZN) microscopy. Globally the switch to LED microscopes has been gradual, and they were reported to be present in only 2% of microscopy centres in 2012. Overall in 2012, the African Region was the most advanced in rolling out LED microscopes (6% of microscopy centres), led by South Africa where 97% of microscopy centres were reported to have them. Other HBCs in the African Region have shown significant increases in uptake from 2011 to 2012, including the United Republic of Tanzania (3% to 17% of microscopy centres) and Mozambique (<1% to 9%).

The current target in the *Global Plan to Stop TB 2011–2015* for both culture and DST (to at least rifampicin and isoniazid) capacity is one laboratory per 5 million population. In 2012, 14 of the 27 high MDR-TB burden countries did not reach the target (**Table 5.1**; there were two additional countries that did not report data). Of these 27 countries, 9 reported more than one laboratory per 5 million population using LPAs – a high-throughput molecular tool that can be used at central and regional levels to rapidly detect resistance to rifampicin and, in some cases, isoniazid. The nine countries comprise eight European countries and South Africa.

Of the 147 countries and territories that reported numbers of laboratories with capacity to perform DST, 22 indicated that such capacity did not exist in 2012. While countries and territories with small TB patient populations may find it more practical to send specimens to neighbouring countries for DST than to establish national capacity, countries with larger patient populations should aim as a priority to build sustainable DST capacity in-country to allow timely diagnosis of drug-resistant strains. Eight countries reported more than 1000 notified TB cases in 2012 yet reported having no capacity to perform DST: Afghanistan, Chad, Eritrea, Guinea-Bissau, Liberia, Papua New Guinea, Sierra Leone and Somalia.

Quality-assured DST is critical to ensure accurate detection of drug resistance for subsequent treatment decisions and to avoid false diagnoses. Of the high TB and MDR-TB burden countries that reported on external quality assessment coverage of DST laboratories (34 of 36), 27 (79%) reported having a scheme that encompassed all DST laboratories. Of the 117 countries globally that reported on external quality assessment coverage of DST laboratories, 70% (82 countries) reported such a scheme.

Given its high sensitivity to detect TB and rifampicin resistance together with its ability to be placed at relatively low levels of laboratory networks, Xpert MTB/RIF has been rapidly adopted by countries. By the end of June 2013, 3.2 million test cartridges and 1402 GeneXpert machines (comprising 7553 machine modules) had been procured in 88 of the 145 countries eligible to purchase machines and cartridges at concessional prices (**Figure 5.1**).[1] The current price per cartridge is US$ 9.98, following a novel financing agreement reached in August 2012 between the manufacturer and the United States Agency for International Development (USAID), the United States President's Emergency Plan for AIDS Relief (PEPFAR), UNITAID and the Bill & Melinda Gates Foundation. South Africa alone accounts for 43% of the modules and 60% of the cartridges procured globally, and is aiming to position Xpert MTB/RIF as a replacement for microscopy for the diagnosis of TB. After South Africa, leading procurers include India, Pakistan, Zimbabwe and Nigeria.

The complete or partial replacement of microscopy by Xpert MTB/RIF as the initial diagnostic test and the increasing number of rifampicin-resistant cases being detected by Xpert MTB/RIF will require adjustment of countries' smear, culture and DST capacities going forward.

[1] http://www.who.int/tb/laboratory/mtbrifrollout/

TABLE 5.1

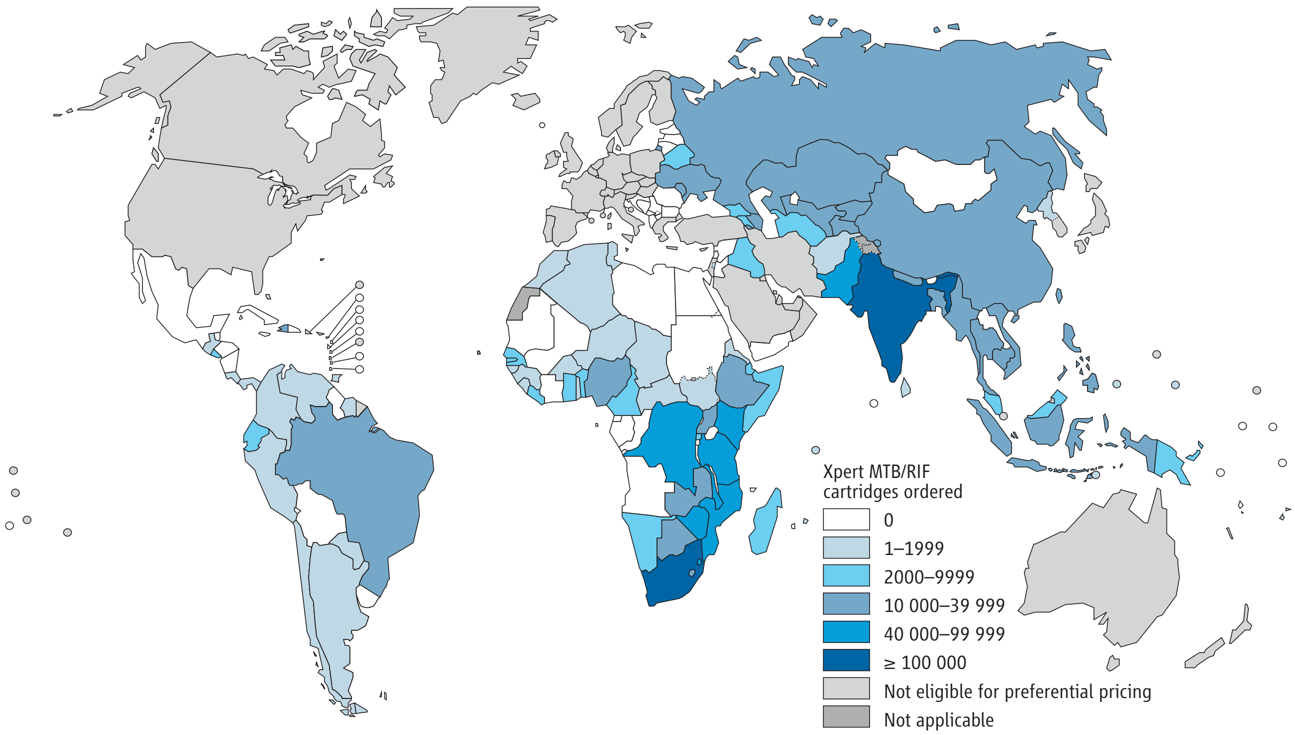
Laboratory capacity, 2012[a]

YES ■ NO □	HIGH TB BURDEN	HIGH MDR-TB BURDEN	SMEAR MICROSCOPY: NUMBER OF LABORATORIES	SMEAR MICROSCOPY: LABORATORIES PER 100 000 POPULATION	SMEAR MICROSCOPY: PERCENTAGE OF LABORATORIES USING LED MICROSCOPES	CULTURE: NUMBER OF LABORATORIES	CULTURE: LABORATORIES PER 5 MILLION POPULATION	DRUG SUSCEPTIBILITY TESTING: NUMBER OF LABORATORIES	DRUG SUSCEPTIBILITY TESTING: LABORATORIES PER 5 MILLION POPULATION	LINE PROBE ASSAY: NUMBER OF LABORATORIES	LINE PROBE ASSAY: LABORATORIES PER 5 MILLION POPULATION	XPERT MTB/RIF: NUMBER OF SITES
Afghanistan	■	□	603	2.0	2	2	0.3	0	0	0	0	1
Armenia	□	■	30	1.0	0	1	1.7	1	1.7	1	1.7	0
Azerbaijan	□	■	72	0.8	4	7	3.8	3	1.6	1	0.5	7
Bangladesh	■	■	1 070	0.7	2	3	< 0.1	3	< 0.1	1	< 0.1	12
Belarus	□	■	196	2.1	2	29	15	8	4.3	8	4.3	8
Brazil	■	□	4 000	2.0	–	220	5.5	35	0.9	8	0.2	13
Bulgaria	□	■	34	0.5	0	31	21	14	9.6	4	2.7	0
Cambodia	■	□	214	1.4	10	3	1.0	1	0.3	0	0	6
China	■	■	3 328	0.2	2	1 014	3.7	190	0.7	21	< 0.1	16
DR Congo	■	■	1 522	2.3	< 1	4	0.3	2	0.2	1	< 0.1	26
Estonia	□	■	5	0.4	100	2	7.7	2	7.7	2	7.7	2
Ethiopia	■	■	2 531	2.8	0	5	0.3	1	< 0.1	5	0.3	7
Georgia	□	■	11	0.3	9	2	2.3	1	1.1	2	2.3	1
India	■	■	13 098	1.1	2	70	0.3	38	0.2	33	0.1	32
Indonesia	■	■	5 566	2.3	0	46	0.9	5	0.1	2	< 0.1	9
Kazakhstan	□	■	466	2.9	0	22	6.8	22	6.8	11	3.4	4
Kenya	■	□	1 818	4.2	8	2	0.2	2	0.2	2	0.2	15
Kyrgyzstan	□	■	122	2.2	0	11	10	3	2.7	2	1.8	7
Latvia	□	■	16	0.8	0	4	9.7	1	2.4	1	2.4	2
Lithuania	□	■		–	–		–		–		–	
Mozambique	■	□	300	1.2	9	3	0.6	2	0.4	0	0	12
Myanmar	■	■	458	0.9	14	2	0.2	2	0.2	2	0.2	3
Nigeria	■	■	1 314	0.8	2	5	0.1	3	< 0.1	4	0.1	32
Pakistan	■	■	1 388	0.8	< 1	7	0.2	4	0.1	2	< 0.1	15
Philippines	■	■	2 565	2.7	< 1	13	0.7	3	0.2	1	< 0.1	17
Republic of Moldova	□	■		–	–		–		–		–	
Russian Federation	■	■	1 031	0.7	–	117	4.1	110	3.8		–	
South Africa	■	■	187	0.4	97	15	1.4	15	1.4	15	1.4	100
Tajikistan	□	■	89	1.1	4	3	1.9	1	0.6	1	0.6	3
Thailand	■	□	1 081	1.6	6	65	4.9	18	1.3	12	0.9	14
Uganda	■	□	1 152	3.2	8	4	0.6	4	0.6	4	0.6	25
Ukraine	□	■	821	1.8	5	86	9.4	41	4.5	0	0	15
UR Tanzania	■	□	945	2.0	17	4	0.4	1	0.1	3	0.3	13
Uzbekistan	□	■	291	1.0	1	7	1.2	3	0.5	3	0.5	7
Viet Nam	■	■	800	0.9	< 1	25	1.4	2	0.1	2	0.1	22
Zimbabwe	■	□	185	1.3	1	2	0.7	2	0.7	0	0	17
High-burden countries			**–**	**1.0**	**2**	**–**	**1.8**	**–**	**0.5**	**–**	**0.1**	**–**
High MDR-TB burden countries			**–**	**0.9**	**2**	**–**	**1.9**	**–**	**0.6**	**–**	**0.2**	**–**
AFR			–	1.5	6	–	0.6	–	0.4	–	0.3	–
AMR			–	2.2	< 1	–	16	–	0.8	–	0.2	–
EMR			–	0.8	< 1	–	1.4	–	0.4	–	0.1	–
EUR			–	0.7	2	–	9.8	–	4.6	–	1.8	–
SEAR			–	1.2	2	–	0.5	–	0.2	–	0.1	–
WPR			–	0.5	2	–	3.4	–	0.6	–	0.1	–
Global			**–**	**1.1**	**2**	**–**	**3.8**	**–**	**0.9**	**–**	**0.3**	**–**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.
[a] The regional and global figures are aggregates of data reported by low- and middle-income countries and territories. Data for the variables shown in the table are not requested from high-income countries in the WHO data collection form.

FIGURE 5.1

Progress in the roll-out of Xpert MTB/RIF, by July 2013



The introduction of Xpert MTB/RIF reduces the need for culture as a diagnostic test, yet the growing number of RR-TB cases will require culture for monitoring of treatment and DST of other anti-TB drugs to guide the design of treatment regimens. The increasing capacity of countries to diagnose RR-TB must also be matched by increased capacity to provide appropriate treatment to the diagnosed cases (see also **Chapter 4**).

One of the main reasons for low case detection rates in many parts of the world (**Chapter 3**) is the existence of a significant private sector, in which care providers frequently diagnose people with TB but fail to notify these cases to national authorities. The quality of diagnostic services in the private sector is highly variable, and some private practitioners continue to use tests that are not recommended by WHO, including antibody-based serodiagnostics and interferon-gamma release assays (IGRAs) for detection of active TB. Furthermore in some settings, laboratories in the public sector that are not under the auspices of the NTP also diagnose TB without necessarily following recommended guidelines and quality assurance procedures. Collaboration between NTPs and all laboratories offering TB diagnosis is therefore critical to ensure that national guidelines are followed, that appropriate diagnostic tests are used, and that patients diagnosed with TB are notified to the NTP and receive proper care. In 2012, 20 of 36 high TB and MDR-TB burden countries reported some level of collaboration with laboratories in the private sector, and 25 reported collaboration with non-NTP laboratories in the public sector. Additionally, the availability of WHO-recommended diagnostic tests at concessional prices from manufacturers under specified conditions has been used as leverage by new initiatives to form innovative PPM partnerships, increasing access to WHO-recommended diagnostics for people seeking care in the private sector. Examples are provided in **Box 5.1**.

5.3 Strengthening TB laboratories globally, regionally and nationally

Advances in TB diagnostics in recent years provide an opportunity to improve laboratory capacity to rapidly and accurately detect TB and drug resistance. One of the main prerequisites for effective uptake of new diagnostics is dynamic policy reform, properly incorporating new tests and testing methods into diagnostic algorithms. **Table 5.2** presents the uptake of selected WHO policy guidance on TB diagnostics into NTP guidelines at global, regional and country levels, focusing on the 36 countries in the combined list of 22 HBCs and 27 high MDR-TB burden countries. Overall, high burden countries have been faster in adopting WHO TB diagnostic guidelines than the global average. All reporting high MDR-TB burden countries, 95% of HBCs and 84% of reporting countries globally had reported incorporation of the WHO policy guidance on conventional phenotypic DST into their national guidelines by 2012. Three quarters (74%) of all countries globally had incorporated guidance on liquid culture and rapid speciation. Countries in the European Region have been particularly fast in adopting these policies, with 97% of countries reporting having taken up these technologies.

Uptake of WHO policy on use of LPAs for detection of resistance to rifampicin remains relatively modest, with

BOX 5.1

Innovative PPM initiatives to increase access to WHO-recommended diagnostics

Some manufacturers of rapid diagnostics, including Becton, Dickenson and Company (producer of the BD MGIT™ 960 automated liquid culture system), Hain LifeScience (Genotype® MTBDRplus line probe assay) and Cepheid (Xpert® MTB/RIF) offer their products to NTPs and their not-for-profit partners in low- and middle-income countries at concessional prices. Private for-profit sector laboratories have traditionally not been included in such arrangements, resulting in prices that are prohibitively high for poor people seeking care in the private sector and encouraging use of other diagnostics that are not recommended by WHO. Recently, two public–private mix (PPM) initiatives that aim to increase access to rapid and accurate diagnostics for vulnerable populations in Asian settings with vast private sector markets have been established.

In June 2012, the government of India took the unprecedented step of banning the import, manufacture, distribution and sale of antibody-based TB serodiagnostic tests, in line with the WHO recommendation that such tests should not be used to diagnose TB. Unfortunately, this ban created a gap in the private market that allowed other suboptimal tests to gain market share, especially since TB diagnostics recommended by WHO were considered too expensive and well beyond the reach of the typical TB patient. To overcome this market shortcoming, the Initiative for Promoting Affordable, Quality TB Tests (IPAQT)[a] in India was launched in March 2013. IPAQT is a consortium of 42 private diagnostic laboratories supported by not-for-profit stakeholders (examples include the Clinton Health Access Initiative and the McGill International TB Centre). It has established agreements with Cepheid Inc, Hain LifeScience, and Becton, Dickenson and Company that allow access to concessional prices for Xpert MTB/RIF, first-line line probe assays, and liquid culture in the private sector, which is normally excluded from negotiated pricing agreements. Participating laboratories must abide by several conditions: they need to be accredited to assure quality; they must report confirmed cases to the Revised National TB Control Programme (RNTCP); they must adhere to a ceiling price when charging patients; and they must refrain from using any tests that are not recommended by WHO or the RNTCP. Together, the laboratories participating in IPAQT have approximately 3000 franchisee laboratories and over 10 000 specimen collection centres across India, thus increasing access to rapid, accurate and affordable diagnostics for patients seeking care in the country's extensive private sector.

As part of the recently launched UNITAID-funded TBXpert project (**Box 5.2**) and with support from the Stop TB Partnership TB REACH initiative funded by the Department of Foreign Affairs, Trade and Development of Canada, innovative social business models have been formed in Bangladesh, Indonesia and Pakistan by Interactive Research and Development in cooperation with local partners and NTPs. Based in the megacities of Dhaka, Jakarta and Karachi and equipped with up to 25 GeneXpert instruments each, these social business models will provide Xpert MTB/RIF tests received from the TBXpert project free of charge to people at high risk of TB who seek care at private screening centres and other partnering locations. Free treatment will be provided to everyone diagnosed with TB, in cooperation with NTPs. Revenue will be generated from adjunct tests and services provided to patients, allowing for sustainability of the businesses beyond the duration of the three-year TBXpert project.

[a] www.ipaqt.org/

only 58% of countries globally adopting the policy to date. Uptake is, however, growing. In the Region of the Americas, for example, 61% of countries reported incorporation of the policy in their national guidelines in 2012 compared to only 17% in 2011.

Approximately half of low- and middle-income countries and territories globally (49%) indicated that they had incorporated WHO guidance on Xpert MTB/RIF into their diagnostic algorithms for people at risk of HIV-associated and DR-TB by the end of 2012, highlighting fast uptake of recommendations first issued in December 2010. High MDR-TB burden countries have been particularly quick to adopt WHO guidance, with 84% of countries reporting incorporation of the test into their diagnostic algorithms for people at risk of drug-resistant TB. Funding from sources including the Global Fund, PEPFAR, USAID, TB REACH and Médecins Sans Frontières has supported ministries of health to rapidly establish capacity to use Xpert MTB/RIF. These initiatives, together with the TBXpert and EXPAND-TB projects, will enable further roll out and scale up of the test in targeted low- and middle-income countries, with expected increased detection of DR-TB and HIV-associated TB (**Box 5.2**).

The WHO/Global Laboratory Initiative (GLI) TB Supranational Reference Laboratory (SRL) Network is a driving force in strengthening national and central level laboratories globally, providing long-term technical assistance to countries under the framework of collaborative agreements. The network comprises 29 laboratories covering all six WHO regions. The newest addition to the network is the national TB reference laboratory of Uganda; this fills a critical geographical gap that had existed in the network in East Africa. The laboratory has already established collaborative agreements with Somalia, South Sudan and Zambia for provision of technical assistance. Additionally, four candidate SRLs are under mentorship, including the national TB reference laboratories of Benin, Denmark and South Africa, and the Aga Khan University of Pakistan. Pending completion of successful mentorship and the establishment of country partners, the new laboratories will help to widen the geographical reach of the network, in particular in the African and Eastern Mediterranean Regions.

TABLE 5.2

Incorporation of WHO guidance for diagnosis of TB into national policy, 2012[a]

YES ■ NO □	HIGH TB BURDEN	HIGH MDR-TB BURDEN	CONVENTIONAL DRUG SUSCEPTIBILITY TESTING (DST)	LIQUID CULTURE AND RAPID SPECIATION TEST	LINE-PROBE ASSAY FOR DETECTING RESISTANCE TO RIFAMPICIN	ALGORITHM FOR THE DIAGNOSIS OF TB IN PEOPLE LIVING WITH HIV	XPERT MTB/RIF FOR DIAGNOSIS OF TB IN PERSONS AT RISK OF HIV-ASSOCIATED TB	XPERT MTB/RIF FOR DIAGNOSIS OF DRUG-RESISTANT TB IN PERSONS AT RISK
Afghanistan	■	□	□	□	□	■	□	□
Armenia	□	■	■	■	■	□	■	■
Azerbaijan	□	■	■	■		■	■	■
Bangladesh	■	■	■	□	■	■	■	■
Belarus	□	■	■	■	■	■	■	■
Brazil	■	□	■	□	□	■	□	□
Bulgaria	□	■	■	■	■	■	□	□
Cambodia	■	□	■	■	□	■	■	■
China	■	■	■	□	□	■	□	□
DR Congo	■	■	■	□	■	■	■	■
Estonia	□	■	■	■	■	■	■	■
Ethiopia	■	■	■	■	■	■	■	■
Georgia	□	■	■	■	■	■	■	□
India	■	■	■	■	■	■	■	■
Indonesia	■	■	■	■	■	■	■	■
Kazakhstan	□	■	■	■	■	■	■	■
Kenya	■	□	■	■	■	■	■	■
Kyrgyzstan	□	■	■	■	■	■	■	■
Latvia	□	■	■	■	■	■	■	■
Lithuania	□	■						
Mozambique	■	□	■	■	■	■	□	□
Myanmar	■	■	■	■	■	■	■	■
Nigeria	■	■	■	■	■	■	■	■
Pakistan	■	■	■	■	■	■	□	■
Philippines	■	■	■	■	■	■	■	■
Republic of Moldova	□	■						
Russian Federation	■	■	■	■	■	■	□	□
South Africa	■	■	■	■	■	■	■	■
Tajikistan	□	■	■	■	■	■	■	■
Thailand	■	□	■	■	■	■	■	■
Uganda	■	□	■	■	■	□	■	■
Ukraine	□	■	■	■	□	■	■	■
UR Tanzania	■	□	■	■	■	■	■	■
Uzbekistan	□	■	■	■	■	■	■	■
Viet Nam	■	■	■	■	■	■	■	■
Zimbabwe	■	□	■	■	□	■	■	■
High-burden countries			**95%**	**77%**	**77%**	**95%**	**73%**	**77%**
High MDR-TB burden countries			**100%**	**88%**	**92%**	**96%**	**84%**	**84%**
AFR			81%	67%	54%	74%	60%	62%
AMR			91%	68%	61%	82%	35%	35%
EMR			77%	68%	38%	75%	32%	36%
EUR			100%	97%	82%	81%	60%	56%
SEAR			82%	73%	64%	82%	64%	64%
WPR			61%	56%	39%	78%	33%	33%
Global			**84%**	**74%**	**58%**	**78%**	**49%**	**49%**

Blank cells indicate data not reported.

[a] The regional and global figures are aggregates of data reported by low- and middle-income countries and territories. Data for the variables shown in the table are not requested from high-income countries in the WHO data collection form.

BOX 5.2

The EXPAND-TB and TBXpert projects: progress to date

Launched in 2009 and continuing until the end of 2014, the EXPAND-TB project aims to accelerate and expand access to diagnostics for patients at risk of MDR-TB in 27 countries. EXPAND-TB has full ownership by the ministries of health of the recipient countries and works on a model of best practices, learning-by-doing, and optimizing resources for laboratory strengthening at country level. The project is a collaboration between WHO, the Global Laboratory Initiative (GLI), the Foundation for Innovative New Diagnostics (FIND) and the Stop TB Partnership Global Drug Facility (GDF), and is funded by UNITAID and other partners. EXPAND-TB builds on US$ 87 million of UNITAID support to maximize resources and technical assistance from multiple partners for laboratory strengthening, including the Global Fund, the World Bank, PEPFAR, USAID, the American Society for Microbiology, the US Centers for Disease Control and Prevention, Johns Hopkins University, the KfW Development Bank, the KNCV Tuberculosis Foundation, Partners in Health, Project Hope, PATH, the International Committee of the Red Cross and The Union.

Overcoming the challenges to establish the necessary infrastructure for central level laboratories capable of using liquid culture and LPAs, the EXPAND-TB project is showing major progress in routine detection and reporting of drug-resistant TB. For example, 24 870 MDR-TB cases were diagnosed in supported laboratories in 24 reporting countries in 2012. The cumulative number of diagnosed cases of MDR-TB reached 36 965 by the end of 2012, equivalent to 32% of the overall project target. Several of the countries participating in the project have reported striking increases in the numbers of laboratory-confirmed cases of drug-resistant TB, especially in 2012 (**Figure B5.2.1**). The project has recently been amended to add Xpert MTB/RIF to the list of procured diagnostics, along with liquid culture and LPAs. In October 2012, project partners began to pilot a strategy for a transition from project-funded to country-based financing. The experience from the pilot will be used as a model for implementation across all EXPAND-TB recipient countries for the remainder of the project, ensuring a smooth transition and sustainability of achievements when EXPAND-TB ends.

Procurement and installation of GeneXpert instruments started in mid-2013 for the new TBXpert project, which will provide approximately 1.4 million Xpert MTB/RIF test cartridges and 230 GeneXpert machines to 21 recipient low- and middle-income countries over three years. The US$ 25.9 million project is funded by UNITAID and managed by the WHO Global TB Programme and the Stop TB Partnership. To ensure country absorptive capacity and effective use of the technology, the TBXpert project links a broad network of partners and existing initiatives for TB laboratory strengthening and innovative approaches to expand access to vulnerable populations in both the public and private sector (**Box 5.1**), resulting in increased and rapid case detection of TB, HIV-associated TB and RR-TB. TBXpert project partners include the GLI, TB REACH, the GDF, the EXPAND-TB project, Interactive Research and Development and the African Society for Laboratory Medicine.

FIGURE B5.2.1

Increase in cases of MDR-TB reported by selected countries participating in the EXPAND-TB project, 2009–2012, compared with 2008 baseline

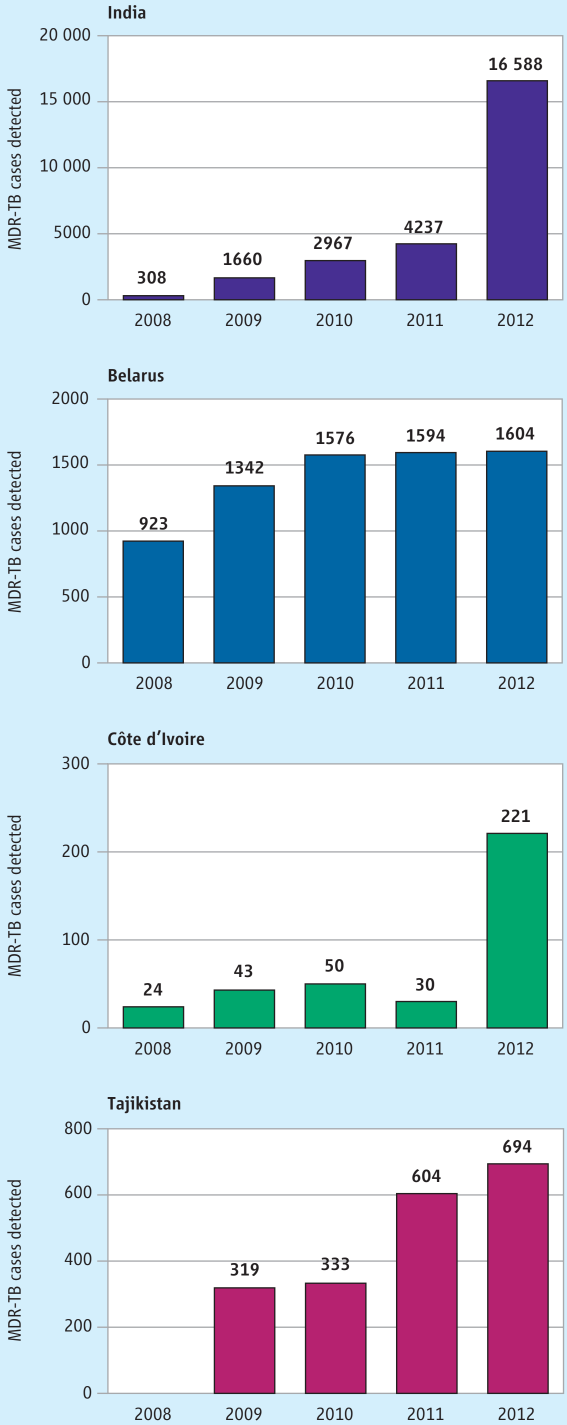
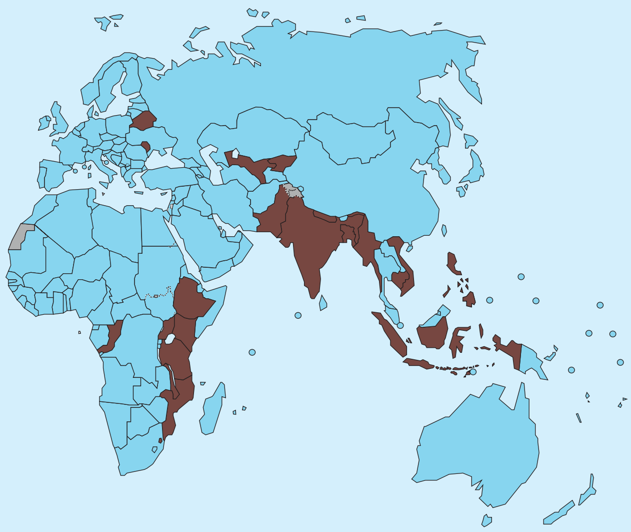


FIGURE B5.2.2

Countries (in brown) participating in the TBXpert project



The SRL Network is expanding its membership to include Centres of Excellence (SRL-CE), a new category that recognizes laboratories that are performing well in large low- and middle-income countries and that work primarily to build in-country laboratory capacity. Countries with laboratories currently eligible to apply for designation as an SRL-CE include Brazil, China, India, the Russian Federation and South Africa. To be eligible for this designation, laboratories need to be nominated by their NTP to the WHO country office, establish a collaborative agreement with an existing SRL, undergo a laboratory assessment by WHO, and actively implement a quality management system towards accreditation.

CHAPTER 6

Addressing the co-epidemics of TB and HIV

KEY FACTS AND MESSAGES

- In 2012, 1.1 million (13%) of 8.6 million people who developed TB worldwide were HIV-positive. The African Region accounted for 75% of the estimated number of HIV-positive incident TB cases.
- The number of people dying from HIV-associated TB has been falling since 2003. However, there were still 320 000 deaths from HIV-associated TB in 2012 and further efforts are needed to reduce this burden.
- The prevalence of HIV co-infection among TB patients is highest in the African Region. Of TB patients with an HIV test result, 43% tested positive in 2012, ranging from 9.6% in Angola and Ethiopia to 77% in Swaziland.
- Globally, the percentage of notified TB patients with a documented HIV test result was 46% in 2012, up from 40% in 2011 and 15 times higher than the 2004 level. In the African Region, 74% of notified TB patients had an HIV test result in 2012, a further improvement compared with 69% in 2011. Among the 41 countries with the highest TB/HIV burden, 15 achieved HIV testing levels of ≥85%, including seven (Kenya, Malawi, Mozambique, Rwanda, Swaziland, Togo and Zambia) above 90%.
- There was an encouraging increase in ART coverage among HIV-positive TB patients between 2011 and 2012, from 49% worldwide in 2011 to 57% in 2012. Nonetheless, given the WHO recommendation that all HIV-positive TB patients are eligible for ART, the coverage of ART for HIV-positive TB patients still needs to be greatly improved.
- In 2012, 80% of HIV-positive TB patients were provided with co-trimoxazole preventive therapy (CPT), a level similar to recent years.
- In 2012, 4.1 million people enrolled in HIV care were reported to have been screened for TB, up from 3.5 million in 2011. Of the reported 1.6 million people newly enrolled in HIV care in 2012, almost 520 000 were provided with isoniazid preventive therapy (IPT). Coverage needs to be increased, since about 50% of those newly enrolled in HIV care and screened for TB are likely to be eligible for IPT.

People living with HIV who are also infected with TB are much more likely to develop TB disease than those who are HIV-negative.[1] Starting in the 1980s, the HIV epidemic led to a major upsurge in TB cases and TB mortality in many countries, especially in southern and eastern Africa (**Chapter 2**, **Chapter 3**).

In 2012, 1.1 million (13%) of the 8.6 million people who developed TB worldwide were HIV-positive (**Chapter 2**, **Table 2.1**); 75% of these HIV-positive TB cases were in the African Region. Although the number of people dying from HIV-associated TB has continued to fall globally and in most regions including the African Region, there were still 320 000 deaths from HIV-associated TB in 2012, with approximately equal numbers among men and women (see **Chapter 2**). UNAIDS and the Stop TB Partnership have set a target of halving TB mortality rates among people who are HIV-positive by 2015 compared with 2004.[2]

WHO recommendations on the interventions needed to prevent, diagnose and treat TB in people living with HIV have been available since 2004,[3,4] and are collectively known as collaborative TB/HIV activities. They include establishing and strengthening coordination mechanisms for delivering integrated TB and HIV services, testing TB patients for HIV, providing ART and CPT to TB patients living with HIV, providing HIV prevention services for TB patients, intensifying TB case-finding among people living with HIV, offering IPT to people living with HIV who do not have active TB, and controlling the spread of TB infection in health care and congregate settings (the latter three activities are referred to as the *Three 'Is' for HIV/TB*). Since December 2010, the rapid molecular test Xpert MTB/RIF has been recommended as the primary diagnostic test for TB among people living with HIV who have TB signs and symptoms.

WHO began monitoring the implementation and expansion of collaborative TB/HIV activities in 2004. This chap-

1 The probability of developing TB among people living with HIV divided by the probability of developing TB among HIV-negative people is the incidence rate ratio (IRR). The estimated global IRR (all ages) in 2012 was 29.6 (uncertainty interval 27.1–32.1). Further details are provided in **Annex 1**.

2 *Getting to zero: 2011–2015 strategy*. Geneva, Joint United Nations Programme on HIV/AIDS, 2010.

3 *Interim policy on collaborative TB/HIV activities*. Geneva, World Health Organization, 2004 (WHO/HTM/TB/2004.330; WHO/HTM/HIV/2004.1). Available at http://whqlibdoc.who.int/hq/2004/who_htm_tb_2004.330_eng.pdf

4 *WHO policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders*. Geneva, World Health Organization, 2012 (WHO/ HTM/TB/2012.1). Available at http://whqlibdoc.who.int/publications/2012/9789241503006_eng_Annexes.pdf

ter presents the latest status of progress, using data for 2004 up to 2012.

6.1 HIV testing for TB patients

In 2012, the number of notified TB patients who had a documented HIV test result reached 2.8 million (**Figure 6.1**), equivalent to 46% of notified TB cases (**Table 6.1**, **Figure 6.2**). This was an increase from 2.5 million and 40% respectively in 2011, and 15 times the level of 3.1% reported in 2004 (**Figure 6.2**).

The coverage of HIV testing for TB patients was particularly high in the African Region, where 74% of TB patients had a documented HIV test result in 2012, up from 69% in 2011 (**Figure 6.2**). Impressively, in 29 of 46 African countries, ≥75% of TB patients had a documented HIV test result in 2012 (**Figure 6.3**).

Overall, among the 41 countries identified as priorities for the global TB/HIV response, (listed in **Table 6.1**), 53% of TB patients notified had a documented HIV test. Of these countries, 15 achieved testing levels of ≥85% including seven (Kenya, Malawi, Mozambique, Rwanda, Swaziland, Togo and Zambia) that achieved levels above 90%. In addition, although national data for China show that 34% of TB patients were tested for HIV in 2012, coverage was 88% in the 294 high TB/HIV burden counties in which testing of all notified TB patients is recommended. Globally, there were 87 countries in which ≥75% of TB patients had a documented HIV test result.

FIGURE 6.1

Number of TB patients with known HIV status, 2004–2012

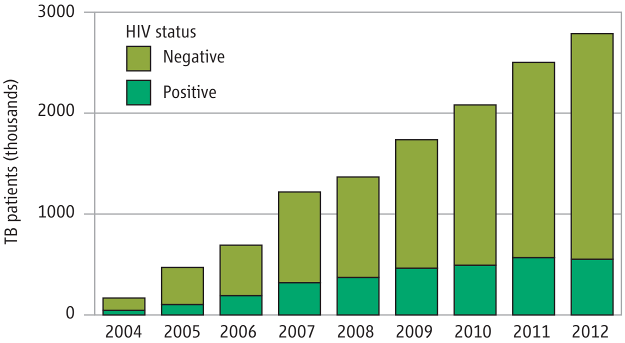


FIGURE 6.2

Percentage of TB patients with known HIV status, 2004–2012

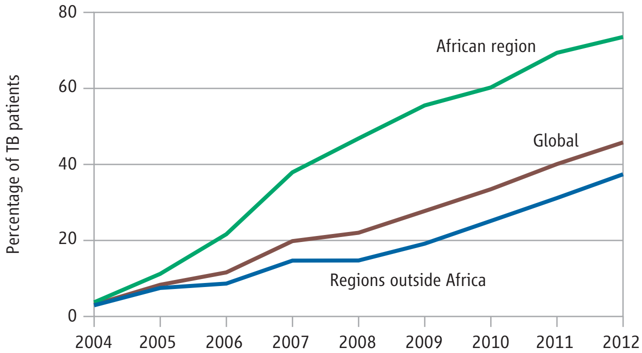
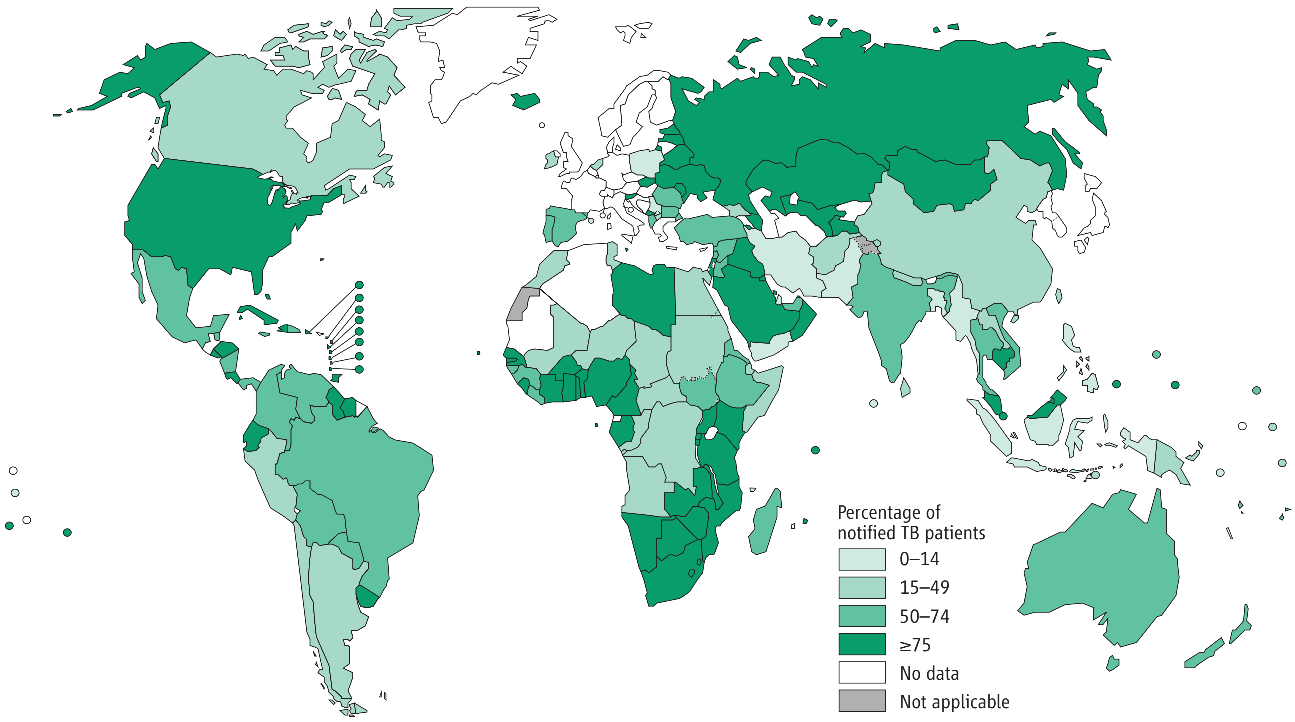


FIGURE 6.3

Percentage of patients with known HIV status by country, 2012[a]



[a] In the 294 counties in China identified for HIV testing among notified TB patients, 100 017 of 113 978 notified cases were tested for HIV (88%). Data for the Russian Federation are for new TB patients only excluding cases in prisons.

TABLE 6.1

HIV testing, treatment for HIV-positive TB patients and prevention of TB among people living with HIV, globally and for 41 high TB/HIV burden countries and WHO regions, 2012. Numbers in thousands except where indicated.

	ESTIMATED HIV-POSITIVE INCIDENT TB CASES			NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	% OF NOTIFIED TB PATIENTS TESTED FOR HIV	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF IDENTIFIED HIV-POSITIVE TB PATIENTS STARTED ON CPT	% OF IDENTIFIED HIV-POSITIVE TB PATIENTS STARTED ON ART	NUMBER OF HIV-POSITIVE PEOPLE SCREENED FOR TB	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED WITH IPT
	BEST	LOW	HIGH							
Angola	5.5	4.7	6.5	12	23	9.6	100	100	12	1.1
Botswana	5.1	4.5	5.6	6.0	89	63	91	66		
Brazil	16	13	19	46	55	20	0	100		
Burkina Faso	1.6	1.3	1.8	4.6	84	15	96	75	7.4	
Burundi	2.5	2.2	2.8	5.7	82	19	94	55	0.2	
Cambodia	2.7	2.3	3.1	32	80	4.4	98	88		1.1
Cameroon	19	16	23	21	82	37	83	55	12	
Central African Republic	5.3	4.4	6.4	3.8	46	39	28	20		
Chad	4.1	3.4	4.8	4.8	44	20		65	1.0	
China	7.3	6.4	8.2	309	34[a]	1.9		59	295	
Congo	3.6	2.9	4.3	2.0	17	33	20	23		
Côte d'Ivoire	8.0	6.9	9.2	21	85	27	75	44		
Djibouti	0.54	0.45	0.64	1.3	36	10		64		0
DR Congo	16	14	19	35	31	16	61	40		
Ethiopia	23	17	30	96	65	10	37	82	272	30
Ghana	2.8	2.4	3.1	12	78	24	72	37		
Haiti	4.3	3.5	5.1	14	81	20	59	46	2.1	15
India	130	120	140	822	56	5.4	92	59	1 324	
Indonesia	7.5	5.6	9.7	2.7	0.8	28	18	29	23	
Kenya	45	44	47	93	94	39	98	74		
Lesotho	9.9	8.7	11	10	88	75	97	53	21	16
Malawi	16	15	17	19	93	59	88	81	393	21
Mali	1.2	1.2	1.3	1.5	28	28	42	100		
Mozambique	83	58	110	48	94	58	98	55		17
Myanmar	19	16	21	19	13	27		83		
Namibia	7.3	5.8	8.9	9.9	88	47	99	72	12	12
Nigeria	46	21	80	83	84	23	80	56	140	2.3
Russian Federation	9.3	7.9	11	76[b]						
Rwanda	2.9	2.6	3.2	6.1	99	26	99		122	
Sierra Leone	3.9	3.2	4.8	12	87	12	26	69	8.9	1.1
South Africa	330	270	390	294	84	65	74	54	950	370
Sudan	4.3	3.5	5.1	3.1	15	7.5	0	17	1.3	
Swaziland	13	11	15	7.4	95	77	98	66	69	1.9
Thailand	12	10	14	44	72	13	77	62		
Togo	1.2	0.98	1.4	2.7	91	24	87	76		
Uganda	35	28	42	41	86	50	94	49		
Ukraine	4.8	3.9	5.7	34	85	14		94		14
UR Tanzania	32	30	34	52	82	39	96	54	357	
Viet Nam	9.3	6.9	12	68	66	7.0	73	47		5.7
Zambia	35	32	39	45	100	54	93	60		
Zimbabwe	55	42	69	34	88	70	26	18		
High TB/HIV burden countries	**1 000**	**960**	**1 100**	**2 454**	**53**	**21**	**80**	**57**	**4 024**	**509**
AFR	830	760	910	1 040	74	43	79	55	2 392	473
AMR	31	28	34	129	56	16	61	76	4.5	19
EMR	11	10	12	58	14	3.5	69	48	15	0.2
EUR	19	17	21	204	60	6.3	67	74	24	18
SEAR	170	160	180	904	39	6.2	89	61	1 352	< 0.01
WPR	24	21	27	451	34	3.1	79	56	308	8.6
Global	**1 100**	**1 000**	**1 200**	**2 787**	**46**	**20**	**80**	**57**	**4 095**	**519**

Blank cells indicate data not reported.

[a] In the 294 counties in China identified for HIV testing among notified TB patients, 100 017 of 113 978 notified cases were tested for HIV (88%). Among these, 1605 were HIV-positive (1.6%).

[b] Data for the Russian Federation exclude retreatment cases and cases from prisons.

Outside the African Region, in 2012 the percentage of TB patients who had a documented HIV test result reached 60% in the European Region. It should be noted, however, that the coverage of testing in the Russian Federation is underestimated since the national data on HIV testing reported to WHO are for new TB cases in the civilian sector only (i.e. excluding prisons) while the denominator used in calculations of coverage is all notified TB cases. The percentage of TB patients with a documented HIV test result in the Region of the Americas was 56% in 2012. Brazil (where 55% of new TB cases had a documented HIV test result, very similar to the regional average) accounted for more than a third of all cases tested in the region, followed by Mexico (12%) and Haiti (10%). In other regions, where testing rates have remained consistently low, the percentage ranged from 14% in the Eastern Mediterranean Region to 39% in the South-East Asia Region.

The highest rates of HIV co-infection were reported for TB patients in the African Region (**Table 6.1**), where 43% of those with an HIV test result were positive (compared with 46% in 2011). The percentage of TB patients found to be HIV-positive in the 28 African countries in the list of 41 priority countries ranged from 10% in Ethiopia and Angola to 77% in Swaziland. In the Region of the Americas, the percentage of TB patients with a documented HIV test result who were HIV-positive was 16%. In the Eastern Mediterranean, European, South-East Asia and Western Pacific Regions, less than 10% of TB patients with a documented HIV test result were HIV-positive. The global average across all regions was 20%, and 21% among the 41 high TB/HIV burden countries.

6.2 Antiretroviral therapy and co-trimoxazole preventive therapy for TB patients living with HIV

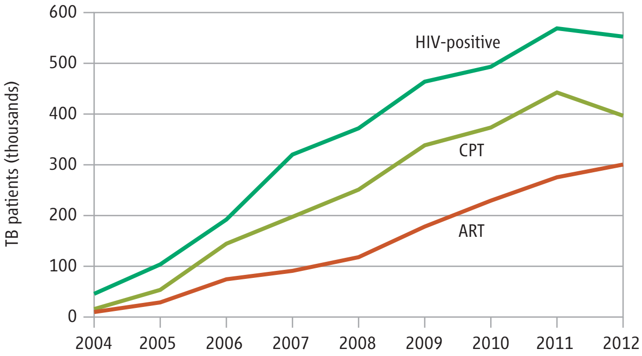
ART is a critical intervention for reducing the risk of TB morbidity and mortality among people living with HIV. It reduces the individual risk of TB disease by 65%, irrespective of CD4 cell count,[1] and when combined with IPT it can have a significant impact on TB prevention.[2] In the latest WHO guidelines released in July 2013,[3] the threshold CD4 count at which starting ART is recommended has been raised from a CD4 count of ≤350 to ≤500 CD4/mm^3. Implementation of these guidelines on a large scale should substantially reduce morbidity and mortality resulting from HIV-associated TB. As in previous guidelines, ART is recommended for all TB patients living with HIV, irrespective of their CD4 cell count. CPT also helps to reduce mortality among HIV-positive TB patients.[4]

The number of HIV-positive TB patients on ART has grown from a very low level in 2004 (**Figure 6.4**) to reach 0.3 million in 2012. Among TB patients notified in 2012[5] and who had a documented HIV-positive test result, 57% were on ART globally (**Table 6.1**, **Figure 6.5**); this is a considerable improvement from 49% in 2011. In the African Region, 55% of TB patients notified in 2012 who had a documented HIV-positive test result were on ART (up from 48% in 2011). Among the 41 high TB/HIV burden countries, 28 reported enrolling more than 50% of notified TB patients known to be living with HIV on ART in 2012 (**Table 6.1**, **Figure 6.6**). This important progress notwithstanding, the WHO recommendation that all HIV-positive TB patients are eligible for ART irrespective of their CD4 cell count also means that the coverage of ART for HIV-positive TB patients still needs to be greatly improved with the goal of reaching the 2015 target of 100% set in the *Global Plan to Stop TB 2011–2015*.

Early initiation of ART, as soon as possible within eight weeks after initiation of TB treatment or within two weeks for profoundly immunosuppressed patients (CD4 count <50), is recommended. WHO also strongly recommends the integration of ART and TB treatment services for TB patients living with HIV either through TB or HIV treatment facilities in settings with a high burden of TB and HIV. In many settings, facilities providing TB services are more decentralized than ART services and offer an opportunity to scale up the delivery of integrated TB and HIV services through task shifting and task sharing.[6] A recent example of the integration of TB services with those for HIV and

FIGURE 6.4

Number of HIV-positive TB patients enrolled on co-trimoxazole preventive therapy (CPT) and antiretroviral therapy (ART), 2004–2012



1 Suthar AB et al. Antiretroviral therapy for prevention of tuberculosis in adults with HIV: a systematic review and meta-analysis. *PLoS Medicine*, 2012, 9(7): e1001270. (doi:10.1371/journal.pmed.1001270).

2 Samandari T et al. 6-month versus 36-month isoniazid preventive treatment for tuberculosis in adults with HIV infection in Botswana: a randomised, double-blind, placebo-controlled trial. *The Lancet*. 2011 May 7;377(9777):1588-98. doi: 10.1016/S0140-6736(11)60204-3.

3 *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection*. Geneva, World Health Organization, 2013. Available at http://apps.who.int/iris/bitstream/10665/85321/1/9789241505727_eng.pdf

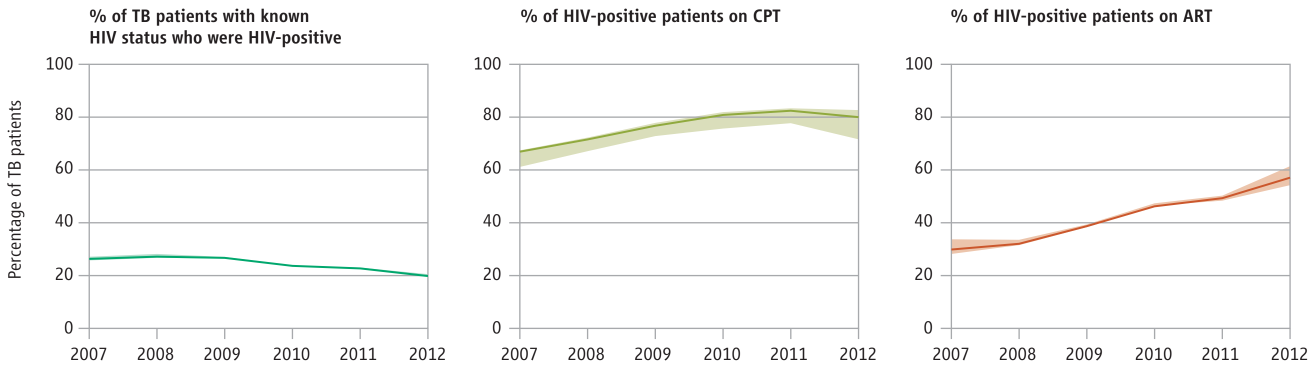
4 Nunn AJ et al. Role of co-trimoxazole prophylaxis in reducing mortality in HIV infected adults being treated for tuberculosis: randomized clinical trial. *British Medical Journal*. 2008, 337:a257.

5 In the annual WHO TB data collection form, countries are asked to report the number of TB patients notified in the most recent calendar year who were living with HIV and who "started or continued on ART".

6 *Global Tuberculosis Report 2012*. Geneva, World Health Organization, 2012.

FIGURE 6.5

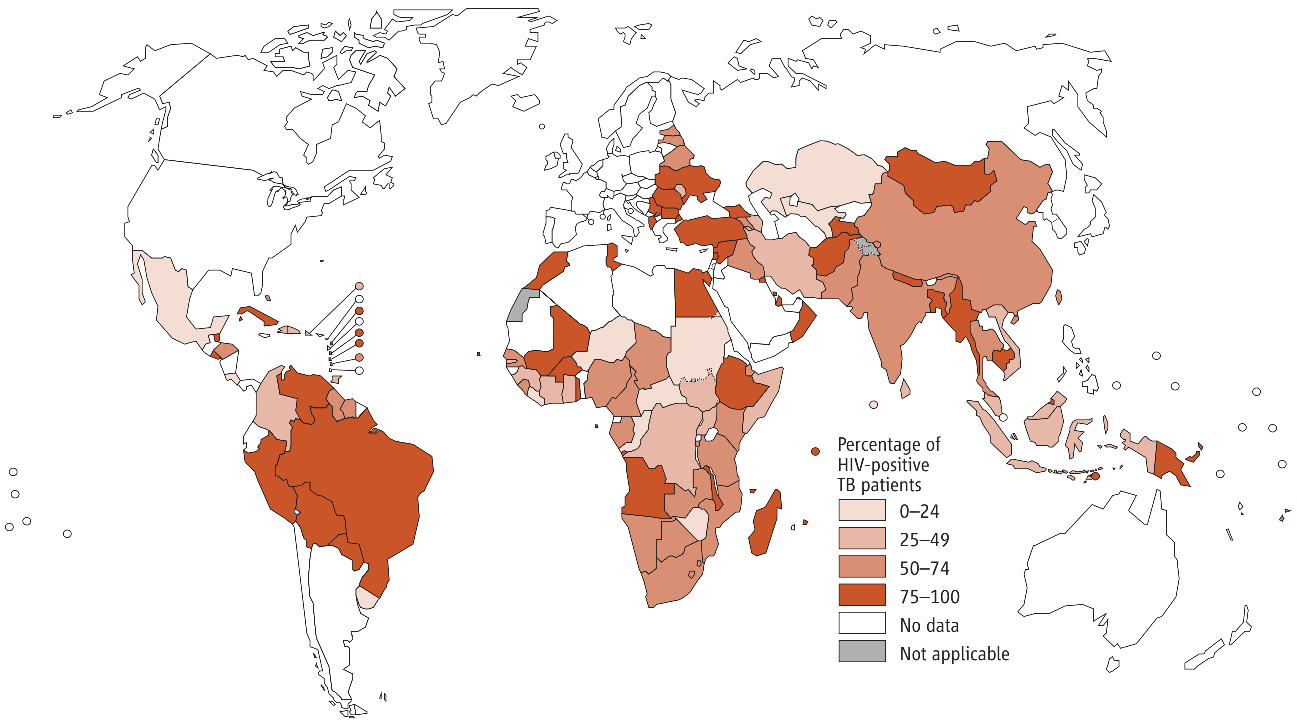
Percentage of TB patients with known HIV status who were HIV positive, and percentage of HIV-positive TB patients enrolled on co-trimoxazole preventive therapy (CPT) and antiretroviral therapy (ART), 2007–2012[a]



[a] The solid lines show values for countries that reported data. The shaded areas show upper and lower limits when countries that did not report data are considered.

FIGURE 6.6

Percentage of HIV-positive TB patients enrolled on antiretroviral therapy (ART), 2012



maternal, new-born and child health (MNCH) services is provided in **Box 6.1**.

Globally, 0.4 million TB patients living with HIV were enrolled on CPT in 2012, up from a negligible number in 2004. The absolute number fell between 2011 and 2012, which is at least partly explained by the decrease in the number of HIV-positive TB cases reported between 2011 and 2012 (**Figure 6.4**). The coverage of CPT among TB patients with a documented HIV-positive test result was 80% in 2012, similar to the level of 2010 and 2011 (**Table 6.1**, **Figure 6.5**). The African, South-East Asia and Western Pacific Regions achieved particularly high levels of enrolment on CPT: 79%, 89% and 79%, respectively (**Table 6.1**). Of the 41 high TB/HIV burden countries, the percentage of HIV-positive TB patients enrolled on CPT in 2012 exceeded 90% in Angola, Botswana, Burkina Faso, Burundi, Cambodia, India, Kenya, Lesotho, Mozambique, Namibia, Rwanda, Swaziland, Uganda, the United Republic of Tanzania and Zambia.

6.3 Intensifying TB screening and isoniazid preventive therapy among people living with HIV

Recording and reporting of TB screening among people living with HIV and provision of IPT to those without active TB is a particular challenge in many countries, and further efforts are needed to facilitate and improve the tracking of progress nationally and globally (**Box 6.2**).

BOX 6.1

Linkages between TB, HIV and maternal, newborn and child health (MNCH) services in Cambodia

Cambodia has achieved great progress in responding to its HIV epidemic and in reducing TB prevalence and mortality. It has also made progress in improving services for maternal, newborn and child health (MNCH). Attendance at antenatal services and the percentage of deliveries at health facilities have increased and maternal and under-five mortality have both been reduced. Major efforts to establish and strengthen service linkages between the TB, HIV and MNCH programmes have also been made.

Linkages between TB and HIV services

In 2012, 80% of notified TB patients knew their HIV status and 88% of HIV-positive TB patients were on ART. The number of people living with HIV given IPT increased by a factor of 22 between 2006 and 2012, following the introduction of the WHO screening algorithm to rule out active TB (and associated removal of the previous requirement for a positive tuberculin skin test before initiation of IPT).

Linkages between MNCH and HIV services

The percentage of pregnant women tested for HIV increased from 16% in 2007 to 82% in 2012. The coverage of ART among HIV-infected pregnant women increased from 11% in 2007 to 65% in 2012. The percentage of infants born to HIV-positive women who were provided with ART to prevent mother-to-child transmission rose from 50% in 2010 to 73% in 2012.

Linkages between MNCH and TB services

A new MNCH-TB collaborative framework offering cross-programme referrals between TB services and clinics providing antenatal, growth monitoring and immunization services promises to further reduce the burden of TB among women and children.

Scaling up collaboration among the three programmes

Collaboration among the three programmes aims to strengthen linkages and synergies to achieve better outcomes. The government, with support from WHO, has piloted efforts to set up a collaborative project involving the three programmes in two districts. Lessons learned from these and other pilot sites are helping the country to maximize potential for cross-programme collaboration and to optimize the use of resources.

The three-programme collaborative activities being piloted include:

1. Harmonizing transportation of blood samples required for testing HIV that are collected at sites providing services for pregnant women, TB patients and populations at high risk of HIV.
2. Harmonizing information, education and communication related to MNCH, HIV and TB at the sites providing MNCH, HIV and TB services.
3. Expanding cross-programme laboratory services.
4. Strengthening the system for referrals between the three programmes including standardization of communication and referral procedures.
5. Harmonization of community system strengthening by sharing the costs and time spent during monthly meetings of village health support groups at health centres.

BOX 6.2

Improving the quality of TB/HIV data: challenges and solutions

Major efforts have been made in recent years to improve the quality of TB/HIV data. Indicators used by TB and HIV programmes have been standardized and collaboration between TB and HIV programmes has been improved, with clear definition of responsibilities for data collection related to TB/HIV interventions. WHO and UNAIDS have worked intensively with countries to try to ensure complete and consistent reporting and to reconcile any apparent discrepancies between data reported by TB and HIV programmes.

These efforts notwithstanding, challenges remain:

- **Missing or inaccurate denominators required to calculate the coverage of TB screening and IPT among people living with HIV**. There has been an increase in the number of countries capturing and reporting data on the number of people living with HIV who are screened for TB and the number without active TB who are provided with IPT. However, many of these countries are not reporting the corresponding denominators needed to calculate coverage (i.e. people registered in HIV care and people newly registered in HIV care, for screening and IPT respectively). There are also examples of the same figures being reported for both denominators.
- **Discrepant reporting by NTPs and National AIDS Programmes (NAPs)**. In some countries, the NTP and NAP report different figures for the number of HIV-positive TB patients who are on ART. In 32 countries, the numbers reported by the NTP and NAP were different in both 2011 and 2012. Although subsequent data verification and harmonization efforts led to consensus on one number in most countries, the different numbers could not be reconciled for either year in Angola, Myanmar and the United Republic of Tanzania. Solutions to address this problem include improving systems for recording and reporting data and further strengthening of collaboration and communication between the NAP and NTP as well as their partners.

FIGURE 6.7

Intensified TB case-finding among people living with HIV, 2005–2012

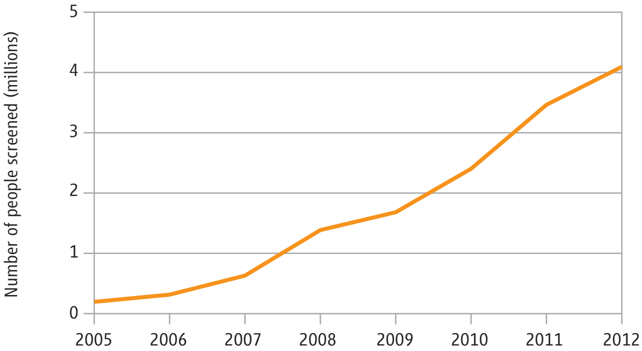
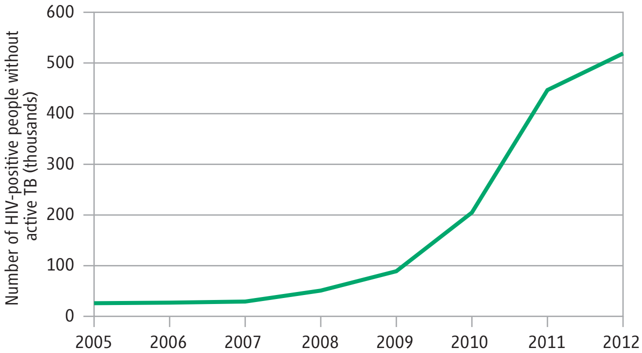


FIGURE 6.8

Provision of isoniazid preventive therapy (IPT) to people living with HIV without active TB, 2005–2012



In 2012, a total of 4.1 million people who were enrolled in HIV care were screened for TB in 61 countries, an increase from 3.5 million in 58 countries in 2011 (**Figure 6.7**). In the 49 countries that reported both the number screened for TB and the number in HIV care, the coverage of screening was 66% (3.9/5.9 million).

Among 42 countries that reported data, IPT was initiated among almost 520 000 people newly registered in HIV care in 2012. This was an increase from less than 450 000 people in 2011 (**Figure 6.8**). One country – South Africa – accounted for 71% of the global total with 370 000 people reported to have been provided with IPT in 2012, followed by Ethiopia (30 000), Malawi (21 000), Mozambique (17 000), Lesotho (16 000), Haiti (15 000), Ukraine (14 000), and Namibia (12 000).

Thirty countries reported both the total number of people newly enrolled in HIV care (1.6 million) and the number of people living with HIV who were started on IPT (0.47 million) in 2012 i.e. 30% of those newly enrolled in HIV care were initiated on IPT. If the WHO-recommended four-symptom screening algorithm is used to rule out active TB in people living with HIV, approximately 50% of people living with HIV would be expected to be eligible for IPT.[1] Further efforts are needed to reach the Global Plan's 2015 target of providing IPT to all those eligible.

[1] Getahun H, et al. Development of a standardized screening rule for tuberculosis in people living with HIV in resource-constrained settings: Individual participant data meta-analysis of observational studies. *PLoS Medicine*, 2011, 8(1): e1000391. doi:10.1371/journal.pmed.1000391.

CHAPTER 7

Financing

KEY FACTS AND MESSAGES

- Funding required for a full response to the global TB epidemic in low- and middle-income countries is estimated at US$ 8 billion per year by 2015 (excluding research and development for new TB diagnostics, drugs and vaccines). Of this total, about two thirds is needed for the detection and treatment of drug-susceptible TB, 20% for treatment of MDR-TB, 10% for rapid diagnostic tests and associated laboratory strengthening, and 5% for collaborative TB/HIV activities.

- A recent long-term study using data reported to WHO shows that TB funding in low- and middle-income countries grew substantially between 2002 and 2011, especially in Brazil, the Russian Federation, India, China and South Africa (BRICS). The increasing self-sufficiency of these and some other countries is a success story for these countries and the global TB community.

- Despite growth in funding for TB, funding gaps persist and additional funding needs to be mobilized from both domestic and international donor sources. There is capacity to increase funding from domestic sources beyond the US$ 5.3 billion available in 2013, especially in BRICS. Funding required from international donor sources is estimated at US$ 1.6–2.3 billion per year.

- Funding from international donor sources is expected to reach US$ 0.8 billion in 2013; most of this funding is from the Global Fund and USAID. Donor funding accounts for a large share (≥50%) of total funding in some country groups, notably the 17 HBCs excluding BRICS and all low-income countries, and an even higher proportion in some individual countries. International donors have a crucial role in sustaining and ensuring further progress in TB prevention, diagnosis and treatment worldwide.

- The cost per person successfully treated for TB with first-line drugs is in the range US$ 100 to US$ 500 in almost all countries with a high burden of TB.

Progress in TB prevention, diagnosis and treatment requires adequate funding sustained over many years. WHO began annual monitoring of funding for TB in 2002, and findings have subsequently been published in global TB reports. Particular attention has always been given to the 22 HBCs that account for about 80% of estimated cases (**Chapter 2**). Recent reports have included aggregated analyses of trends since 2006 for approximately 100 countries.

In 2012, WHO conducted a comprehensive analysis of long-term trends in TB funding in low- and middle-income countries for the decade 2002–2011, using data reported by countries between 2002 and 2012. The analysis was able to include 104 out of a total of 154 countries classified by the World Bank as low- or middle-income in 2011 (gross national income (GNI) per capita < US$ 12,476). These 104 countries had 94% of the world's estimated cases of TB and 88% of the world's estimated cases of MDR-TB in 2011. Levels of funding in 2011 were then analysed in combination with the most recent estimates of resource requirements for TB prevention, diagnosis and treatment to assess the funding that could be mobilized from domestic sources and the balance required from international donors up to 2015. Results from these analyses were published in an article in the August 2013 issue of *The Lancet Global Health*.[1]

Given this very recent publication, the scope of this financing chapter has been adjusted compared with previous years to avoid unnecessary duplication. **Section 7.1** presents the most up-to-date estimates of financial resources required until the end of 2015 in all of the 154 countries that were classified as low- or middle-income countries in 2011, alongside projections of the funding that could be mobilized domestically. **Section 7.2** provides a summary of the main findings from the analysis of trends in funding between 2002 and 2011 in 104 low- and middle-income countries. With this background and context, the rest of the chapter (**section 7.3**) contains detailed analyses of TB funding in 2013, using data compiled in the 2013 round of global TB data collection. Funding levels in 2013 are presented by WHO region and for other country groupings based on income level, burden and geography, with breakdowns by source of funding (**section 7.3.1**) and category of expenditure (**section 7.3.2**). Funding gaps reported by countries are also illustrated and discussed (**section 7.3.3**).

[1] Floyd K, Fitzpatrick C, Pantoja A and Raviglione M. Domestic and donor financing for tuberculosis care and control in low-income and middle-income countries: an analysis of trends, 2002–11, and requirements to meet 2015 targets. *The Lancet Global Health*; 1: e105–15.

Further country-specific data can be found in finance profiles that are available online.[1]

7.1 Estimates of funding required up to 2015 for a full response to the global TB epidemic

The *Global Plan to Stop TB 2011–2015*[2] sets out the actions and funding needed for a full response to the TB epidemic, based on the *Stop TB Strategy*.[3] The overall goal of the plan is to achieve the 2015 global targets for reductions in cases of and deaths from TB (i.e. that incidence should be falling and that prevalence and mortality rates should be halved compared with their levels in 1990) (**Chapter 1**). Key components of the plan include increasing the number of patients detected and treated according to WHO's recommended strategy from 5.8 million in 2011 to 6.9 million by 2015 (which would be equivalent to more than 80% of projected incident cases in that year); ensuring that all previously treated patients and all new patients with known risk factors for MDR-TB are tested for drug resistance by 2015 (including with recently endorsed rapid tests such as Xpert MTB/RIF that are discussed in **Chapter 5**); enrolment of all TB patients with confirmed MDR-TB (projected to be around 300 000 in 2015) on second-line treatment; HIV testing of all patients with TB; and prompt initiation of ART in all HIV-positive TB patients.

In 2013, the Global Plan datasets were used in combination with new country-specific planning and budgeting work with nine high TB or high MDR-TB burden countries to produce updated estimates of funding needs for TB prevention, diagnosis and treatment in low- and middle-income countries.[4] The nine countries were Ethiopia, India, Indonesia, Kazakhstan, Kenya, Nigeria, Pakistan, South Africa and Ukraine. Analyses were conducted in the context of estimates of funding needs and funding gaps required for the Global Fund's replenishment efforts in 2013.[5] WHO subsequently extended these analyses to cover all low- and middle-income countries and not only the countries eligible to apply to the fund.[6] Notable countries (in terms of TB burden and funding requirements) that are not eligible to apply to the Global Fund are Brazil, China and the Russian Federation.

During the course of the work done for the first pre-replenishment meeting held in April 2013, it should be highlighted that the Global Fund, WHO, UNAIDS, and other partners agreed that funding needs for ART for HIV-positive TB patients should be included in estimates of HIV resource needs to avoid double-counting. For this reason, the estimates of resource requirements for TB/HIV interventions included in the updated estimates of resource needs for TB are lower than those published in the Global Plan.

Funding needs were compared with the domestic funding that could be mobilized in two alternative scenarios. The first scenario was that TB funding could increase (from a 2011 baseline) in line with International Monetary Fund forecasts for growth in total government expenditures.[7] The second scenario had the same assumptions as the first, but also assumed that countries that currently underperform in domestic financing relative to their income level (i.e. their ability to pay) and disease burden reach the level of the median performer by 2020. These scenarios were chosen to be fully consistent with the methods previously used to assess the potential to mobilize domestic funding for prevention, treatment and care of HIV.[8]

The main results from these analyses are summarized in **Figure 7.1**. The total funding required in all low- and middle-income countries reaches about US$ 8 billion in 2015, compared with US$ 6 billion in 2012 (**Figure 7.2**).[9] Of the total funding required, about two thirds is needed for the detection and treatment of drug-susceptible TB, 20% for treatment of MDR-TB, 10% for rapid diagnostic tests and associated laboratory strengthening, and 5% for collaborative TB/HIV activities (excluding ART). Funding needed for each of these four categories increases over time. The largest relative increases are for treatment of MDR-TB and diagnostics/laboratory strengthening.

There is potential to mobilize a large share of these funding needs from domestic resources in some country groups, notably BRICS and upper middle-income countries (**Figure 7.1**). Elsewhere, there are relatively large gaps between the estimated amounts of domestic funding that could be mobilized and the total funding needed, especially in three country groups: the 17 HBCs excluding BRICS; low-income countries; and the African Region excluding South Africa. In the first scenario in which domestic funding grows from 2011 levels in line with projected growth in total government expenditures, the total gap amounts to US$ 2.3 billion per year by 2015. In the second and more optimistic scenario, the gap would be US$ 1.6 billion per year by 2015.

1 www.who.int/tb/data
2 *The Global Plan to Stop TB, 2011–2015*. Geneva, World Health Organization, 2010 (WHO/HTM/STB/2010.2).
3 Raviglione M, Uplekar M. WHO's new Stop TB strategy. *Lancet* 2006; 367: 952–5.
4 Funding required for research and development for new TB diagnostics, drugs and vaccines was not considered. In the Global Plan, it is estimated that about US$ 2 billion per year is needed for research and development.
5 *The Global Fund to Fight AIDS, Tuberculosis and Malaria fourth replenishment (2014–2016): needs assessment*. Geneva, Global Fund to Fight AIDS, Tuberculosis and Malaria, 2013.
6 Floyd K, Fitzpatrick C, Pantoja A and Raviglione M. Domestic and donor financing for tuberculosis care and control in low-income and middle-income countries: an analysis of trends, 2002–11, and requirements to meet 2015 targets. *The Lancet Global Health*; 1: e105–15.
7 *World economic outlook database*. Washington, International Monetary Fund, 2012 (www.imf.org/external/pubs/ft/weo/2012/02/weodata/index.aspx).
8 Schwartlander B, Stover J, Hallett T, et al. Towards an improved investment approach for an effective response to HIV/AIDS. *The Lancet* 2011; 377: 2031–41.
9 In **Figure 7.1**, country groups are not all mutually exclusive. The global total can be calculated by adding together the totals in the panels for BRICS, low-income countries, lower middle-income countries (excluding China and India) and upper middle-income countries (excluding Brazil, the Russian Federation and South Africa).

FIGURE 7.1

Forecast of funding that could be mobilized from domestic sources compared with total funding needed for a full response to the global TB epidemic in nine country groups, 2012–2015. The black line shows the total funding required. The **blue** band represents scenario 1, which shows domestic funding that could be mobilized if domestic funding increases from a 2011 baseline at the same rate of growth as International Monetary Fund forecasts of growth in total government expenditures. The **green** band shows additional resources that could be mobilized, compared with scenario 1, if current underperformers (relative to income level and TB disease burden) improve at a consistent rate to reach the level of the median performer by 2020. BRICS=Brazil, the Russian Federation, India, China, South Africa.

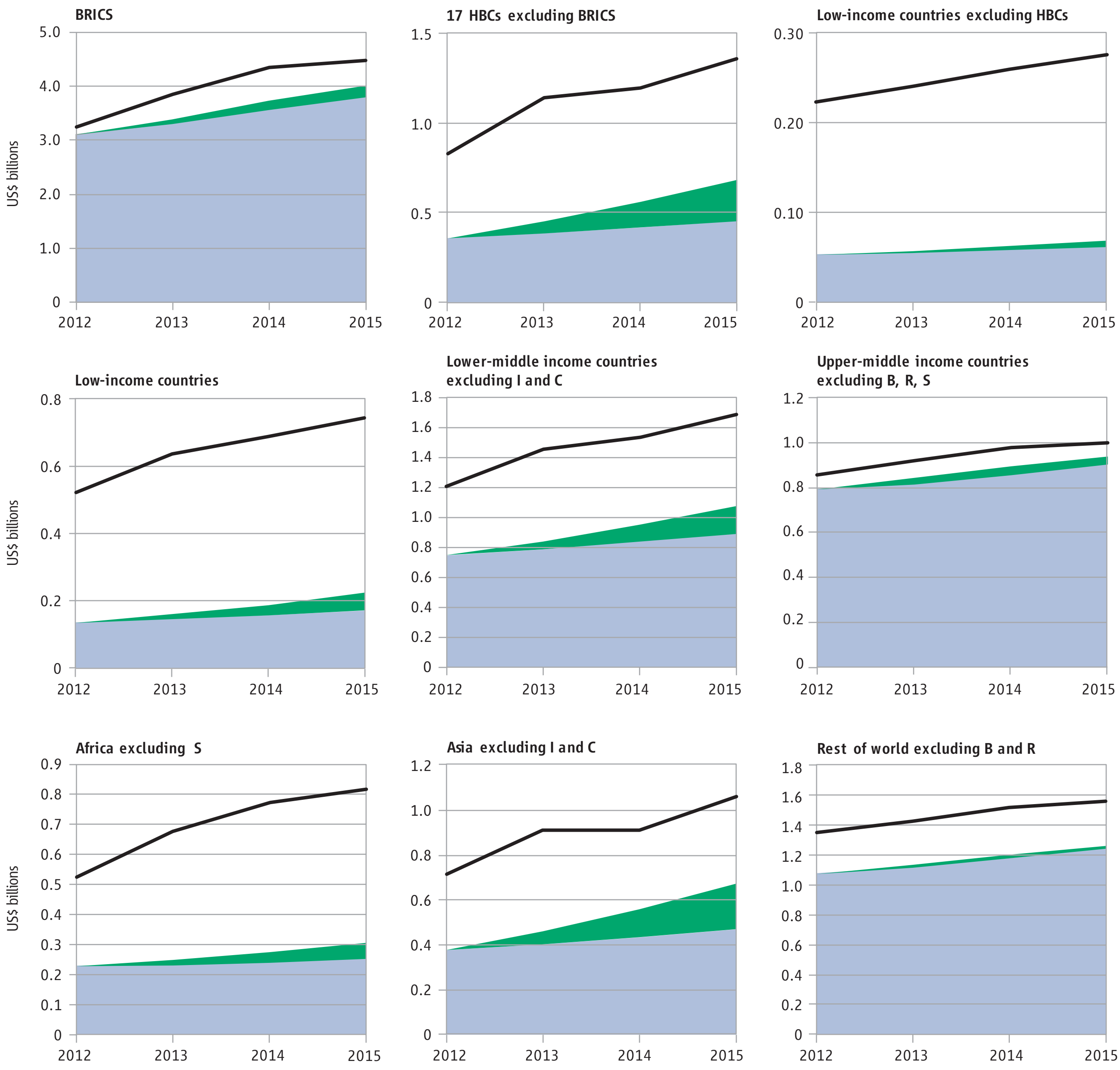
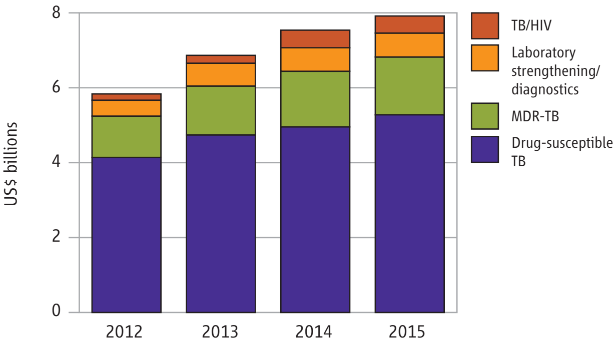


FIGURE 7.2

Total funding required for a full response to the global TB epidemic, by intervention area, 2013–2015



It should be highlighted that in the second and more optimistic scenario, it is assumed that countries that currently underperform in terms of their levels of domestic financing relative to their TB burden and income level will steadily progress to reach the level of the current median peformer (in terms of domestic funding relative to burden and income level) by 2020. Two countries in particular – India and Indonesia – would need to substantially increase their levels of domestic funding for this scenario to materialize in practice, since they account for about two-thirds of the additional funding in Scenario 2 compared with Scenario 1. Current trends are not in line with Scenario 2. In India, domestic funding reported for 2013 is lower than the amount available in 2012, while in Indonesia an increase in domestic funding between 2012 and 2013 was reported but by a relatively small amount (see **Annex 2** for further details).

7.2 Trends in TB funding, 2002–2011: a summary

Data reported to WHO between 2002 and 2012 allowed analysis of trends 2002–2011 in 104 countries. These 104 countries are shown in **Table 7.1** (an additional 21 countries that could be included in analyses of funding in 2013, described in **section 7.3**, are shown in bold). Among the 104 countries, there were ≥6 observations for 83 countries. For most countries, there were between 7 and 10 observations, including 14/22 HBCs that had 10 observations each and 5/22 HBCs for which there were 9/10 observations. Values for country-year combinations for which data were missing in the 104 countries were imputed using country-specific linear regression models. Details on the criteria used to include or exclude countries and the imputation methods are available in an online technical appendix.[1]

[1] Floyd K, Fitzpatrick C, Pantoja A and Raviglione M. Domestic and donor financing for tuberculosis care and control in low-income and middle-income countries: an analysis of trends, 2002–11, and requirements to meet 2015 targets. *The Lancet Global Health*; 1: e105–15.

In the 104 low- and middle-income countries with 94% of the world's TB cases and 88% of the world's MDR-TB cases, total funding for TB (domestic plus international donor sources) grew in real terms (2011 US$ prices) from US$ 1.7 billion in 2002 to US$ 4.4 billion in 2011. The increases varied among country groups, from 100% in low-income countries to 177% in upper middle-income countries. Increases in funding were accompanied by large increases in the number of people successfully treated for TB, from 2.8 million in 2002 to 5.0 million in 2011. A cumulative total of 43 million people were treated between 2002 and 2011. The cost per patient treated was in the range US$ 100–500 in most of the countries with the highest burdens of TB. The size of the patient caseload and gross domestic product (GDP) per capita explained more than 70% of the variation among countries in the cost per patient treated.

Domestic funding (national and local budgets, and loans) in the 104 countries included in trend analyses rose from US$ 1.5 billion in 2002 to US$ 3.9 billion in 2011. Loans accounted for a small proportion (≤5%) of total domestic funding each year. Most of the increase in total domestic funding (US$ 1.7 out of US$ 2.4 billion [71%]) was accounted for by BRICS (which account for almost half of the world's TB cases) and other middle-income countries in Asia, Latin America and Europe. The magnitude of domestic funding in these country groups (69–98% of total funding per year) and BRICS in particular (>95% of total funding per year) meant that domestic funding dominated total funding for TB globally (88–92% per year).

International donor funding in the 104 countries included in trend analyses grew from US$ 0.2 billion in 2002 to US$ 0.5 billion in 2011. There was striking variation among country groups in terms of the share of total funding provided from international donor sources. By 2011, donor funding represented 39% of total funding in the 17 HBCs excluding BRICS, which account for about one third of the world's TB cases; 42% of funding in African countries excluding South Africa; and 67% of total funding in low-income countries (25 of which are in Africa). The Global Fund accounted for 64% of all donor funding reported by countries during the decade 2002–2011.

Most funding was used for the diagnosis and treatment of drug-susceptible TB (over 85% each year). Small amounts were used for diagnosis and treatment of MDR-TB, although funding started to increase in BRICS, upper middle-income countries, and countries in Europe and Latin America around 2006.

Despite growth in funding from domestic and international donor sources, NTPs were not able to mobilize all the funding that they estimated to be needed. Funding gaps (i.e. the difference between assessments by NTPs of funding needs for TB prevention, diagnosis and treatment and the actual amount of funds mobilized) persisted, and increased from US$ 257 million in 2002 to US$ 563 million in 2011. It should be noted that the funding gaps reported by NTPs are sometimes based on relatively conservative assessments of funding needs. When national strategic plans with more

TABLE 7.1

125 countries included in analyses of TB financing in 2013[a,b]

	LOW-INCOME (21% of notified cases globally)	LOWER-MIDDLE-INCOME (46% of of notified cases globally)	UPPER-MIDDLE-INCOME (27% of notified cases globally)	BRICS (47% of notified cases globally)	17 HIGH-BURDEN COUNTRIES EXCLUDING BRICS (33% of notified cases globally)	14 HIGH MDR-TB BURDEN COUNTRIES (NOT IN THE LIST OF 22 HIGH-BURDEN COUNTRIES) (2% of notified cases globally)
African	Benin, Burkina Faso, Burundi, Central African Republic, Chad, **Comoros**, DR Congo, Eritrea, Ethiopia, Gambia, **Guinea**, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Sierra Leone, Togo, Uganda, UR Tanzania, Zimbabwe	Cameroon, Cape Verde, Congo, Côte d'Ivoire, Ghana, Lesotho, Mauritania, Nigeria, Sao Tome and Principe, Senegal, Swaziland, Zambia	**Algeria**, Botswana, Gabon, Namibia, South Africa	South Africa	DR Congo, Ethiopia, Kenya, Mozambique, Nigeria, Uganda, United Republic of Tanzania, Zimbabwe	
Americas	Haiti	Bolivia, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Paraguay	Argentina, **Belize**, Brazil, Colombia, Dominican Republic, Ecuador, Jamaica, **Mexico**, Panama, Suriname, Venezuela	Brazil		
Eastern Mediterranean	Afghanistan, **South Sudan**	Djibouti, Egypt, Morocco, Pakistan, Sudan, **Syrian Arab Republic**, West Bank and Gaza Strip, Yemen	Iran, **Iraq**, Jordan, Lebanon, **Libya**, Tunisia		Afghanistan , Pakistan	
European	**Kyrgyzstan**, Tajikistan	Armenia, Georgia, Moldova, **Ukraine**, Uzbekistan	**Bosnia and Herzegovina**, Bulgaria, **Kazakhstan**, **Montenegro**, Romania, **Serbia**, **The Former Yugoslav Republic of Macedonia**, **Turkey**	Russian Federation		Armenia, Bulgaria, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Republic of Moldova, Tajikistan, Ukraine, Uzbekistan
South-East Asia	Bangladesh, **Democratic People's Republic of Korea**, Myanmar, Nepal	Bhutan, India, Indonesia, Sri Lanka, Timor-Leste	**Maldives**, Thailand	India	Bangladesh, Indonesia, Myanmar, Thailand	
Western Pacific	Cambodia	Federal States of Micronesia, Kiribati, Lao People's Democratic Republic, Mongolia, Papua New Guinea, Phillipines, **Samoa**, Solomon Islands, Vanuatu, Viet Nam	**American Samoa**, China, **Fiji**, Malaysia, Marshall Islands, Palau, Tonga, Tuvalu	China	Cambodia, Phillipines, Viet Nam	
Excluded due to insufficient data			Albania, Angola, Azerbaijan, Costa Rica, Cuba, Dominica, Grenada, Palau, Peru, Saint Lucia, Saint Vincent and the Grenadines, Turkmenistan			Azerbaijan, Belarus, Lithuania

[a] Analyses focus primarily on low and middle-income countries. Three high-income countries (Estonia, Latvia and the Russian Federation) were included because they are in the list of 22 high-burden countries or the list of 27 high-MDR-TB burden countries.
[b] Additional countries included in analyses of TB financing in 2013 compared with those included in analyses of trends 2002–2011 are shown in bold.

FIGURE 7.3

Available funding for TB care and control in 125 countries reporting 96% of global cases by source of funding and WHO region, 2013

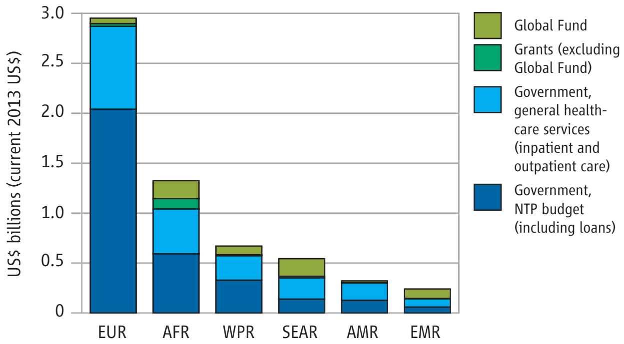


FIGURE 7.4

Available funding for TB care and control in 125 countries reporting 96% of global cases by source of funding and income group, 2013

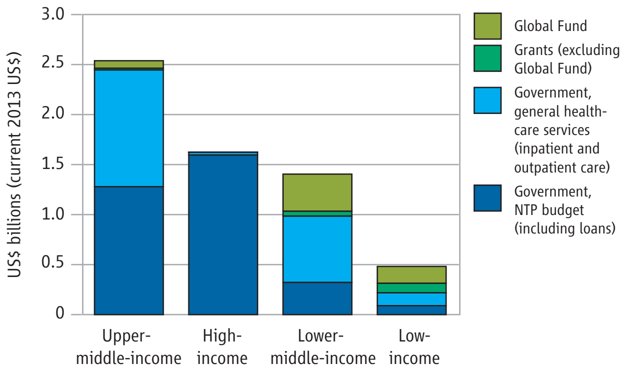
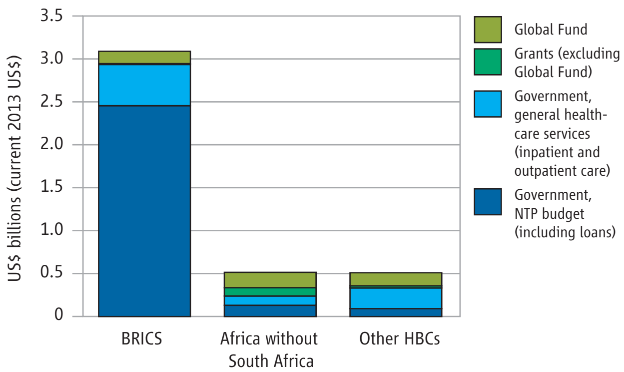


FIGURE 7.5

Available funding for TB care and control in BRICS, 17 other HBCs and Africa excluding South Africa, by source of funding, 2013



ambitious targets are developed, as was done for the nine countries described in **section 7.1**, funding needs and gaps invariably increase. The gap between the US$ 8 billion estimated to be needed for a full response to the TB epidemic in 2015 (**section 7.1**) and the US$ 6.1 billion available in 2013 (see **section 7.3** below) is US$ 1.9 billion.

Overall, these findings show that TB funding increased substantially between 2002 and 2011, resulting in impressive and cost-effective gains. The increasing self-sufficiency of many countries, including BRICS, which account for almost half of the world's TB cases, is a success story for these countries and the global TB community. At the same time, it is clear that international donor funding remains crucial in many countries and needs to be continued to sustain and consolidate recent gains.

7.3 TB funding in 2013

Data reported by countries to WHO in the 2013 round of global TB data collection allowed inclusion of 122 low- and middle-income countries (GNI per capita less than US$ 12 616 in 2012) in analyses of TB funding by source of funding and category of expenditure in 2013 (**Table 7.1**; the additional countries compared with those included in analyses of trends 2002–2011 are shown in bold). An additional three high-income countries (Estonia, Latvia and the Russian Federation) were also included in analyses because they are in the list of 22 HBCs or 27 high MDR-TB HBCs. Collectively, the 125 countries account for 96% of the world's TB cases. Methods used to compile, validate and analyse these data are summarized in **Box 7.1**.

The total funding available in the 125 countries in 2013 amounts to US$ 6.1 billion, and US$ 3.1 billion excluding the European Region (**Figure 7.3**). Approximately US$ 1.3 billion is available in the African Region, much of which is accounted for by South Africa. In the other four WHO regions, funding is in the range US$ 0.2 to US$ 0.7 billion.

7.3.1 Funding in 2013 by source of funding

Of the total of US$ 6.1 billion reported for 2013, 87% (US$ 5.3 billion) is from domestic sources and 13% (US$ 0.8 billion) is from international donor sources (**Figure 7.3**, **Figure 7.4**). Both fall short of amounts needed for a full response to the TB epidemic up to 2015 (**section 7.1**). The US$ 5.3 billion from domestic sources represents at most 67% of the total needed by 2015. The US$ 0.8 billion from international donor sources is at most 50% of the US$ 1.6–2.3 billion per year estimated to be required by 2015, and remains much less than international donor funding for malaria (US$ 1.8 billion in 2011)[1] and HIV (US$ 8.2 billion in 2011).[2] Of the international donor funding for TB in 2013, approximately three-quarters was from the

[1] *World malaria report 2012*. Geneva, World Health Organization, 2012.

[2] *World AIDS day report 2012*. Geneva, Joint United Nations Programme on HIV/AIDS, 2012 (www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2012/november/20121120prresults).

BOX 7.1

Methods used to compile, validate and analyse financial data reported by countries to WHO

WHO began monitoring government and international donor financing for TB in 2002. All data are stored in the WHO global TB database. The standard methods used to compile, review, validate and analyse these financial data have been described in detail elsewhere.[a,b] This box provides a summary.

Each year, WHO requests data from low- and middle-income countries about funding for NTPs by category of expenditure and source of funding, and funding gaps by category of expenditure, in US dollars. Categories of expenditure for TB comprise: first-line drugs; NTP staff; programme management and supervision activities; laboratory supplies and equipment; advocacy, communication, and social mobilization activities; community-based care; public–private mix approaches; collaborative TB/HIV activities; the Practical Approach to Lung Health; operational research including surveys; outpatient visits; and hospital admissions. Categories of expenditure for MDR-TB are: second-line drugs; other items specifically for programmatic management of patients with MDR-TB; hospital admissions; and outpatient visits. Funding sources are defined as national or local government, loans (both classified as domestic funding), grants from the Global Fund, and grants from other donors (both classified as international donor funding). Countries that are classified as high-income are asked to report data on total funding and total expenditures (without breakdowns by source of funding and category of expenditure).

WHO uses methods to review and validate data that have remained consistent since 2002. These methods include routine checks for plausibility and consistency, including validation checks that are built into the online reporting system. Examples of validation checks are checks for implausibly large year-to-year changes (for example in total reported funding by source and by category of expenditure), or implausibly high or low values relative to the number of TB patients (for example, first-line or second-line drug budgets or expenditures per patient that greatly exceed prices quoted by the Global TB Drug Facility). Methods to review and validate data also include discussions with country respondents to resolve queries, and triangulation with other data sources such as the detailed budgets prepared using the WHO TB planning and budgeting tool,[c] economic evaluations that include detailed cost data, the Global Fund and the Organization for Economic Co-operation and Development (OECD) Creditor Reporting System. Particular attention has always been given to the 22 HBCs.

In a few countries (China and the Russian Federation are prominent examples), funding for TB reported by NTPs includes funding for all staff, infrastructure, and other inputs necessary for hospital admissions and outpatient visits during TB treatment, because care is provided in TB-specific hospitals and clinics that have dedicated budgets. In most countries, however, the funding used for inpatient and outpatient care for TB patients is not captured in funding reported by NTPs. Since detailed costing studies of TB diagnosis and treatment in a wide range of countries show that hospitalization and outpatient care are the most important costs not captured by financial data reported by NTPs, both for drug-susceptible TB and MDR-TB, the estimation of financial resources used for inpatient and outpatient care of TB patients has always been given considerable attention in WHO's work on global monitoring of TB financing. For all countries with the exception of those such as China and the Russian Federation, the funding used for inpatient and outpatient care of TB patients is estimated by multiplying the number of outpatient visits and days of inpatient care per patient (reported by NTPs to WHO each year) by country-specific estimates of their unit cost available from the WHO-CHOICE database,[d] and then by the reported number of TB patients. This is done separately for: a) patients with drug-susceptible TB; and b) patients with MDR-TB, based on the utilization data that are reported separately for these two groups of patients on the annual WHO TB data collection form.

a Floyd K, Pantoja A, Dye C. Financing tuberculosis control: the role of a global financial monitoring system. *Bulletin of the World Health Organization*; 2007; 85: 334–40.

b Floyd K, Fitzpatrick C, Pantoja A and Raviglione M. Domestic and donor financing for tuberculosis care and control in low-income and middle-income countries: an analysis of trends, 2002–11, and requirements to meet 2015 targets. *The Lancet Global Health*; 1: e105–15.

c *Planning and budgeting for TB control activities*. Geneva, World Health Organization, 2013. (www.whoint/tb/dots/planning_budgeting_tool).

d *Choosing interventions that are cost effective (WHO-CHOICE)*. Geneva, World Health Organization, 2008 (www.who.int/choice/country/country_specific/).

Global Fund; the remainder was largely from USAID. Technical assistance to support countries to effectively mobilize funding from the Global Fund and to implement grants once approved is provided by the TB Technical Assistance Mechanism (**Box 7.2**).

Breakdowns of total funding by source for different country groups are shown in **Figure 7.4** and **Figure 7.5**. Findings strongly reinforce those previously reported for the decade 2002–2011 (**Section 7.2**). BRICS are relatively self-sufficient overall (95% of funding from domestic sources), although India is an exception where only 64% of funding in 2013 is from domestic sources (and as shown in **Annex 1**, for the NTP budget specifically, 37% is funded from domestic sources in 2013). High-income countries are fully self-sufficient and the group of upper middle-income countries rely on international donor funding for only a small share (4%) of their total funding (and most is accounted for by China). Low- and lower middle-income countries account for most of the international donor funding (US$ 0.7 billion, 88%). In the group of low-income countries, it accounts for about half of total funding. International donor funding also has a crucial role in the 17 HBCs excluding BRICS, and in African countries excluding South Africa (**Figure 7.5**), where it accounts for 35% and 54% respectively of

BOX 7.2

Technical Assistance for national TB programmes; the role of TB-TEAM

The TB Technical Assistance Mechanism (TB-TEAM) was established to coordinate and monitor the provision of technical assistance to NTPs. The secretariat and a dedicated website[a] are hosted by WHO's Global TB Programme and funded by USAID. In mid-2013, there were 34 technical partners actively engaged in TB-TEAM. Each partner shares information about country missions, including reports that are uploaded to the country-specific pages of the TB-TEAM website.

In 2012, TB-TEAM partners reported 706 missions. By topic area, laboratory strengthening and the programmatic management and scale up of MDR and XDR-TB accounted for one quarter of all missions. A further 30% of missions were related to monitoring and evaluation/impact measurement, national TB programme reviews and management of drugs and commodities. Most missions were conducted by WHO (40%) and KNCV Tuberculosis Foundation (20%). A further 24% were conducted by the US Centers for Disease Control and Prevention (CDC); the Union, and the Global TB Drug Facility (GDF).

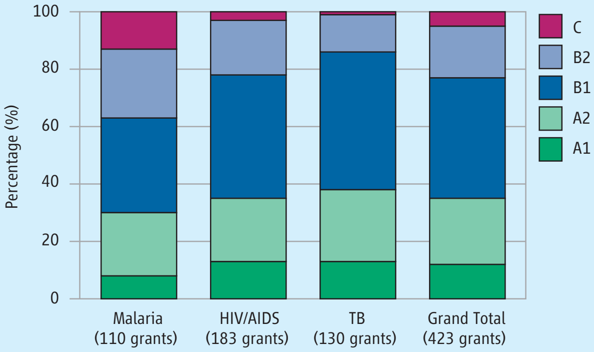
The main focus of TB-TEAM to date has been provision of technical assistance to support the implementation of grants from the Global Fund. Within the context of the fund's new funding model (NFM) established in 2013, this is now being extended to support the development of robust national strategic plans and associated concept notes that are required for the mobilization of new financial resources (as opposed to implementation of grants that have already been secured) from the Global Fund. The focus on support to countries that are current or potential Global Fund recipients reflects the fact that the fund is the main source of international donor funding in many countries, especially in low-income countries and several high-burden, lower-middle income countries (**section 7.2**). TB-TEAM partners are taking a proactive approach to providing technical support to countries, giving particular attention to grants that are not performing well. The TB-TEAM secretariat monitors progress in mobilization of funding and implementation of grants using indicators such as proposal success rates, funding for TB as a share of total grant approvals, disbursement rates and grant performance ratings.

Statistics for these indicators in 2012 can be summarized as follows:

- **Proposal success rates.** TB-TEAM helped 21 countries to mobilize resources via the Global Fund's transitional funding mechanism (TFM). This was put in place during the transition to the NFM to prevent countries from experiencing critical funding shortages that would affect essential services. Among the three diseases supported by the fund, TB proposals had the best recommendation rate (the Technical Review Panel of the Global Fund recommended that 87% of TB proposals should be approved compared with 79% for malaria and 62% for HIV).
- **TB as a share of total funding.** In the TFM, US$ 130 million was awarded to TB grants, equivalent to 25% of all approved funding.
- **Disbursement rates.** In total and across all grants in 101 countries, US$ 509 million was disbursed for TB in 2012, equivalent to 15% of total disbursements (US$ 3.4 billion) by the Global Fund. Of the remaining funding, US$ 1.8 billion (54%) was disbursed to HIV grants, US$ 1.0 billion (30%) to malaria grants and US$ 32 million (1%) to cross-cutting investments.
- **Grant performance ratings.** At the end of 2012, TB grants were performing relatively well (**Figure B7.1.1**), with 86% in the top three categories of A1 (excellent), A2 (meets expectations) and B1 (adequate), compared with 53% for malaria grants and 79% for HIV grants. The other categories are B2 (adequate but potential demonstrated) and C (inadequate).

FIGURE B.7.1.1

Latest Global Fund performance rating by disease for all 423 active grants (Global Fund Database, accessed January 2013)



In 2013 and 2014, Global Fund projections suggest that an estimated US$ 1.9 billion will be disbursed to TB grants. This equates to an amount per year that is approximately double the level of 2012. TB-TEAM aims to support countries as effectively as possible to help to ensure that these funds are disbursed and used well.

[a] www.stoptb.org/countries/tbteam/

TABLE 7.2

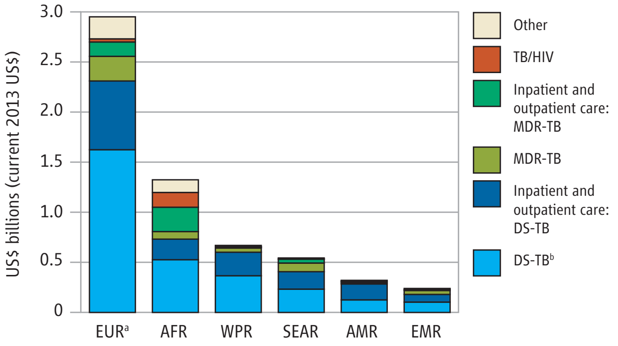
Reported NTP budget, available funding for NTP budget by intervention area and estimated cost of inpatient and outpatient care for drug-susceptible (DS-TB) and MDR-TB, 36 high TB or high MDR-TB burden countries, 2013 (current US$ millions)

	REPORTED NTP BUDGET	AVAILABLE FUNDING					INPATIENT AND OUTPATIENT CARE: DS-TB[b]	INPATIENT AND OUTPATIENT CARE: MDR-TB[b]
		DS-TB	MDR-TB	TB/HIV	PPM/PAL/ACSM/CBC/OR/SURVEYS	OTHER		
22 HIGH-BURDEN COUNTRIES								
Afghanistan	13	6.0	0.8	0	0.7	1.3	2.9	0
Bangladesh	43	4.6	1.6	0	1.9	0.2	5.0	1.4
Brazil	87	60	6.3	2.3	5.8	0	20	1.4
Cambodia	24	5.3	0.6	0.2	2.2	0.7	6.7	0.2
China	359	267	25	0.2	12	0.5	0	0
Democratic Republic of the Congo	61	8.7	1.7	0.3	1.0	4.5	0.2	0
Ethiopia	145	47	6.0	3.1	12	3.6	11	0.6
India	182	84	67	0	18	2.1	84	32
Indonesia	119	39	8.3	1.3	8.4	0.6	39	2.0
Kenya	55	19	0.5	0.5	0.5	0.8	9	0.3
Mozambique	11	5.6	1.1	0	0.8	0	5.7	0.1
Myanmar	36	9.1	3.5	1.6	0.4	0	5.6	1.6
Nigeria	154	17	4.6	1.6	3.6	22	6.2	1.3
Pakistan	73	26	34	0.1	1.5	5.0	11	0.8
Philippines	149	27	8.9	0.4	6.9	2.7	109	3.4
Russian Federation[c]	1 592	1 332	129	27	0.4	104	0	0
South Africa	475	217	41	124	19	67	109	232
Thailand[a]	44	31	3.9	0.1	6.8	0	3.3	0
Uganda	31	6.0	2.2	0.2	3.9	9.3	0.6	0
United Republic of Tanzania	58	14	0.5	2.1	0.9	1.3	1.5	0.1
Viet Nam	66	4.4	4.6	1.2	3.4	4.8	49	0.6
Zimbabwe	38	11	0.1	3.4	0.5	1.4	15	0.1
22 high-burden countries total	**3 814**	**2 241**	**350**	**170**	**111**	**232**	**494**	**279**
REMAINING HIGH MDR-TB BURDEN COUNTRIES								
Armenia	5.4	4.5	0.6	0	0.1	0.2	7.5	1.2
Azerbaijan							–	–
Belarus[a]							–	–
Bulgaria	16	14	0.3	0	0.6	0.3	22	1.5
Estonia	0.8	0.1	0.5	0	0	0.2	0.1	0.1
Georgia	10	2.6	2.8	0	0	4.8	3.6	3.2
Kazakhstan	242	149	70	1.0	1.7	21	192	57
Kyrgyzstan	35	11	5.6	0.3	13	4.0	13	3.1
Latvia	4.8	3.7	1.1	0	0	0.1	20	7.3
Lithuania							–	–
Republic of Moldova[a]	35	2.6	2.8	0	0.6	15	11	3.2
Tajikistan	46	5.0	1.1	0.6	1.1	8.6	6.6	1.1
Ukraine	85	21	15	0.6	0	7.9	66	40
Uzbekistan	76	15	14	0	1.5	46	84	5.7
27 high MDR-TB burden countries	**4 011**	**2 312**	**448**	**164**	**108**	**325**	**854**	**400**
36 high TB or high MDR-TB burden countries	**4 371**	**2 471**	**464**	**172**	**130**	**340**	**919**	**402**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.
[a] Based on data reported for 2013 in the 2012 round of data collection. In 2013, Thailand was not able to report funding for the sub-national level.
[b] No amount is shown for China and the Russian Federation because NTP budget includes all costs for inpatient and outpatient care.
[c] The staff and infrastructure required for TB care and control could not be disaggregated for MDR-TB and DS-TB separately and are shown under DS-TB. The full amount for staff and other recurrent costs for TB hospitals is included in the column for DS-TB.

FIGURE 7.6

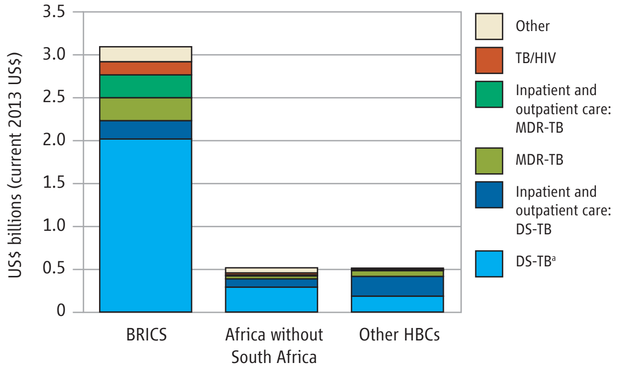
Available funding for TB care and control in 125 countries reporting 96% of global cases by intervention area and WHO region, 2013



[a] For EUR, DS-TB includes all of the staff and infrastructure required for TB care and control in the Russian Federation that could not be disaggregated for MDR-TB and DS-TB separately. The amount of funding shown for MDR-TB in the European Region is thus an underestimate.
[b] Drug-susceptible TB (DS-TB) includes funding available for first-line drugs, NTP staff, programme management and supervision, and laboratory equipment and supplies.

FIGURE 7.7

Available funding for TB care and control in BRICS, 17 other HBCs and Africa excluding South Africa, by intervention area, 2013



[a] For BRICS, drug susceptible TB (DS-TB) includes all of the staff and infrastructure required for TB care and control in the Russian Federation that could not be disaggregated for MDR-TB and DS-TB separately. The amount of funding shown for MDR-TB in BRICS is thus an underestimate.

total funding in 2013. The share is even higher in specific countries and above 80% in four HBCs: Afghanistan, the Democratic Republic of the Congo, Pakistan and Uganda (**Annex 2**).

7.3.2 Funding in 2013 by budget category

Funding in 2013 by budget category is shown by WHO region in **Figure 7.6**, for other country groups in **Figure 7.7** and for HBCs and high-MDR-TB burden countries in **Table 7.2**. It should be highlighted that the amount of funding shown for MDR-TB in the European Region is an underestimate due to the fact that the budget category 'Drug-susceptible-TB' (DS-TB) includes all of the staff and infrastructure required for TB prevention, diagnosis and treatment in the Russian Federation that could not be disaggregated for MDR-TB and DS-TB separately. Among the 122 low- and middle-income countries for which a breakdown could be calculated, most of the funding available in 2013 is for diagnosis and treatment of DS-TB.

The WHO regions in which the shares of funding for MDR-TB are highest are the African Region (mostly explained by South Africa), the European Region and the South-East Asia Region. This is consistent with the distribution of the burden of MDR-TB cases, which are mostly in BRICS and the European Region, and with the latest data on numbers of MDR-TB patients detected and enrolled on treatment (**Chapter 4**). These data show that European countries and South Africa are enrolling the highest proportion of estimated cases of MDR-TB on treatment and that progress in scaling up treatment in India (in the South-East Asia Region) is accelerating. The low share of funding for MDR-TB in the Western Pacific Region, within which most of the estimated cases of MDR-TB are in China, is consistent with the small number of cases reported to have been detected and started on treatment in China in 2012 (just over 3000, equivalent to 5% of the estimated number of TB patients with MDR-TB). Among the 22 HBCs, 85% of the available funding for MDR-TB treatment is accounted for by BRICS (**Table 7.2**).

Most of the reported funding for collaborative TB/HIV activities is accounted for by the African Region (77%), followed by Europe (16%). This is consistent with the distribution of the burden of TB/HIV: the latest estimates are that 75% of HIV-positive TB patients are in the African Region (**Chapter 6**).

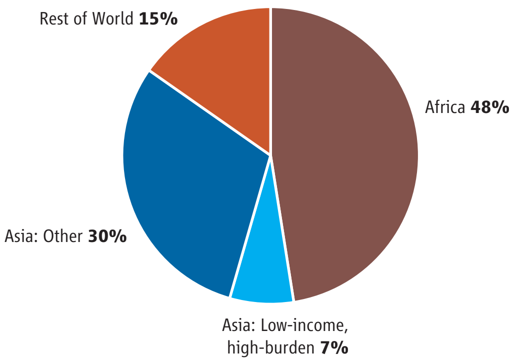
7.3.3 Reported funding gaps in 2013

In 2013, funding gaps reported by NTPs (i.e. the difference between assessments by NTPs of funding needs for TB prevention, diagnosis and treatment and the actual amount of funds mobilized) amount to US$ 1 billion. This is a considerable increase from gaps in the range US$ 0.3–0.6 billion that were reported during the decade 2002–2011 (**section 7.2**). A possible explanation may be that NTPs are developing more ambitious plans for implementation and scale up of interventions with resulting increases in funding gaps. African countries account for almost half of the total (**Figure 7.8a**), followed by Asian countries (37% of the total). Funding gaps were reported by countries in all income groups with the exception of high-income countries (**Figure 7.8b**), and for multiple elements of TB prevention, diagnosis and treatment (**Figure 7.8c**).

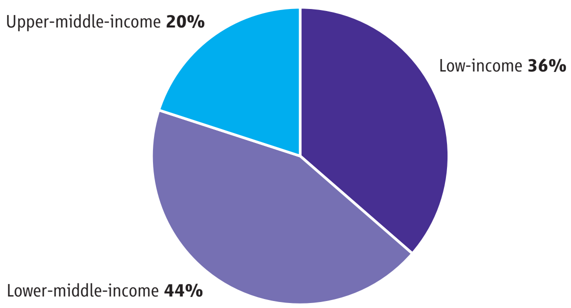
FIGURE 7.8

Funding gaps reported by national TB programmes in 125 countries with 96% of global cases, 2013

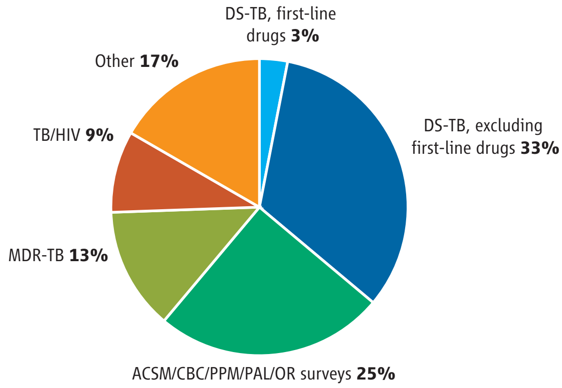
a. By region and income group



b. By income group



c. By intervention area



CHAPTER 8

Research and development

KEY FACTS AND MESSAGES

- Efforts to develop new TB diagnostics, drugs and vaccines have intensified during the past decade and considerable progress has been made.
- More than 50 companies are involved in the development of TB diagnostics. Although many new diagnostic technologies are available on the market, accelerated field evaluation of diagnostic accuracy and robustness of these assays is needed.
- Increased and sustained investment in new TB diagnostics remains essential for the development of an accurate, easy-to-use, affordable point-of-care assay for the rapid and early diagnosis of TB.
- There are 10 new or repurposed anti-TB drugs currently in late phases of clinical development. In December 2012, one of the new compounds, bedaquiline, was approved for use in treatment of patients with MDR-TB by the US Food and Drug Administration (FDA). Interim guidance about the use of bedaquiline in the treatment of MDR-TB was issued by WHO in June 2013. Bedaquiline is the first new drug approved for TB treatment in many years.
- Results from two Phase III trials of four-month regimens for the treatment of drug-susceptible TB are expected in late 2013. New combination regimens are also being tested in a series of early bactericidal activity (EBA) or two-month sputum-culture conversion Phase II studies.
- There are 10 vaccine candidates for TB prevention in Phase I, Phase II or Phase IIb trials and two immunotherapeutic vaccines in Phase II or Phase III trials.
- Results from a Phase IIb proof-of-concept study of the vaccine candidate MVA 85A were published in February 2013. Among infants who received the vaccine as a boost to the Bacille-Calmette-Guérin (BCG) vaccine, no additional protection was conferred compared with BCG alone. This study demonstrated, however, that the vaccine had an acceptable safety profile in this population, and that a high quality trial of a novel TB vaccine can be conducted and produce robust results in a high TB burden setting.
- Research and development is one of the three pillars of the WHO post-2015 global TB strategy, in recognition of its crucial role in accelerating reductions in TB incidence and mortality to reach post-2015 global TB targets.

The proposed goal of the post-2015 global TB strategy is to end the global TB epidemic (**Chapter 1**). Despite major progress in TB care and control since the mid-1990s (**Chapters 2–7**), reaching this goal will require major technological breakthroughs from the research and development pipeline. Short, effective and well-tolerated treatments for latent TB infection, a point-of-care diagnostic test able to distinguish latent TB infection from active TB disease, and an effective post-exposure vaccine are of key importance to end the global TB epidemic.

This is the third successive year in which a chapter on research and development has been included in the *Global tuberculosis report*. The status of progress in the development of new TB diagnostics, drugs and vaccines as of July 2013 is summarized, drawing on information provided by the secretariats of the relevant Working Groups of the Stop TB Partnership and recent publications. Particular attention is given to developments between August 2012 and July 2013. The final section of the chapter highlights key elements of the research and development agenda post-2015.

8.1 New diagnostics for TB

Sputum smear microscopy remains the most widely used diagnostic test for TB, despite its relatively low sensitivity (especially for those with paucibacillary TB such as people living with HIV and children). The current reference standard for the bacteriological confirmation of TB is culture in liquid media. However, culture-based diagnosis is not widely available in most high TB burden settings because it requires sophisticated laboratory and biosafety infrastructure, and test results take up to several weeks to obtain.

Recent breakthroughs include the development of rapid molecular tests that can be used to diagnose TB and rifampicin-resistant TB at decentralized levels of health systems. These tests are now being rolled out worldwide (see also **Chapter 5**). However, TB remains unique among the major infectious diseases in lacking accurate and rapid point-of-care tests, largely due to insufficient progress in biomarker discovery despite active ongoing research. Indeed, the most pressing priority in TB diagnostics research today is the development of a simple, low-cost, instrument-free rapid test using one or more reliable biomarkers that can be implemented at the first point of patient contact with peripheral health services, or used as a triage test at community level to rapidly identify people who should be referred for confirmatory testing.

The status of development and evaluation of new TB diagnostics in July 2013 is summarized in **Figure 8.1**, based on recent documentation produced by UNITAID[1] and the Treatment Action Group (TAG).[2] In **Figure 8.1**, diagnostic tests and methods on the market are grouped according to whether they have been evaluated by WHO and, if so, whether they have been endorsed. Given the rapidly evolving TB diagnostic landscape, WHO has established a systematic process for the timely evaluation of evidence and formulation of policy on new TB diagnostics. This is described in **Box 8.1** and further details are available elsewhere. It should also be highlighted that the list of technologies in 'early development' is not necessarily complete or exhaustive.[3] Those listed are the ones documented in the UNITAID and TAG reports.

Development of molecular technologies such as nucleic acid amplification tests (NAATs) is most advanced i.e. either already commercially available or in late-stage development. The majority of tests are, however, intended for use at reference laboratory level only, requiring dedicated infrastructure and experienced staff. Most NAATs require manual preparation of samples, which is technically challenging and prevents their use at more decentralized laboratory levels. Testing in reference laboratories offers higher throughput of tests and/or improved screening of samples for drug resistance markers, but is typically relatively expensive. The next-generation molecular tests that have emerged since Xpert® MTB/RIF have not yet undergone rigorous field trials in the settings where their use is intended, and substantial challenges with sample processing and DNA extraction in peripheral laboratories has been reported for all of them.

Technologies in the early stages of development (first part of **Figure 8.1**) include tests to detect TB, drug resistance, or TB and drug resistance combined. These include microarray-based multiplexing diagnostic platforms for the simultaneous detection of a large number of resistance-conferring mutations; assays that use novel approaches to combine nucleic acid testing with phage-based technology to identify drug resistance in clinical isolates; a rapid colorimetric culture-based method for detection of resistance to rifampicin, isoniazid and fluoroquinolones for use at the intermediate laboratory level; second-generation Xpert assays for the detection of resistance to drugs other than rifampicin; and a cartridge-based point-of-care isothermal amplification platform. In addition to technologies aimed

[1] *Tuberculosis: Diagnostics Technology and Market Landscape 2013*. Geneva, UNITAID/World Health Organization, 2013. Available at: http://www.unitaid.eu/images/marketdynamics/publications/TB-Dx-Landscape_1-Jul-2013.pdf

[2] Clayden P. et al (on behalf of The HIV i-Base/Treatment Action Group) *2013 Pipeline Report: HIV, Hepatitis C Virus (HCV), and Tuberculosis (TB) Drugs, Diagnostics, Vaccines, Preventive Technologies, Research Toward a Cure, and Immune-Based and Gene Therapies in Development*. New York, Treatment Action Group, 2013. Available at: http://www.treatmentactiongroup.org/pipeline-report

[3] Weyer K et al. Rapid molecular TB diagnosis: evidence, policy-making and global implementation of Xpert® MTB/RIF *European Respiratory Journal* erj01572-2012; published ahead of print 2012, doi:10.1183/09031936.00157212.

FIGURE 8.1

An overview of progress in the development and evaluation of TB diagnostics, July 2013

Technologies in early development[a]

Volatile organic compounds
- BreathLink, Menssana Research, USA
- Prototype breath analyzer device, Next Dimensions Technology, USA

Molecular technologies
- Alere Q, Alere, USA
- B-SMART, LabCorp, USA
- Gendrive MTB/RIF ID, Epistem, UK
- LATE-PCR, Brandeis University, USA
- GeneXpert XDR cartridge, Cepheid, USA
- TruArray MDR-TB, Akkoni, USA
- INFINITIMTB Assay, AutoGenomics, USA

Culture-based technologies
- BNP Middlebrook, NanoLogix, USA
- MDR-XDR TB Color Test, FIND, Switzerland/Imperial College, UK
- TREK Sensititre MYCOTB MIC plate, Trek Diagnostic Systems/Thermo Fisher Scientific, USA

Other technologies
- TB Rapid Screen, Global BioDiagnostics, USA
- TBDx, Signature Mapping Medical Sciences, USA

Evaluated by WHO but not yet endorsed due to insufficient evidence

Molecular technologies
- TB LAMP, Eiken, Japan
- Genotype MTBDRsl, Hain Lifescience, Germany

On the market but evidence for use not yet submitted to WHO for evaluation

Molecular technologies
- iCubate System, iCubate, USA
- TB drug resistance array, Capital Bio, China
- EasyNAT TB Diagnostic kit, Ustar Biotechnologies, China
- Truelab/Truenat MTB, Molbio/bigtec Diagnostics, India

Non-molecular technologies
- Alere Determine TB-LAM, Alere, USA

Evaluated by WHO and not recommended

- Commercial serodiagnostics (all manufacturers)
- Interferon-gamma release assays for the detection of active TB (all settings)

Technologies endorsed by WHO

Molecular technologies
- Xpert MTB/RIF[b]
- Line probe assays (acid-fast bacilli smear-positive sputum specimens or culture-positive specimens)

Microscopy
- Ziehl-Neelsen and fluorescence microscopy methods

Culture-based technologies
- Commercial liquid culture systems and rapid speciation
- Non-commercial culture and drug susceptibility testing methods

[a] This is not an exhaustive list of technologies in early development. Those listed are the ones documented in recent (2013) publications by UNITAID and TAG.
[b] Updated policy guidance on Xpert MTB/RIF is under development. See Chapter 5 for further details.

BOX 8.1

Evidence required for WHO review of new diagnostics

Phase 1: Research and Development

- Upstream research and development to define and validate a prototype;
- Laboratory validation under international standards that culminates in a design-locked product;
- WHO interacts with developers if requested to discuss end-user requirements such as biosafety, assay robustness and intended settings of use.

Phase 2: Evaluation and Demonstration

- The performance of the new diagnostic product should be evaluated in controlled trials at 3–5 trial sites in high-burden TB and HIV countries;
- Product registration with global and/or national regulatory authorities;
- Product specifications and performance should subsequently be validated in uncontrolled trials under field conditions in 5–10 trial sites in high-burden TB and HIV countries, and include cost-effectiveness studies.

Phase 3: Evidence Assessment

NEW TECHNOLOGIES

- Submission of a dossier with Phase I and Phase II data to WHO.

FAST-FOLLOWER

- Manufactured under ISO 13:485 standards;
- Equivalent performance demonstrated – Supranational Reference Laboratory comparison;
- Structured evidence assessment using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach;
- WHO does not recommend technologies for individual country use.

Phase 4: Phased uptake and collection of evidence for scale-up

- New diagnostic successfully implemented in routine diagnostic services by early implementers in high-burden countries;
- Systematic assessment of proposed algorithms, laboratory workload, operational constraints and cost-effectiveness;
- Lessons learnt by early implementers used for country adaptation.

Phase 5: Scale-up and Policy refinement

- Scale-up of the new diagnostic, with subsequent data used to inform and refine WHO policy guidance in a dynamic and on-going process.

at diagnosis of TB and drug-resistant TB, assays for use in monitoring patients' response to treatment are needed as alternatives to culture. Ribosomal RNA (rRNA)-based amplification assays have potential to be used in this way, given that rRNA levels per TB bacilli are much higher than genomic DNA targets and that they are present only in viable organisms.

Several new diagnostic technologies are on the market, but evidence to support their use has not been provided to WHO and thus their performance characteristics have not been assessed and WHO cannot recommend their use. As an alternative to real-time polymerase chain reaction (PCR) assays (e.g. Xpert MTB/RIF) or line-probe assays for the detection of TB and drug resistance, these technologies include PCR assays combined with DNA microarrays (arrays), which allow the detection of a greater number of resistance conferring alleles and may potentially offer superior performance for the rapid detection of drug resistance. The technologies include:

- iCubate system (iCubate, USA). This is a multiplexed PCR assay that detects TB, non-tuberculous mycobacteria and drug resistance-conferring mutations in a single reaction. The assay allows multiple targets to be amplified with array detection technology that simultaneously analyses multiple targets. The assay is currently available for research purposes only.

- Capital Bio Corporation (China) has developed a TB drug resistance detection array kit that can detect 14 of the most frequently found mutations in three genes associated with resistance to rifampicin and isoniazid. The assay is currently only appropriate for testing at reference laboratory level given the complexity of performing the assay.

- EasyNAT TB Diagnostic kit, Ustar Biotechnologies, (China) has developed three isothermal based NAATs for the detection of TB as well as rifampicin and isoniazid resistance-conferring mutations. A clinical trial conducted in four provinces across central and northern China showed promising preliminary results for a rapid and easy-to-use screening tool for the diagnosis of pulmonary TB.

- A micro-PCR system developed by Truelab™ (Molbio, India) was launched in 2013 in India. The system uses microchips with TB-specific genetic sequences for the quantitative detection of TB DNA in sputum samples in a one hour reaction from sample preparation to final reporting of results. Battery powered equipment is used for the steps of DNA extraction, amplification and detection. Although promising, only limited evaluation data are currently available.

- Alere Determine LAM, (Alere, USA). This is an assay for the detection of *M. tuberculosis* lipoarabinomannan in urine. The assay seems to be most useful for the diagnosis of TB in people living with HIV who have a low CD4 count.

Two tests are commercially available but have not been endorsed by WHO after evaluation. The first is a manual molecular assay to detect TB DNA in sputum specimens (TB-LAMP®, Eiken Chemical Co. Ltd., Japan). The evidence-based process followed by WHO concluded that the data available for the TB-LAMP assay were insufficient to proceed with the development of policy guidance. Additional independent evaluation studies to investigate TB-LAMP as a replacement test for culture are now underway in 16 countries (17 sites). The second assay evaluated by WHO but not endorsed is a line probe assay for detecting resistance to second-line anti-TB agents (GenoType® MTBDR*sl*, Hain Lifescience, Germany). This cannot be recommended as a replacement test for conventional phenotypic testing for drug susceptibility because of suboptimal sensitivity in detecting resistance to fluoroquinolones and second-line injectable agents. The latter group of drugs also share mutations, which means that even if they are detected by the line probe assay it is not possible to identify exactly which drug(s) is linked to the detected mutation(s), and therefore the test cannot be used to guide the choice of individual injectable drugs to be used in treatment regimens for MDR-TB. Conventional phenotypic testing for drug susceptibility to second-line drugs therefore remains necessary for all detected strains of MDR-TB and to confirm or exclude XDR-TB.

Two rapid molecular tests have been evaluated and endorsed by WHO in recent years (bottom of **Figure 8.1**). Line-probe assays that allow the rapid diagnosis of TB and drug resistance within a day were endorsed in 2008.[1] Their use is currently limited to acid-fast bacilli sputum smear-positive samples or positive cultures. Xpert MTB/RIF (Cepheid, Sunnyvale, CA, USA) was endorsed by WHO in 2010 for the rapid diagnosis (i.e. within 2 hours) of pulmonary TB and rifampicin-resistance in adults.[2] In July 2013, the Xpert MTB/RIF assay remained the only fully automated real-time DNA-based cartridge test that can detect both TB and resistance to rifampicin, and the only mature technology representing a new generation of automated molecular diagnostic platforms.

Since 2010, almost 100 articles on Xpert MTB/RIF have been published and others are underway.[3] In 2013, given the amount of additional data, WHO commissioned three systematic reviews of the evidence on sensitivity and specificity of Xpert MTB/RIF as a test for pulmonary and extrapulmonary TB, in both adults and children. Findings were reviewed by an expert group and updated recommendations are anticipated in 2014 (see **Chapter 5**).

The UNITAID 2013 Report: *Tuberculosis: Diagnostic technology and market landscape*[4] describes the following four innovations to the Xpert MTB/RIF technology, which were made or under development in 2012 and 2013.

- **Assay improvements**. A new prototype assay for MDR-TB is in development. This uses new dyes and quenchers that increase the spectral range for detection of targets using 10 fluorophores rather than the six currently used.
- **Remote calibration**. This was made available in late 2012 and is already being used in more than 40 countries. It allows users to recalibrate the optical system, verify the functioning of the thermal system and conduct a series of system-level tests to ensure full system functionality within specifications. It is anticipated that over 90% of modules can be successfully calibrated over the internet.
- **Enhancements to data management**. Real-time aggregation of geo-positioned test data (from which personal identifiers have been removed) is being evaluated in South Africa. This offers the potential to substantially improve monitoring of the TB epidemic and the associated programmatic response.
- **HIV cartridges for use with the GeneXpert platform**. These are planned for release in 2014. A separate cartridge for the qualitative and quantitative detection of HIV viral load is in development.

With over 50 companies working on TB diagnostics, there is now considerable industry interest in TB diagnostics. Nonetheless, a recent survey of more than 25 test developers identified several critical frequently-asked questions for which answers are required by industry to invest in TB diagnostic test development (www.tbfaqs.org). Test developers are particularly interested in identifying the most important attributes on which to focus test development efforts (examples include cost, sensitivity, specificity, infrastructure requirements, time to result, throughput, sputum versus other samples, manual versus automated, point-of-care versus centralized laboratory testing, integrated or reflex drug resistance test and which drugs are critical for DST). In addition, updated market analyses are urgently needed, given that the TB diagnostics market landscape has changed significantly since the last global assessment of the TB diagnostics market in 2006.[5] Updated market analyses and development of target product

1 Molecular Line Probe Assay for rapid screening of patients at risk of MDR-TB. Policy Statement. Geneva, World Health Organization, 2008. Available at http://www.who.int/tb/features_archive/policy_statement.pdf

2 *Policy Statement: Automated real-time Nucleic Acid Amplification Technology for Rapid and Simultaneous Detection of Tuberculosis and Rifampicin Resistance: Xpert MTB/RIF System*. Geneva: World Health Organization, 2011 (WHO/HTM/TB/2011.4). Available at http://whqlibdoc.who.int/publications/2011/9789241501545_eng.pdf

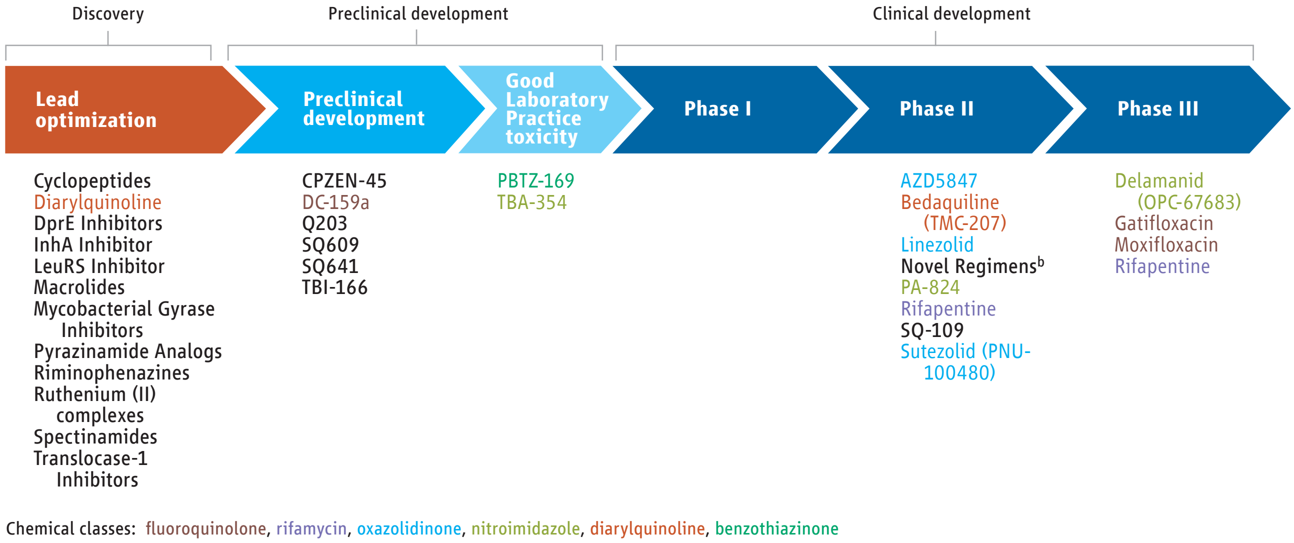
3 Weyer K et al. Rapid molecular TB diagnosis: evidence, policy-making and global implementation of Xpert® MTB/RIF *European Respiratory Journal* erj01572-2012; published ahead of print 2012, doi:10.1183/09031936.00157212.

4 *Tuberculosis: Diagnostics Technology and Market Landscape 2013*. Geneva, UNITAID/World Health Organization, 2013. Available at: http://www.unitaid.eu/images/marketdynamics/publications/TB-Dx-Landscape_1-Jul-2013.pdf

5 *Diagnostics for tuberculosis. Global Demand and market potential*. Geneva, Special Programme for Research and Training in Tropical Diseases (TDR) and Foundation for Innovative New Diagnostics (FIND), 2006. Available at: http://www.who.int/tdr/publications/documents/tbdi.pdf

FIGURE 8.2

The development pipeline for new TB drugs, July 2013[a]



[a] Details for projects listed can be found at www.newtbdrugs.org/pipeline and ongoing projects for which a lead compound has not been identified can be viewed at www.newtbdrugs.org/pipeline-discovery.

[b] Combination regimens: NC-001-(J-M-Pa-Z), Phase IIa; NC-002-(M-Pa-Z), Phase IIb; NC-003-(C-J-Pa-Z), Phase IIa; PanACEA-MAMS-TB-01-(H-R-Z-E-Q-M), Phase IIb.

profiles could facilitate greater engagement of test developers in TB diagnostics.

Despite good progress with the pipeline for new diagnostics, much more effort and investment are needed by both donors and manufacturers to expedite evaluations of new technologies in different epidemiological settings in order to determine their diagnostic accuracy and robustness in the settings of intended use. Substantial additional funding and innovation for new TB diagnostic development remain essential to ensure the availability of tests that are reliable, easy to use, affordable, and accessible to all those with TB. More than ever, the TB diagnostic pipeline needs increased and sustained investment.

8.2 New drugs to treat and prevent TB

The anti-TB drugs currently used in first-line treatments are around 50 years old. The regimen that is currently recommended by WHO for new cases of drug-susceptible TB is highly efficacious, with cure rates of around 90% in HIV-negative patients. Nonetheless, it requires six months of treatment with first-line drugs (a combination of rifampicin, isoniazid, ethambutol and pyrazinamide for two months, followed by a four-month continuation phase of rifampicin and isoniazid). Regimens for treatment of MDR-TB currently recommended by WHO entail at least 20 months of treatment with second-line drugs for most patients, and are associated with multiple (and sometimes serious) side-effects and lower cure rates (see **Chapter 4**). There are also interactions between anti-TB treatments and antiretroviral therapy (ART) for people living with HIV. New drugs are required to shorten and simplify treatment, to improve the efficacy and tolerability of treatment for MDR-TB and to improve the treatment of TB among people living with HIV.

The status of the pipeline for new anti-TB drugs in July 2013 is shown in **Figure 8.2**. There are seven drugs in Phase II (early bactericidal activity, EBA, and eight-week culture conversion) trials and four drugs in Phase III (efficacy) trials. In total, there are 10 new or repurposed drugs in Phase II or Phase III trials; one drug (rifapentine, a rifamycin that has a longer half-life than rifampicin) is in both Phase II and Phase III trials, for different indications.

8.2.1 Phase III trials

Results from a Phase III trial (the 'Rifaquin trial') that evaluated the safety and efficacy of two regimens for patients with drug-susceptible TB, in which moxifloxacin was substituted for isoniazid in the intensive phase of treatment and rifapentine was used in the continuation phase of treatment, were presented in March 2013.[1] A total of 827 patients with drug-susceptible TB were enrolled in Botswana, South Africa, Zambia and Zimbabwe. Both new regimens were well tolerated. The six-month regimen with a weekly dose of rifapentine (1200 mg) and moxifloxacin in the continuation phase was not inferior to the currently recommended regimen. However, the four-month regimen with twice-weekly doses of rifapentine (900 mg) and moxifloxacin in the continuation phase was clearly inferior to the currently recommended regimen.

Two Phase III trials are evaluating four-month combination regimens in which a fluoroquinolone (gatifloxacin in the case of the OFLOTUB trial and moxifloxacin in the case of the ReMOX trial) is substituted for either ethambutol (in the

[1] Jindani A et al. 2013. *A Multicentre Randomized Clinical Trial to Evaluate High-dose Rifapentine with a Quinolone for Treatment of Pulmonary TB: The RIFAQUIN Trial*. Oral abstract and paper 147LB. 20th Conference on Retroviruses and Opportunistic Infections (CROI), March 3–6 2013, Atlanta.

BOX 8.2

WHO interim guidance on the use of bedaquiline to treat MDR-TB

WHO estimates that about 450 000 new cases of MDR-TB occur worldwide each year (**Chapter 2**). Current drug regimens recommended by WHO for treatment of MDR-TB present many challenges: treatment lasts 20 months or more, and requires daily dosages of drugs that are more toxic, less effective, and far more expensive than those used to treat drug-susceptible TB.[a] Globally, only about 50% of patients who start MDR-TB therapy are treated successfully (**Chapter 4**).

For the first time in over 40 years, a new TB drug with a novel mechanism of action – bedaquiline – has become available for use. It was approved by the US FDA in December 2012, following an accelerated approval process. There is considerable interest in the potential of this drug to treat MDR-TB. However, information remains limited, since it has only been evaluated in two Phase IIb trials for safety and efficacy. For these reasons, WHO has issued "interim policy guidance".[b]

This interim guidance provides advice on the inclusion of bedaquiline in combination therapy for MDR-TB in accordance with the existing WHO guidelines for the programmatic management of drug-resistant TB.[a] The interim guidance lists five conditions that must be fulfilled for bedaquiline to be used to treat adults with MDR-TB:

1. **Effective treatment and monitoring**. Treatment must be closely monitored for effectiveness and safety, using sound treatment and management protocols approved by relevant national authorities.
2. **Proper patient inclusion**. Special caution is required when bedaquiline is used in people aged 65 and over, and in adults living with HIV. Its use among pregnant women and children is not advised.
3. **Informed consent**. Patients must be fully aware of the potential benefits and risks of the new drug, and give documented informed consent before embarking on treatment.
4. **Adherence to WHO recommendations**. All principles on which WHO-recommended MDR-TB treatment regimens are based must be followed. In particular, four effective second-line drugs must be part of the regimen. In line with the general principles of TB treatment, bedaquiline should not be introduced into a regimen in which the companion drugs are failing to show effectiveness.
5. **Active pharmacovigilance and management of adverse events**. Active pharmacovigilance measures must be in place to ensure early detection and proper management of adverse drug reactions and potential interactions with other drugs.

WHO strongly recommends the acceleration of Phase III trials to generate more comprehensive evidence that can inform future policy guidance on bedaquiline. The organization will review, revise or update the interim guidance as additional information on efficacy and safety becomes available. WHO is also developing a document that will provide operational guidance on the implementation of bedaquiline and is working with partners to help ensure rational introduction of the drug.

[a] *Guidelines for the programmatic management of drug-resistant tuberculosis – 2011 update*. Geneva, World Health Organization, 2011 (WHO/HTM/TB 2011.6).

[b] *The use of bedaquiline in the treatment of multidrug-resistant tuberculosis: interim policy guidance*. World Health Organization. Geneva, Switzerland. 2013 (WHO/HTM/TB/2013.6).

OFLOTUB trial) or ethambutol or isoniazid (in the ReMOX trial). The results from both trials are expected in late 2013.

A new compound, delamanid (OPC-67683), is currently being tested in a Phase III trial as an adjunct to existing optimized regimens for treatment of MDR-TB.

8.2.2 Phase II trials – individual compounds

The safety, tolerability and antimicrobial activity of an increased daily dose of rifapentine (at 10, 15 and 20 mg/kg) in combination with isoniazid, pyrazinamide and ethambutol during the first two months of treatment are being investigated in a Phase IIb trial (TBTC trial 29X). Early results were reported in May 2013.[1] These showed that rifapentine-based regimens were well-tolerated, with no toxicity events specifically related to increasing doses of the drug. Compared with the currently recommended six-month regimen, a higher proportion of patients who received the regimens including rifapentine had converted to culture-negative status (both in solid and liquid medium) after eight weeks. Among patients receiving the regimen with the highest dose of rifapentine, 100% were culture-negative after eight weeks of treatment (compared with 16 weeks for those receiving the current standard of care). The trial investigators concluded that the robust antimicrobial activity alongside the good tolerability and safety of the compound at increasing doses justified the assessment of daily high-dose rifapentine in regimens of shorter than six months duration in a Phase III trial.

Among other drugs tested in Phase II trials, the highest-profile in the past year is bedaquiline (TMC-207). The US Food and Drug Administration (FDA) approved the use of bedaquiline as an adjunct to existing regimens for the treatment of MDR-TB in December 2012, under an accelerated procedure. Bedaquiline became the first new TB drug to be approved for use in 40 years. A Phase III trial, which will investigate the safety and efficacy of bedaquiline when used in combination with a short MDR-TB regimen, is scheduled to start before the end of 2013. Following the release of trial results and the FDA decision, WHO issued interim guidance about the use of bedaquiline in the treatment of MDR-TB in June 2013 (**Box 8.2**).

Five other individual compounds are in the Phase II

[1] Moro et al. *Tolerability and safety of escalating Rifapentine (RPT) doses during the first two months of tuberculosis (TB) treatment*. Abstract A6051. American Thoracic Society International Conference, Philadelphia, May 17–22, 2013

development phase. These are linezolid, sutezolid, PA-824, SQ-109 and AZD-5847.

Linezolid (a member of the oxazolidinone antibiotic class of drugs) was approved in 2000 for the treatment of drug-resistant, gram-positive bacterial infections. It has good anti-mycobacterial activity in vitro and is increasingly used 'off-label' for patients who have highly drug-resistant TB. However, serious adverse events (such as peripheral and optic neuropathies, anaemia and thrombocytopenia) have been reported. Results from a prospective, randomized trial in which linezolid was used to treat patients with XDR-TB who had not responded to other available chemotherapeutic options were published in late 2012.[1] A total of 41 patients were randomly assigned to linezolid therapy (600 mg per day), which was either started immediately or after two months without any change to the background regimen. After confirmed sputum-smear conversion or after four months of treatment (whichever came first), patients underwent a second randomization to continue linezolid therapy at a dose of either 600 mg or 300 mg per day for at least an additional 18 months, with close monitoring of toxicity.

The results showed that at four months, 15 of the 19 patients (79%) in the immediate-start group and 7 of the 20 (35%) in the delayed-start group had converted to culture-negative status ($p = 0.001$). Most patients (34 of 39 [87%]) had a negative sputum culture within six months after linezolid had been added to their drug regimen. Of the 38 patients treated with linezolid, 31 (82%) had clinically significant adverse events that were possibly or probably related to linezolid, including three patients who discontinued therapy. Patients who received 300 mg per day after the second randomization had fewer adverse events than those who continued taking 600 mg per day. Thirteen patients completed therapy and had not relapsed at the end of follow up. Four cases of acquired resistance to linezolid were observed. Trial investigators concluded that linezolid was effective at achieving culture conversion among patients with chronic XDR pulmonary TB, but warned that patients must be monitored carefully for adverse events. Study limitations include the small number of patients evaluated, and that 10% of patients acquired resistance to linezolid. Further data are needed to balance the long-term risks and benefits of linezolid when used as part of a combination regimen with other effective anti-TB drugs.

Sutezolid (PNU-100480) is an oxazolidinone and an analogue of linezolid. It has been tested in an EBA study at doses of either 600 mg twice a day or 1200 mg once a day. Results were presented in 2012 and showed that sutezolid led to a significant reduction in log colony forming units (CFU) counts compared with the baseline level following 14 days of treatment, using both dosage options.[2] The results suggested a superior response with the 600 mg twice-daily dose.

PA-824 is a nitroimidazole compound that is being tested as part of several potential combination regimens (see below).

SQ-109, originally synthesized as a derivative of ethambutol, is also being tested as part of a combination regimen (see below).

AZD-5847 is being tested in a Phase II trial.

8.2.3 Phase II trials – new regimens

Besides individual compounds, new combinations of drugs are or will soon be tested in various Phase II trials. In the *Global tuberculosis report 2012*, the results of the EBA study of a new combination regimen (NC-001) that included moxifloxacin, pyrazinamide and the novel drug PA-824 were summarized.[3] Three trials of various combination regimens are currently underway. The first of these is **NC-002**, which is building on the NC-001 study to test the same regimen in a two-month trial. The trial is being implemented in South Africa and the United Republic of Tanzania. The regimen is being tested in patients with drug-susceptible TB and in patients who have drug-resistant TB but not resistance to the drugs included in the new regimen. The NC-002 trial is a landmark trial, since it is the first to simultaneously investigate treatment of both drug-sensitive and drug-resistant TB with the same regimen. Results are expected at the end of 2013.[4]

The second trial, **NC-003**, is testing the EBA of various combinations of clofazimine, bedaquiline, PA-824 and pyrazinamide in patients with drug-susceptible TB.[5]

The **MAMS-TB-01** trial, conducted by the PanACEA consortium, is evaluating new three-month combination regimens using a new adaptive study design.[6] The drugs included in the combination regimens are isoniazid, rifampicin, pyrazinamide, ethambutol, moxifloxacin and SQ-109. The end-point of the trial is time to culture conversion in liquid media. The trial started in May 2013.[7]

8.2.4 New developments in the treatment of latent TB infection

New drugs are being tested for the treatment of latent TB infection (LTBI) in people without active TB disease.

Rifapentine has been investigated as part of a combined regimen (TBTC 26, also called PREVENT-TB), and the first results were published in December 2011.[8] Enrolment and

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1 Lee M et al. Linezolid for Treatment of Chronic Extensively Drug-Resistant Tuberculosis. *New England Journal of Medicine* 2012;367:1508-18. DOI: 10.1056/NEJMoa1201964

2 Wallis R et al. *Safety, tolerability and early bactericidal activity in sputum of PNU-100480 (sutezolid) in patients with pulmonary tuberculosis* (Abstract THLBB02). 19th International AIDS Conference 2012, July 22–27, Washington DC.

3 Diacon AH et al. 14-day bactericidal activity of PA-824, bedaquiline, pyrazinamide and moxifloxacin combinations: a randomised trial. *The Lancet*, 2012

4 See: http://clinicaltrials.gov/show/NCT01498419

5 See: http://clinicaltrials.gov/show/NCT01691534

6 Phillips P et al. Innovative trial designs are practical solutions for improving the treatment of tuberculosis. *Journal of Infectious Diseases*. 2012;205 Suppl 2:S250–7.

7 See: http://clinicaltrials.gov/show/NCT01785186

8 Sterling T et al. Three Months of Rifapentine and Isoniazid for Latent Tuberculosis Infection. *New England Journal of Medicine* 2011; 365;23: 2155–66.

BOX 8.3

Raising the profile of treatment for latent TB infection

One third of the world's population is estimated to be latently infected with *M. tuberculosis*. People with latent TB infection (LTBI) do not have symptoms of TB and are not infectious, but they are at risk of developing active disease and becoming infectious. Studies show that 5–20% of those infected will develop active TB at some point in their lifetime, with the majority developing TB disease within 2–5 years of the initial infection. Several factors increase the risk of progressing from infection to active TB disease: immunosuppression (for example, related to HIV infection or immunosuppressive treatment), malnutrition, diabetes and alcohol abuse. Preventing active TB by addressing these risk factors as well as proper diagnosis and treatment of LTBI in selected risk groups is thus important for the individual and public health. Modelling has shown that diagnosis and treatment of LTBI could play a key role in TB elimination. WHO has recently published guidelines on TB contact investigation and on systematic screening of active TB,[a,b] both of which offer an entry point to identification of risk groups for LTBI diagnosis and treatment.

Isoniazid preventive therapy (IPT) is the mainstay of current WHO recommendations on treatment of LTBI. Treatment is recommended for two specific population groups: people living with HIV, and children less than five years old who are household or close contacts of TB patients. A recent Cochrane review showed that rifampicin- and rifapentine-containing regimens among HIV negative people have higher completion rate and fewer adverse events compared with those based on IPT only.[c]

Before initiating LTBI treatment, it is essential that active TB is effectively ruled out and the diagnosis of LBTI reliably established. The tuberculin skin test (TST) and interferon-gamma release assays (IGRA) are designed to detect a cellular immune response to *M. tuberculosis*, but do not differentiate between latent infection and active disease and, if negative, do not allow TB infection to be ruled out. Most importantly, they cannot accurately predict the risk of infected individuals developing active TB disease, and their use in routine practice poses operational and resource challenges.

There are several unanswered questions related to the detection and management of LTBI that require urgent scientific attention and increased research investments. There is still limited understanding of the fundamental biology of latency and there are no truly adequate animal models to study it. There is also no diagnosis and treatment for people who are latently infected with drug-resistant strains of *M. tuberculosis*. Expediting the discovery of robust tools to effectively diagnose and treat LTBI is crucially important for global TB control. Particular emphasis needs to be given to development of a better understanding of the basic pathogenesis of *M. tuberculosis* and the identification of biomarkers that will enable reliable diagnosis and shorter and less toxic treatment for LTBI.

Following recent developments in the treatment of LTBI, WHO plans to update its guidelines on the management of LTBI. This will entail a review of the existing evidence with a particular focus on risk groups that have the highest likelihood of progression to active TB disease following infection, and due consideration to risk-benefit analysis and concomitant risk factors.

[a] Recommendations for investigating contacts of persons with infectious tuberculosis in low- and middle-income countries. Available at http://apps.who.int/iris/bitstream/10665/77741/1/9789241504492_eng.pdf

[b] Systematic screening for active tuberculosis – Principles and recommendations. Available at http://apps.who.int/iris/bitstream/10665/84971/1/9789241548601_eng.pdf

[c] Sharma SK et al. Rifamycins (rifampicin, rifabutin and rifapentine) compared to isoniazid for preventing tuberculosis in HIV-negative people at risk of active TB. *Cochrane Database of Systematic Reviews* 2013, Issue 7. Art. No.: CD007545. DOI: 10.1002/14651858.CD007545.pub2.

follow-up for two groups of particular interest (young children 2–11 years of age, and people living with HIV) were extended and are scheduled to end in September 2013. Preliminary results showed that the once-weekly, three month regimen of rifapentine and isoniazid (3HP) was generally well-tolerated and offered 'substantial advantages' compared with the current standard of nine months of isoniazid for treatment of LTBI in children.[1] Study 33, also called iAdhere, is a follow-up Phase IV study of TBTC 26, investigating the effectiveness of the 3HP combination (tested in PREVENT-TB), either given by: (1) DOT, (2) self-administered, or (3) self-administered with text message reminders by cell phone. This study is expected to be completed in March 2014.

A second study is an AIDS Clinical Trials Group (ACTG) trial of daily rifapentine and isoniazid for one month to treat LTBI in people living with HIV. A third study to evaluate the effect of single and repeated administration of rifapentine (given as a daily or weekly regimen) on steady-state pharmacokinetic parameters of efavirenz, emtricitabine and tenofovir given as a fixed dose combination (ATRIPLA™) started patient enrolment in September 2012 and recruitment was completed in August 2013. A fourth study to compare the safety and effectiveness of a four-week daily regimen of rifapentine and isoniazid with a standard nine-month regimen of daily isoniazid among people living with HIV started patient enrolment in May 2012 and is expected to complete enrolment in March 2018. A fifth study to determine the safety and tolerability of a four-month, once daily rifampicin regimen in children is being conducted by the Canadian Institutes of Health Research and McGill University and results are expected in 2016.[2]

[1] Villarino et al. *Tolerability among children of three months of once-weekly rifapentine + INH (3HP) vs. 9 months of daily INH (9H) for treatment of latent tuberculosis infection: The PREVENT TB Study* (TBTC Study 26/ACTG 5259). IDSA Conference 2012.

[2] Clayden P et al, on behalf of the HIV i-Base/Treatment Action Group. *2013 Pipeline Report: HIV, Hepatitis C Virus (HCV), and Tuberculosis (TB) Drugs, Diagnostics, Vaccines, Preventive Technologies, Research Toward a Cure, and Immune-Based and Gene Therapies in Development*. Available at: http://www.treatmentactiongroup.org/pipeline-report

8.3 New vaccines to prevent TB

The slow decline in TB incidence globally and the growing problem of MDR-TB highlight the critical need for new effective TB vaccines. The BCG vaccine for the prevention of TB is almost 100 years old, and while the vaccine protects against severe forms of TB in children (TB meningitis and miliary TB), its efficacy in preventing pulmonary TB in adults is highly variable. BCG is also not recommended for use in infants known to be infected with HIV, due to the risk of disseminated BCG disease. The development of techniques for genetic manipulation of mycobacteria, completion of the genome sequence of *M. tuberculosis* in the 1990s, and recent advances in immunology provide historic opportunities for developing a new generation of TB vaccines that can achieve dramatically higher levels of impact.

For the past decade, two major strategies have been used to develop new vaccines for prevention of TB.[1] One strategy has been to develop vaccines that would have a higher efficacy than BCG and replace it – such as an improved version of BCG or a new attenuated live *M. tuberculosis* vaccine. The second strategy has been a 'prime-boost' strategy in which BCG continues to be given to neonates (as is done currently, since it prevents TB in infants and children), and a new vaccine is given as a 'booster' dose to increase the efficacy and extend the duration of protection. Modelling of the potential public health impact of new TB vaccines in the WHO South-East Asia Region suggested that a TB vaccine for infants with 60% efficacy would contribute to a significant decline in TB incidence by 2050.[2] Furthermore, this modelling also indicated that if a preventive TB vaccine of similar efficacy among adolescents and adults was delivered as part of a mass vaccination strategy, the impact on the TB epidemic would be much larger. More recent modelling of the public health impact of a new vaccine at global level[3] has reinforced this finding, indicating that an adolescent and adult vaccine with 60% efficacy could potentially avert 30–50 million new TB cases over a 25 year period. The much greater potential impact of an adult/adolescent vaccine has shifted the focus of TB vaccine development towards a new paradigm that emphasizes the development of a diverse pipeline of new TB vaccine candidates that target the prevention of TB in this older population. Scientific advances have also enabled the pursuit of more sophisticated approaches to vaccine design, and the global pipeline of TB vaccine candidates in clinical trials is more robust than at any previous period in history, now including recombinant BCGs, attenuated *M. tuberculosis* strains, recombinant viral-vectored platforms, protein/adjuvants combinations, and mycobacterial extracts.

The status of the pipeline for new vaccines in July 2013 is shown in **Figure 8.3**. There are 12 vaccine candidates in clinical trials. Most are designed for prevention of TB, either to prevent infection (pre-exposure) or to prevent primary progression to disease or reactivation of latent TB (post-exposure). Two are BCG replacement vaccines and two are proposed as immunotherapeutic agents, to improve responsiveness to chemotherapy or prevent relapse or re-infection.

Two vaccines are in Phase IIb studies.

MVA85A is an attenuated vaccinia-vectored vaccine candidate expressing Ag85A of *M. tuberculosis*. It was designed as a booster vaccine for BCG vaccinated infants and the first Phase IIb trial of this vaccine was conducted in South Africa from 2009 to 2012 with results published in early 2013 (**Box 8.4**).[4] An additional Phase IIb trial of MVA85A is currently being conducted in adults living with HIV in Senegal and South Africa; the trial has been recently re-designed as a safety trial in which up to 650 participants will be enrolled.

M72+AS01$_E$ is a protein subunit vaccine, formulated in a novel adjuvant to enhance immunogenicity. It contains a fusion protein of the *M. tuberculosis* antigens 32A and 39A in the adjuvant AS01$_E$. Safety and immunogenicity are being tested in three different populations: infants in The Gambia, people living with HIV in India and adults with TB disease in China (Province of Taiwan) and Estonia. The Phase IIb study will be the largest trial of a novel TB vaccine in adults, aiming to enrol 4500 HIV-negative adults in TB-endemic countries in Africa. The primary endpoint will be the protective efficacy of two doses of M72+AS01$_E$ against pulmonary TB disease. Secondary endpoints include safety and immunogenicity.

There are six additional vaccines in Phase II trials.

AERAS-402/Crucell Ad35 is an adenovirus-vectored vaccine candidate expressing three *M. tuberculosis* antigens: Ag85A, Ag85B and TB10.4. It is designed as a booster vaccine for infants, adolescents and adults. Although started as a Phase IIb proof-of-concept trial, based on preliminary data the trial is now being revised to be a smaller Phase II trial with safety and immunogenicity as primary endpoints. Of note, AERAS-402/Crucell Ad35 and MVA85A are also being tested in *combination*, to try to drive a balanced CD4+/CD8+ immune response. One or two doses of AERAS-402/Crucell Ad35 followed by a dose of MVA85A are being evaluated in a combined Phase I/Phase II trial in adults in the United Kingdom for safety and immunogenicity.

Three vaccines are protein subunit adjuvanted vaccines, initially developed by the Statens Serum Institute in Copenhagen, Denmark. **Hybrid 1 + IC31** contains Ag85B and ESAT-6 in an adjuvant, IC31. **Hybrid 56 + IC31** contains antigens 85B and ESAT6 as well as AgRv2660, which is expressed during latency. **Hybrid 4 + IC31**, now being developed with Sanofi Pasteur, is a fusion protein candi-

1 Evans TG, Brennan MJ, Barker L and Thole J. Preventive vaccines for tuberculosis. *Vaccine*. 31S (2013) B223– B226.

2 Abu-Raddad LJ, et al. Epidemiological benefits of more-effective tuberculosis vaccines, drugs, and diagnostics. *Proceedings of the National Academy of Science*. 2009. 106:33; 13980–13985.

3 A model of the global public health impact of new TB vaccines was commissioned by Aeras and developed by Applied Strategies. Formal publication of the model and associated results is pending.

4 Tameris MD, et al. Safety and efficacy of MVA85A, a new tuberculosis vaccine, in infants previously vaccinated with BCG: a randomised, placebo-controlled phase 2b trial. *The Lancet*. 2013. 381:9871; 1021–1028.

FIGURE 8.3

The development pipeline for new TB vaccines, July 2013

Phase I	Phase II	Phase IIb	Phase III
AdAg85A McMaster, CanSino P B PI	VPM 1002 Max Planck, VPM, TBVI, Serum Institute P B	MVA85A/AERAS-485 Oxford, Aeras, EDCTP B PI IT	*M. Vaccae* Anhui Longcom IT
MTBVAC TBVI, Zaragoza, Biofabri P	H1+IC31 SSI, TBVI, EDCTP, Intercell P B PI	M72+AS01 GSK, Aeras B PI	
ID93+GLA-SE Infectious Disease Research Institute (IDRI), Aeras B	RUTI Archivel Farma, S.L. B PI IT		
Crucell Ad35/MVA85A Crucell, Oxford, Aeras P B	H56/AERAS-456+IC31 SSI, Aeras, Intercell P B PI		
	H4/AERAS-404+IC31 SSI, Sanofi Pasteur, Aeras, Intercell B		
	Crucell Ad35/AERAS-402 Crucell, Aeras B		

P Prime B Boost PI Post-infection IT Immunotherapy

TB Vaccine Types Viral-vectored: MVA85A, AERAS-402, AdAg85A
Protein/adjuvant: M72, Hybrid-1, Hyvac 4, H56, ID93
rBCG: VPM 1002
Killed WC or Extract: Mw, RUTI
Source: Tuberculosis Vaccine Candidates, Working Group on New Vaccines

date that expresses Ag85B and TB10.4; the latter antigen is from the same gene family as ESAT-6. All three vaccines are being studied in Phase IIa clinical trials in Africa.

VPM 1002 is a live recombinant vaccine, derived from the Prague strain of BCG into which the listerolysin gene from *Listeria monocytogenes* has been cloned and the urease gene deleted to improve immunogenicity. A Phase IIa trial of this vaccine has recently been completed in South Africa. A second Phase II trial will assess the safety and immunogenicity of the vaccine in HIV exposed/unexposed newborns.

RUTI is a non-live vaccine based on fragmented *M. tuberculosis* bacteria. It is in a Phase IIa trial in Spain and is being developed as an immunotherapeutic vaccine.

In addition to the vaccine candidates described above, AnHui Longcom, a Chinese pharmaceutical company, is studying ***Mycobacterium vaccae***, a non-living preparation from the non-pathogenic bacterium, as an adjunct to standard antimicrobial therapy. Phase III efficacy studies are reportedly underway.

There are three vaccine candidates in Phase I clinical trials. These include the first live attenuated *M. tuberculosis* vaccine, MTBVAC, as well as a new fusion protein vaccine, ID93, formulated with a novel adjuvant GLA-SE.

MTBVAC is being developed by the University of Zaragosa, Institut Pasteur, BIOFABRI and the Tuberculosis Vaccine Initiative (TBVI). It is a live *M. tuberculosis* strain attenuated via deletions of the *pho*P and *fad*D26 genes. It is the first live attenuated *M. tuberculosis* vaccine to enter a Phase I clinical trial.

ID93+GLA-SE is a recombinant fusion protein formulated in the novel adjuvant, GLA-SE. It is being developed by the Infectious Disease Research Institute (IDRI) in collaboration with Aeras. It expresses three *M. tuberculosis* virulence antigens (Rv2608, Rv3619 and Rv3620) and one *M. tuberculosis* latency antigen (Rv1813). It is beginning a Phase 1b trial in adults in South Africa to assess safety and immunogenicity in this population.

Ad5 Ag85A is an adenovirus serotype 5 vector expressing Ag85A. It has been developed by McMaster University with support from CanSino, a Chinese biotechnology company based in Tianjin. The vaccine was recently evaluated in a Phase I trial that demonstrated no vaccine-related serious adverse events and showed greater immunogenicity in the study group primed with BCG.

Research on new TB vaccines is now at a crucial juncture. Despite the diversity that already exists in the global portfolio of TB vaccine candidates in clinical trials, there is growing recognition among scientists and researchers in the field that there is still too much similarity in the immunological strategies being pursued.[1] In the absence of known immune correlates for either protective immunity against TB or control of infection, the portfolio must be further diversified so that candidates explore a different and novel immunological 'space'. There is already a robust pipeline of candidates being evaluated pre-clinically – including nucleic acid-based (DNA and RNA) vaccines – and these pursuits may help to broaden the diversity of the clinical portfolio and fill the scientific gaps that currently exist. To rationalize and streamline the advancement of TB vaccine candidates, consensus has been

[1] Evans TG et al. Preventive vaccines for tuberculosis. *Vaccine* 31S (2013) B223– B226.

BOX 8.4

The MVA85A trial in South Africa

MVA85A is a poxvirus ("Modified Vaccinia Ankara", MVA)-vectored vaccine that expresses the immune-dominant *M. tuberculosis* antigen 85A. It was originally developed at the University of Oxford. An infant Phase IIb proof-of-concept trial was recently completed in South Africa.[a] The study population consisted of 2794 BCG-vaccinated, HIV-negative infants aged 4–6 months, with both study arms almost equally sized: 1399 infants received one dose of MVA85A, while 1395 infants in the control arm received a placebo (Candin, a *C. albicans*-derived skin test antigen). Follow up lasted 37 months. The primary objective of the study was to assess the safety of MVA85A in these infants. The secondary objectives were to evaluate the efficacy of the vaccine against: (a) the disease and (b) *M. tuberculosis* infection, as measured by Quantiferon conversion (this distinction is important as infection only leads to active TB disease in a small minority of immune-competent individuals). Additional objectives included the evaluation of immunogenicity.

Conclusions drawn from the results of the Phase IIb trial

This was the first clinical trial to evaluate the efficacy of a new TB vaccine candidate for prevention of clinical TB or *M. tuberculosis* infection, and results were therefore of considerable interest to the vaccine research and public health communities. In this trial, MVA85A appeared to be safe and well tolerated, confirming similar findings from previous Phase I and Phase IIa clinical trials using this vaccine. None of the observed serious adverse events (or deaths) observed in the study arm were assessed by the investigators to be related to the vaccine, and only one serious adverse event involving a brief hospitalization occurred in the placebo group. The primary efficacy analysis was based on the number of TB cases among the vaccinated versus control subjects. In the vaccine arm, there were 32 cases, while in the placebo arm there were 39 cases. Based on this, the calculated vaccine efficacy was 17.3% (95% CI: -31.9% to 48.2%) for the primary TB case definition, which was not statistically significant. Moreover, there was no evidence of protection against *M. tuberculosis* infection: using the Quantiferon-TB Gold assay as the read-out. A total of 349 out of 2792 infants became infected (178 in the vaccine arm and 171 in the placebo arm), giving a calculated vaccine efficacy of –3.8% (95% CI: -28.1% to 15.9%), which was also not statistically significant.

Implications for future studies of this and other TB vaccine candidates

Phase IIb proof–of-concept trials are designed to allow 'triage' of vaccine candidates and target populations, to decrease risks before embarking on hugely complex and resource consuming Phase III trials. Current regulations require a Phase IIb proof–of-concept trial to be corroborated in larger Phase III trials before a vaccine can be licensed.

This study demonstrated that the vaccine had an acceptable safety profile in infants, and that a high quality trial of a novel TB vaccine can be conducted and produce robust results in a high TB burden setting. The vaccine was given months after all the infants had received BCG vaccine, and it is possible that BCG may have provided a plateau level of protection, with very little, if any additional protection added by MVA85A. Rates of TB in South Africa (and the Western Cape province in particular) are exceptionally high in all age groups, including young children, and this high force of infection may be difficult to address with any vaccine. It cannot be assumed that similar results would have been obtained in other populations. It is also possible that adults, adolescents and older children could be a better target population for this vaccine: there is some evidence that it induces a stronger immune response in older age groups than in infants. Adults and adolescents are the primary source of transmission as they more likely to develop the most infectious forms of the disease and account for the largest share of the burden of TB disease worldwide. The vaccine is currently being evaluated in HIV-infected adults in Senegal and South Africa, using a two-dose regimen. For all these reasons, the results of the trial should not be considered as providing any definitive answer to the question of whether a new TB vaccine can provide better protection than BCG alone. Further studies of this and other vaccines are urgently needed. Several of the other TB vaccine candidates in the clinical pipeline differ from MVA85A both in their antigenic composition and in the way these antigens are delivered.

[a] Tameris MD, et al. Safety and efficacy of MVA85A, a new tuberculosis vaccine, in infants previously vaccinated with BCG: a randomized, placebo-controlled phase 2b trial. *The Lancet*. 2013. 381:9871; 1021–1028.

developed among key stakeholders on 'stage-gating' criteria for new TB vaccines, and increased emphasis is being placed on global coordination among key stakeholders to advance a common research agenda.

To supplement these existing efforts, a re-prioritized focus on early stage research is also underway. In accordance with this shift in emphasis, more energy and resources will be directed towards the pursuit of novel designs, to studies focused on immunological mechanisms and biomarkers, and to a diversification of scientific approaches and strategies to ensure that a more diverse pipeline of new TB vaccine candidates moves forward into clinical trials.[1]

8.4 The post-2015 global TB strategy: the critical role of research and development

Fundamental science is necessary to drive innovations in new tools for improved TB care and control. Fundamental research is required to better characterize *M. tuberculosis* and to improve understanding of the interaction between the bacillus and the human host, as a basis for maintaining the flow of new technologies into the product pipeline. Researchers are making great strides in redefining the

[1] Brennan MJ and Thole J (editors). Tuberculosis vaccines: A strategic blueprint for the next decade. *Tuberculosis*. 2012. 92: Supplement 1; S6–S13.

spectrum of TB disease and the transition from latent to active TB, and developing a better understanding of the behaviour of *M. tuberculosis* within the host. This progress is expected to deliver better knowledge about pathogenesis and identification of biomarkers and bio-signatures relevant to new TB diagnostics. It is also expected to point to new targets for anti-TB drugs as well as early indicators of protective immunity, vaccine efficacy and early response to treatment. Such developments will facilitate the selection and testing of new interventions.

To highlight the crucial role of research in ending the global TB epidemic, the WHO post-2015 global TB strategy that is currently under development includes "Intensified Research and Innovation" as one of three strategic pillars (**Chapter 1**). The strategy is being developed as a successor to the *Stop TB Strategy*, which covers the period 2006–2015. In wide consultations held during 2012 and 2013, there has been strong support for this pillar and its two main sub-components, which are:

1. Discovery, development and rapid uptake of new tools, interventions and strategies;
2. Research to optimize implementation and impact.

The research pillar will be essential to the success of the two other pillars of the post-2015 global TB strategy and the achievement of post-2015 global TB targets.

Biomedical research will need to be integrated as a critical component of the new post-2015 research strategy. Creating connections among scientific disciplines that have historically been inadequate or lacking (for example, biomedical research, epidemiology and operational research) will depend upon close collaboration, consultation and input from many research and public health stakeholders.

The need for more and expanded operational research to optimize implementation and adopt innovations will require extensive work at the country level, for example to generate essential data on the epidemiology of TB ('*Know your epidemic*') and universal health coverage, and to allow adaptation of global recommendations and policies at the national level.

ANNEX 1

Methods used to estimate the global burden of disease caused by TB

This annex explains the methods that were used to produce estimates of the global burden of disease caused by TB (measured in terms of incidence, prevalence and mortality). It has nine major sections:

- **General approach**. This section provides some background information about the methods used to produce estimates of disease burden.
- **Definitions**. This section defines TB incidence, prevalence and mortality, the case fatality rate (CFR) and the case notification rate. It also explains the regions for which estimates of disease burden are produced and sources of information on population estimates.
- **Estimates of TB mortality, 1990–2012**. This section explains the three methods used to estimate TB mortality, and the countries for which they were applied. Methods for estimating the number of HIV-associated TB deaths and for disaggregation of TB mortality by age and sex are also described.
- **Estimates of TB incidence, 1990–2012**. This section explains the main methods used to estimate TB incidence, and the countries for which they were applied. Methods to estimate the prevalence of HIV among incident TB cases are described.
- **Estimates of TB prevalence, 1990–2012**. This section explains the two methods used to estimate TB prevalence, and the countries for which they were applied.
- **Estimates of multidrug-resistant TB (MDR-TB) incidence and mortality**. This section explains the main methods used to estimate MDR-TB mortality and incidence based on drug resistance surveillance data and parameters obtained from a recent literature review.
- **Projections of TB incidence, prevalence and mortality**. This section explains how projections from 2013 to 2015 were produced.
- **Uncertainty framework**. This section explains the general approach to including uncertainty in all estimates.

1. General approach

Estimates of the burden of disease caused by TB (measured in terms of incidence, prevalence and mortality) are produced annually by WHO using information gathered through surveillance systems (case notifications and death registrations), special studies (including surveys of the prevalence of disease, mortality surveys and in-depth analyses of surveillance data), expert opinion and consultations with countries. Two recent publications provide up-to-date guidance about how TB incidence, prevalence and mortality should be measured,[1] based on the work of the WHO Global Task Force on TB Impact Measurement.[2] The methods used to estimate the burden of disease were updated in 2009 following 18 months of work by an expert group convened by the Task Force. These updates were endorsed at a meeting of the full Task Force in March 2010. Improvements to methods included systematic documentation of expert opinion and how this has been used to produce estimates of disease burden, simplification of models,[3] updates to parameter values based on the results of systematic reviews, much greater use of mortality data from vital registration (VR) systems and systematic documentation of uncertainty (hence the uncertainty intervals shown on all of the estimates of disease burden in this report).

2. Definitions

2.1 Incidence, prevalence, mortality, case fatality rate, case notification rate

Incidence is defined as the number of new and recurrent (relapse) episodes of TB (all forms) occurring in a given year. Recurrent episodes are defined as a new episode of TB in people who have had TB in the past and for whom there was bacteriological confirmation of cure and/or documentation that treatment was completed (**Box 3.1**, **Chapter 3**). In the remainder of this Annex, relapse cases are referred to as *recurrent* cases because the term is more useful when explaining the estimation of TB incidence. Recurrent cases may be true relapses or a new episode of TB caused by reinfection. In current case definitions, both relapse cases and patients who require a change in treatment are called 'retreatment cases'. However, people with a continuing episode of TB that requires a treatment change are prevalent cases, not incident cases.

Prevalence is defined as the number of TB cases (all forms) at a given point in time.

Mortality from TB is defined as the number of deaths caused by TB in HIV-negative people, according to the latest revision of the *International classification of diseases* (ICD-10). TB deaths among HIV-positive people are classified as HIV deaths in ICD-10. For this reason, estimates of deaths from TB in HIV-positive people are presented separately from those in HIV-negative people.

The **case fatality rate** is the risk of death from TB among people with active TB disease.[4]

The **case notification rate** refers to new and recurrent episodes of TB notified to WHO for a given year, expressed per 100 000 population. The case notification rate for new and recurrent TB is important in the estimation of TB incidence. In some countries, however, information on treatment history may be missing for some cases. When data on treatment history are not available, recurrent cases cannot be distinguished from cases whose treatment was

1 *TB impact measurement: policy and recommendations for how to assess the epidemiological burden of TB and the impact of TB control*. Geneva, World Health Organization, 2009 (Stop TB policy paper, no. 2; WHO/HTM/TB/2009.416). The policy paper is available on the Task Force web site: www.who.int/tb/advisory_bodies/impact_measurement_taskforce

2 For further details, see the Task Force web site at: www.who.int/tb/advisory_bodies/impact_measurement_taskforce

3 For example, some parameter values are now estimated only at global level or for regions, rather than for each country individually.

4 Straetemans M et al. Assessing tuberculosis case fatality ratio: a meta-analysis. *PLoS One*. 2011, 6(6):e20755.

changed, since both are registered and reported in the category 'retreatment'. Patients reported in the 'unknown history' category are considered incident TB episodes (new or relapse). This is a change from previous years in view of past difficulties to estimate with NTPs the proportion of true new or relapse TB episodes in this category of patients (previously, patients with unknown treatment history were not considered new or relapse cases). This change affects relatively few countries, mostly in Western Europe.

2.2 Regions

Regional analyses are generally undertaken for the six WHO regions (that is, the African Region, the Region of the Americas, the Eastern Mediterranean Region, the European Region, the South-East Asia Region and the Western Pacific Region). For analyses related to MDR-TB and for an ecological model used to estimate TB mortality in some countries, nine epidemiological regions were defined. These were African countries with high HIV prevalence, African countries with low HIV prevalence, Central Europe, Eastern Europe, high-income countries,[1] Latin America, the Eastern Mediterranean Region (excluding high-income countries), the South-East Asia Region (excluding high-income countries) and the Western Pacific Region (excluding high-income countries). The countries in these nine regions are listed in **Appendix 1**.

2.3 Population estimates

The source of population estimates needed to calculate various TB indicators was the 2012 revision of the *World Population Prospects*, which is produced by the United Nations Population Division (UNPD).[2] The UNPD estimates sometimes differ from those made by countries.

3. Estimates of TB mortality, 1990–2012

The best sources of data about deaths from TB (excluding TB deaths among HIV-positive people) are VR systems in which causes of death are coded according to ICD-10 (although the older ICD-9 and ICD-8 classification are still in use in several countries). Deaths from TB in HIV-positive people are coded under HIV-associated codes.

Three methods were used to estimate TB mortality among HIV-negative people:

- direct measurements of mortality from VR systems or mortality surveys;
- indirect estimates based on an ecological model that uses data from VR systems;
- indirect estimates derived from multiplying estimates of TB incidence by estimates of the CFR.

Each method is described in more detail below. Details on the method used for each country are available online at www.who.int/tb/publications/global_report/gtbr13_mortality_source.csv.

3.1 Estimating TB mortality among HIV-negative people from vital registration data and mortality surveys

Data from VR systems are reported to WHO by Member States and territories every year. In countries with functioning VR systems in which causes of death are coded according to the two latest revisions of the *International classification of diseases* (underlying cause of death: ICD-10 A15-A19, equivalent to ICD-9: 010-018), VR data are the best source of information about deaths from TB among people not infected with HIV. When people with AIDS die from TB, HIV is registered as the underlying cause of death and TB is recorded as a contributory cause. Since one third of countries with VR systems report to WHO only the underlying causes of death and not contributory causes, VR data usually cannot be used to estimate the number of TB deaths in HIV-positive people.

TB mortality data obtained from VR systems are essential to understanding trends in TB disease burden where case notifications have incomplete coverage or their coverage is not documented through an inventory study. An updated description of the global coverage and quality of VR data is available in *World Health Statistics 2013*.[3]

As of May 2013, 125 countries had reported mortality data to WHO (including data from sample VR systems and mortality surveys), among 217 countries and territories from which TB data were requested. These 125 countries included 9 of the 22 high TB burden countries (HBCs): Brazil, China, India, the Philippines, the Russian Federation, South Africa, Thailand, Viet Nam and Zimbabwe. However, the VR data on TB deaths from South Africa and Zimbabwe were not used for this report because large numbers of HIV deaths were miscoded as TB deaths. Improved empirical adjustment procedures have recently been published,[4] and options for specific post-hoc adjustments for misclassification errors in the measurement of TB mortality will be reviewed extensively by the WHO Global Task Force on TB Impact Measurement in 2014.

Among the countries for which VR data could be used (see **Figure 2.11** in **Chapter 2**), there were 2087 country-year data points 1990–2012. Of these data points, 24 outliers and points obtained from systems with very low coverage were excluded for analytical purposes. Outliers were detected visually by plotting country-specific time series of reported TB mortality rates. As of June 2013, 62 data points were available for 2010, 35 for 2011 and none for 2012. On average, 16 data points were retained for analysis per country (standard deviation (SD) of 6.7) from a total of 2063 usable data points.

1 High-income countries are defined by the World Bank as countries with a per capita gross national income (GNI) of ≥US$ 12 616 in 2012.

2 http://esa.un.org/unpd/wpp/ (accessed June 2013).

3 www.who.int/gho/publications/world_health_statistics/2013/en/ (accessed July 2013) (see particularly pages 15–16).

4 Birnbaum JK, Murray CJL, Lozano R. Exposing misclassified HIV/AIDS deaths in South Africa. *Bulletin of the World Health Organization*, 2011, 89:278–285.

Reports of TB mortality were adjusted upwards to account for incomplete coverage (estimated deaths with no cause documented) and ill-defined causes of death (ICD-9 code B46, ICD-10 codes R00–R99).[1]

It was assumed that the proportion of TB deaths among deaths not recorded by the VR system was the same as the proportion of TB deaths in VR-recorded deaths. For VR-recorded deaths with ill-defined causes, it was assumed that the proportion of deaths attributable to TB was the same as the observed proportion in recorded deaths.

The adjusted number of TB deaths d_a was obtained from the VR report d as follows:

$$d_a = \frac{d}{c(1-g)}$$

where c denotes coverage (i.e. the number of deaths with a documented cause divided by the total number of estimated deaths) and g denotes the proportion of ill-defined causes.

The uncertainty related to the adjustment was estimated with standard deviation $SD = d/4[1/c(1-g) - 1]$. The uncertainty calculation does not account for miscoding, such as HIV deaths miscoded as deaths due to TB.

Missing data between existing adjusted data points were interpolated. Trailing missing values were predicted using exponential smoothing models for time series.[2] A penalized likelihood method based on the in-sample fit was used for country-specific model selection. Leading missing values were similarly predicted backwards to 1990. A total of 799 country-year data points were thus imputed.

Results from mortality surveys were used to estimate TB mortality in India and Viet Nam.

In 2012, 45% of global TB mortality (excluding HIV) was directly measured from VR or survey data (or imputed from survey or VR data from previous years). The remaining 55% was estimated using the indirect methods described in **section 3.2** and **section 3.3**.

3.2 Estimating TB mortality among HIV-negative people from an ecological model

An out-of-sample, goodness-of-fit, stepwise selection approach was used in 2012 using the series 1990–2011 to select an ecological model that could predict TB mortality in countries without VR data. The model was based on the time series of VR data reported to WHO as described above, expressed as counts of TB deaths and corrected for ill-defined causes of deaths and VR coverage.

A population-averaged negative binomial model, with total population as the offset converting model outputs to rates, was used to account for the longitudinal structure of the data as well as the observed over-dispersion of counts of TB deaths.

Ten variables were investigated for inclusion in the model. These were: the infant mortality rate per 1000 live births; gross domestic product per capita; HIV prevalence among the general population; the percentage of the total population aged <15 and ≥65 years; the TB treatment success rate; the total number of newly notified TB cases per year; whether or not a country had a high or low burden of MDR-TB; whether a country was among the 22 HBCs or not; and a categorical variable classifying countries in nine groups with similar TB epidemiology (see **Appendix 1**).

At the univariate level, all risk factors were associated with the outcome of TB mortality. The final multivariate model included the infant mortality rate per 1000 live births, HIV prevalence among the general population, gross domestic product per capita, the percentage of the total population aged <15 and ≥65 years, whether a country was in the list of 22 HBCs or not; and the categorical variable that defined country groups with similar TB epidemiology.

Out of a total 4686 country-year observations in the time series for 1990–2011, 802 could not be predicted due to data not being available for any of the ten variables included in the model.

Estimates of TB mortality predicted by the model were used for 26 countries[3] in which VR or mortality survey data of sufficient quality and coverage were not available and for which estimates of TB incidence were judged too uncertain.

3.3 Estimating TB mortality among HIV-negative people from estimates of case-fatality rates and TB incidence

In 68 countries lacking VR data of the necessary coverage and quality (in total, 94 countries lacked VR data of sufficient coverage and quality but among 26 of them, the ecological model described above was used), TB mortality was estimated as the product of TB incidence (see **section 4**) and the CFR using a model developed in 2012.

CFRs were estimated separately for TB cases notified to NTPs and non-notified cases and, within these two groups, separate estimates were made for HIV-negative TB cases in high-income and other countries (**Table A1.1**).

TABLE A1.1

Estimates of TB case-fatality rates (HIV-negative) by case type and country

CASE TYPE AND COUNTRY GROUP	MEAN (STANDARD DEVIATION)
Non-notified: high-income countries	0.12 (0.042)
Non-notified: other countries	0.32 (0.13)
Notified: high-income countries	0.039 (0.042)
Notified: other countries	0.074 (0.03)

For consistency with VR- or survey-based mortality estimates, CFRs were estimated such that they gave the best fit to the directly measured TB death rates (within their uncertainty ranges) in the 123 countries with VR or mortality

[1] Mathers CD et al. Counting the dead and what they died from: an assessment of the global status of cause of death data. *Bulletin of the World Health Organization*, 2005, 83:171–177.

[2] Hyndman R et al. *Forecasting with exponential smoothing: the state space approach*. Springer Series in Statistics, 2008.

[3] For the list of the 26 countries, see www.who.int/tb/publications/global_report/gtbr13_ mortality_source.csv.

survey data that were retained for analysis, in conjunction with WHO estimates of distributions of TB incidence in those countries. This statistical fitting used Bayesian linear models and was done separately for two groups of countries (high-income and all other countries), to account for differences in the ratio of reported TB mortality to TB notification rates among these two groups (data not shown).

The models used normal errors and Gibbs sampling:

$$y = (I - N)\beta_1 + N\beta_2 + \varepsilon,\ \varepsilon \sim N(0,\sigma^2)$$

where y is TB mortality from VR, I denotes TB incidence excluding people living with HIV, N denotes TB notifications excluding people living with HIV, and parameters β_1 and β_2 denote the CFR in non-notified and notified cases respectively. Semi-conjugate priors were set with an uninformative inverse Gamma prior on the conditional error variance:

$$b \sim N(b_i,B_i^{-2}),\ \sigma^2 \sim IG(5.10^{-4},5.10^{-4})$$

For low- and middle-income countries, priors b and their precision B were defined based on literature reviews[1] and the country-year CFR parameters used by WHO for the years 1999–2008. For high-income countries, non-informative priors were used. Convergence of Markov Chains was assessed graphically and using convergence diagnostic tests. Within each case category 1990–2011, mortality estimates were computed by taking the product of posterior distributions of the CFR, assumed to be time-independent (**Table A1.1**), and country-year specific distributions of estimated incidence.

3.4 Estimating TB mortality among HIV-positive people

No nationally representative measurements of HIV-associated TB mortality were available from VR systems for use in this report. In the absence of direct measurements, TB mortality among HIV-positive people was estimated indirectly according to the following methods (also see section 4.5) implemented in the Spectrum software.[2]

TB mortality is calculated as the product of HIV-positive TB incidence (see **section 4.5**) and case fatality ratios:

$$M = (I\text{-}N)F_u + NF_n$$

where I represents incident TB cases among people living with HIV, N represents HIV-positive cases that are notified, $(I\text{-}N)$ represents HIV-positive TB cases that are not notified and M represents TB mortality among HIV-positive people. F_n and F_u are the case fatality ratios for notified and non-notified incident cases, respectively.

The case fatality ratios were obtained in collaboration with the TB Modeling and Analysis Consortium (TB-MAC),[3,4,5] and are shown in **Table A1.2**.

The disaggregation of incident TB into notified and not notified cases is based on the ratio of the point estimates for incident and notified cases. A single CFR was used for all bootstrapped mortality estimates.

Direct measurements of HIV-associated TB mortality are urgently needed. This is especially the case for countries such as South Africa and Zimbabwe, where national VR systems are already in place. In other countries, more efforts are needed to initiate the implementation of sample VR systems as an interim measure.

TABLE A1.2

Estimates of the case fatality ratio among HIV-positive TB cases

	NON-NOTIFIED	NOTIFIED
HIV- Mode of triangular distribution	0.43	0.03
HIV+ not receiving ART Mode of triangular distribution	0.78	0.09
Receiving ART for less than one year Mode of triangular distribution	0.62	0.06
Receiving ART for more than one year Mode of triangular distribution	0.49	0.04

3.5 TB mortality disaggregated by age and sex

For countries with VR data, it was possible to estimate TB deaths (excluding TB deaths among HIV-positive people) among children (aged <15 years) and adults (aged ≥ 15 years) separately. It was also possible to disaggregate TB deaths by sex. For these countries, male:female and child:adult ratios of TB deaths (expressed as rates per 100 000 population) were calculated (after correction for ill-defined causes of deaths and VR coverage). The ecological model described in **section 3.2** was used to predict ratios for countries with no VR data. Directly measured (i.e. based on VR data for the latest available year) or predicted country-level ratios were then used to estimate ratios for WHO regions. These were then used to estimate the global ratio which was in turn applied to the global number of estimated TB deaths among HIV-negative TB cases to produce age and sex-disaggregated estimates.

TB deaths among HIV-positive people were disaggregated by sex using the assumption that the male:female sex ratio is the same as the sex ratio of AIDS deaths estimated by UNAIDS. Further details are provided in **Box 2.2**, **Chapter 2**. Disaggregation of TB deaths by age and sex will be one of the future developments of the TB component of the Spectrum software (also see **section 3.4**).

1 Straetemans M et al. Assessing tuberculosis case fatality ratio: a meta-analysis. *PLoS One*. 2011, 6(6):e20755.
2 http://www.futuresinstitute.org/spectrum.aspx
3 Tiemersma EW, van der Werf MJ, Borgdorff MW, Williams BG, Nagelkerke NJ (2011) Natural history of tuberculosis: duration and fatality of untreated pulmonary tuberculosis in HIV negative patients: a systematic review. *PLoS One* 6: e17601.
4 Corbett EL, Watt CJ, Walker N, Maher D, Williams BG, et al. (2003) The growing burden of tuberculosis: global trends and interactions with the HIV epidemic. *Archives of Internal Medicine*; 163: 1009–1021.
5 Mukadi YD, Maher D, Harries A (2001) Tuberculosis case fatality rates in high HIV prevalence populations in sub-Saharan Africa. *AIDS*; 15: 143–152.

4. Estimates of TB incidence, 1990–2012

No country has ever undertaken a nationwide survey of TB incidence because of the large sample sizes required and associated major logistic and financial challenges. As a result, there are no direct measurements of the incidence of TB. Theoretically, data from TB surveillance systems that are linked to health systems of high coverage and performance may capture all (or almost all) incident cases of TB. The WHO Global Task Force on TB Impact Measurement has developed a set of TB surveillance standards and benchmarks that, if met, would allow direct measurement of TB cases and deaths from surveillance data (**Chapter 2**).

In the absence of direct measurements, estimates of TB incidence for almost all countries rely on methods described in **sections 4.1–4.3**.

It should be emphasized that incidence estimates are no longer derived from surveys of the prevalence of TB infection as measured in tuberculin surveys. The WHO Global Task Force on TB Impact Measurement has agreed that methods for deriving incidence from the prevalence of infection are unreliable. The Task Force has also stated that, with a few exceptions, repeat tuberculin surveys do not provide a reliable estimate of the trend in TB incidence.[1]

4.1 Estimating TB incidence from estimates of the proportion of cases detected

Notification data for new and recurrent cases have been analysed in combination with evidence about the coverage of the TB surveillance system and expert opinion in six regional workshops and country missions held during the period 2009–2013, according to methods developed by the WHO Global Task Force on TB Impact Measurement. By May 2013, these workshops and country missions had covered 96 countries (**Figure 2.1**, **Chapter 2**), with several countries re-assessed multiple times.

For the 96 countries covered by these regional workshops and country missions, incidence was estimated according to the following equation:

$$\text{incidence} = \frac{\text{case notifications}}{1 - \text{underreporting}}$$

Expert opinion about the proportion of TB cases[2] that were not reported was elicited for three reference years (1997, 2003 and, depending on when the workshop was held, 2008–2012). This was done following in-depth analysis of notification data (including data from sub-national administrative levels), programmatic data reflecting efforts in TB care and control (for example, data on infrastructure, staffing, the performance of services and funding) and (where available) data from inventory studies.[3] In addition, data on access to health care from Demographic and Health Surveys and the overall performance of health systems (using indicators such as the infant mortality rate) were used to substantiate opinion on the proportion of cases with no or very limited access to health care (**Table A1.3**). Results from inventory studies combined with capture–recapture modelling were used to estimate the gap between notified cases and TB incidence in three countries that participated in regional workshops: Egypt, Iraq and Yemen.

A full description of the methods used in these workshops is available in a report of the workshop held for countries in the African Region (in Harare, Zimbabwe, December 2010).[4]

TABLE A1.3

Sources of information and data on TB incidence used in regional workshops and country missions

POSSIBLE CATEGORIES OF INCIDENT CASES	SOURCES OF DATA	
Do not have physical or financial access to health care	Demographic and health surveys, KABP[a] surveys	Capture–recapture modelling
Seek care, but TB not diagnosed	Survey	
TB diagnosed, but not reported	'Inventory' survey	
Reported cases	TB surveillance	

[a] KABP = knowledge, attitudes, behaviour and practices.

Distributions of the proportion of cases that were not reported in the three reference years were assumed to follow a Beta distribution (**Table A1.4**). Reasons for using Beta distributions include the following:

- They are continuous and defined on the interval (0, 1). Since the variance of the proportions of cases that were not reported tend to be large as a result of high uncertainty, random draws of numbers from a normal distribution would yield numbers outside the interval (0, 1). The use of truncated normal distributions may result in excess density towards one of the bounds.
- They are not necessarily symmetrical.
- They are defined with two parameters that can be estimated from available data using the method of moments.[5]

The shape and scale parameters necessary to define the Beta distribution were computed using the method of moments, as follows:

First, the variance for the distribution was taken as:

$$V = ((u - l)/4)^2$$

where l and u are the lower and upper bounds of the plausible range for the proportion of incident cases that were

[1] *TB impact measurement: policy and recommendations for how to assess the epidemiological burden of TB and the impact of TB control.* Geneva, World Health Organization, 2009 (Stop TB policy paper, no. 2; WHO/HTM/TB/2009.416).

[2] Defined as cases of all forms of TB, including sputum smear-positive pulmonary cases, sputum smear-negative pulmonary cases and extrapulmonary cases.

[3] Measurements from 'inventory' studies can be used to quantify the number of cases that are diagnosed but not reported to national surveillance systems.

[4] See www.who.int/tb/advisory_bodies/impact_measurement_taskforce

[5] Rényi A. *Probability theory.* New York, Dover Publications Inc., 2007.

reported (also referred to as the case detection rate in **Chapter 3**).

Shape 1 (noted α) and 2 (noted β) follow from:

$$s = \frac{E(1-E)}{V} - 1$$

$$\alpha = sE$$

$$\beta = s(1-E)$$

where E is the expected value of the distribution.

Time series for the period 1990–2012 were built according to the characteristics of the levels of underreporting and under-diagnosis that were estimated for the three reference years. A cubic spline extrapolation of V and E, with knots set at the reference years, was used for countries with low-level or concentrated HIV epidemics. In countries with a generalized HIV epidemic, the trajectory of incidence from 1990 to the first reference year (usually 1997) was based on the annual rate of change in HIV prevalence. Incidence trajectories were derived from the series of notified TB cases using Monte Carlo simulations from which expected values, 2.5th and 97.5th centiles were extracted. All computations were conducted in the R statistical environment.[1]

In two countries, incidence rates were estimated to be similar to those in a neighbouring country because information from surveillance systems was insufficient: estimates for West Bank and Gaza Strip were extrapolated from estimates for Jordan and estimates for South Sudan were extrapolated from estimates for Sudan. The estimates for West Bank and Gaza Strip and South Sudan should therefore be considered as preliminary.

Trends in incidence were derived from repeat tuberculin survey results in Bhutan, India and Yemen and for 40 countries (including countries in Eastern Europe) from trends in mortality.

If there were insufficient data to determine the factors leading to time-changes in case notifications, incidence was assumed to follow a horizontal trend going through the most recent estimate of incidence.

4.2 Estimating TB incidence from data on case notifications and expert opinion for high-income countries

For high-income countries, the level of TB incidence was assumed to be distributed between the notification rate for new and recurrent cases combined, including reported cases with undocumented treatment history as explained in **section 2.1** (lower uncertainty bound, noted l) and 1.3 times the notification rate (upper uncertainty bound, noted u), as informed by expert opinion. The distribution of incidence was assumed to follow a Beta distribution with shape and scale parameters computed using the method of moments, as described above.

In the absence of country-specific data on the quality and coverage of TB surveillance systems, it was assumed that TB surveillance systems from countries in the high-income group performed similarly well, although the model does allow for stochastic fluctuations. The exceptions were the United Kingdom and the Netherlands, where the underreporting of TB cases has been measured using inventory studies and capture–recapture modelling.[2,3] For these two countries, the results from these studies were used to measure TB incidence directly.

4.3 Estimating TB incidence from empirical measurements of disease prevalence

Incidence can be estimated using measurements from national surveys of the prevalence of TB disease combined with estimates of the duration of disease. Incidence is estimated as the prevalence of TB divided by the average duration of disease.

In practice, the duration of disease cannot be directly measured. For example, measurements of the duration of symptoms in prevalent TB cases that are detected during a prevalence survey are systematically biased towards lower values, since active case-finding truncates the natural history of undiagnosed disease. Measurements of the duration of disease in notified cases ignore the duration of disease among non-notified and untreated cases.

Literature reviews commissioned by the WHO Global Task Force on TB Impact Measurement have provided estimates of the duration of disease in untreated TB cases from the pre-chemotherapy era (before the 1950s). The best estimate of the mean duration of disease (for smear-positive cases and smear-negative cases combined) in HIV-negative individuals is about three years. However, the proportion of incident cases that remain untreated is unknown. There are few data on the duration of disease in HIV-positive individuals.

When measurements from two prevalence surveys were available, trends in TB prevalence were derived by fitting a log-linear model to available measurements. When three or more prevalence measurements were available, the prevalence trajectory was built using cubic spline interpolation. If only one prevalence survey measurement was available, time-trends were assessed using in-depth analysis of surveillance data, as described above.

In this report, the prevalence to incidence method was used for two countries: Ethiopia and the Lao People's Democratic Republic.

4.4 Disaggregation of TB incidence

In this report, TB incidence is disaggregated by HIV-infection status (see **section 4.5**) at country level. The estimation of smear-positive TB incidence was discontinued in

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1 R Development Core Team. *R: a language and environment for statistical computing*. Vienna, R Foundation for Statistical Computing, 2009 (www.R-project.org).

2 *Tuberculosis in the UK: annual report on tuberculosis surveillance in the UK 2010*. London, Health Protection Agency Centre for Infections, 2010 (also available at: www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1287143581697; accessed July 2011).

3 van Hest NA et al. Completeness of notification of tuberculosis in The Netherlands: how reliable is record-linkage and capture–recapture analysis? *Epidemiology and Infection*, 2007, 135(6):1021–1029.

TABLE A1.4

Parameter estimates used to produce estimates of TB incidence, prevalence and mortality

MODEL PARAMETER	DISTRIBUTION	DISTRIBUTION PARAMETERS[b]
Incidence, high-income countries	Beta[a]	$\alpha = \bar{I} \cdot \left[\frac{\bar{I}(1-\bar{I})}{V} - 1\right]$ $\beta = (1-\bar{I}) \cdot \left[\frac{\bar{I}(1-\bar{I})}{V} - 1\right]$ *where $\bar{I}$ was set at 1.3 times the notification rate, noted N, and V is defined by:* $V = \left[\frac{0.3}{4} N\right]^2$
HIV prevalence among incident TB	Beta[a]	$\alpha = \bar{x} \cdot \left[\frac{\bar{x}(1-\bar{x})}{V} - 1\right]$ $\beta = (1-\bar{x}) \cdot \left[\frac{\bar{x}(1-\bar{x})}{V} - 1\right]$ *Where $\bar{x}$ is the expected value and V is given by:* $V = \left[\frac{u-l}{4}\right]^2$
Duration of disease, non-notified HIV-negative cases of TB	Uniform	l = 1, u = 4 (years)
Duration of disease, non-notified HIV-positive cases of TB	Uniform	l = 0.01, u = 0.2 (years)
Duration of disease, notified HIV-negative cases of TB	Uniform	l = 0.2, u = 2 (years)
Duration of disease, notified HIV-positive cases of TB	Uniform	l = 0.01, u = 1 (years)

[a] The probability density function of the Beta distribution is: $f(x; \alpha, \beta) = \frac{x^{\alpha-1}(1-x)^{\beta-1}}{\int_0^1 t^{\alpha-1}(1-t)^{\beta-1}dt}$

[b] u and l denote upper and lower bounds.

2010, for reasons explained in detail in the global report published in 2010.

Global and WHO regional estimates of sex-disaggregated incidence were also calculated, based on country-level female:male ratios of total new (all case types) TB case notifications, under the assumption that they are a proxy of female:male ratios of incidence. Model-based estimated WHO regional ratios were applied to global incidence for the final sex disaggregation (**Chapter 2**).

TB incidence was also disaggregated by age, to produce global estimates among children (aged <15 years) and adults (aged ≥ 15 years). Details of methods are provided in **Chapter 2**, **Box 2.2**.

4.5 Estimates of HIV prevalence among incident TB cases, 1990–2012

TB incidence was disaggregated by HIV and CD4 status using the Spectrum software.[1] WHO estimates of TB incidence were used as inputs to the Spectrum HIV model. The model was fitted to WHO estimates of TB incidence, and then used to produce estimates of TB incidence among people living with HIV disaggregated by CD4 category.[2] A regression method was used to estimate the relative risk (RR) for TB incidence according to the CD4 categories used by Spectrum for national HIV projections. Spectrum data were based on the national projections prepared for the UNAIDS *Report on the global AIDS epidemic 2012*. The model can also be used to estimate TB mortality among HIV-positive people, the resource requirements associated with recently updated guidance on ART[3] and the impact of ART expansion.

A flexible and relatively simple way of modelling TB incidence (or any time-dependent function) is to represent it as k time-dependent m'th order cubic-spline functions:

$$I(x) = \Sigma_{i=1 \text{ to } k}\, \beta_i\, B^m i(x)$$

where βi is the i'th spline coefficient and $B^m i(x)$ represents the evaluation of the i-th basis function at time(year) x. The

1 http://www.futuresinstitute.org/spectrum.aspx

2 Stover J, McKinnon R, Winfrey B. Spectrum: a model platform for linking maternal and child survival interventions with AIDS, family planning and demographic projections. *International Journal of Epidemiology* 2010; 39 Suppl 1:i7–10.

3 http://www.who.int/hiv/pub/guidelines/arv2013/en/index.html

order of each basis function is m and cubic splines are used, i.e. m=3. The equation simply states that any time-dependent function, such as incidence, can be represented as a linear combination of cubic-spline basis functions. The values of the cubic-spline coefficients β were determined by an optimization routine that minimizes the least squares error between incidence data (I_{obs}) and the estimated incidence curve $I(x)$:

$$\Sigma_{x=1990:2012} \, |I(x) - I_{obs}(x)|^2 + \lambda \, \beta^{T} S \, \beta$$

Here $|I - I_{obs}|^2$ is the sum of squared errors in estimated incidence and S is a difference penalty matrix applied directly to the parameters β to control the level of variation between adjacent coefficients of the cubic-spline, and thus control (through a choice of λ) the smoothness of the time-dependent case incidence curve. Another important purpose of the use of the smoothness penalty matrix S is to regularize (by creating smoothness dependencies between adjacent parameters) the ill-conditioned inverse problem (more unknown parameters than the data can resolve) that would tend to over fit the data when left ill-conditioned.

Cubic-Splines and confidence intervals

The cubic-spline method was then used to fit indicators (incidence, case notifications, etc.) to a set of bootstrapped data, obtained by sampling from the normal error distribution resulting from fitting the 'point estimate'. This bootstrap method produces a sample of projected cubic-spline curves that are practically equivalent to a set that would be obtained from fitting the model to the same number of repeated measurements (or assessments) of the given indicator. Confidence intervals based on the bootstrapped data are typically narrow in the years where the model has data to utilize, and 'spread out' after that, according to a Gaussian process with an increasing variance.

Projecting TB incidence among people living with HIV by CD4 category

The disaggregation of TB incidence by CD4 category among people living with HIV was based on the idea that an increase in the relative risk for TB incidence is a function of CD4 decline. Williams et al captured this idea in a model for the relationship between the RR for TB and CD4 decline.[1] They suggested a 42% (+/- 17%) increase in RR for TB for each unit of 100µL CD4 decline.

The Spectrum-TB model's disaggregation method is based on the Williams et al. model. The model first estimates incidence among people living with HIV, and then calculates the 'risk of TB' $F=I^- / P^-$, where I^- is TB incidence among people living with HIV and P^- is the number of people living with HIV who are susceptible to TB.

An assumption is made that the risk of TB infection among people living with HIV with CD4 count > 500 µL is proportional to F (it was assumed that it was higher by a factor of 2.5[2]). For each 100 µL CD4 decline in the remaining categories (350–499, 250–349, 200–249, 100–199, 50–99 CD4 cells/µL, and CD4 count less than 50 cells µL), the risk of infection is represented as:

$$F(c<500) = F(c>500) \cdot p(1) \cdot p(2)^{dc},$$

where $p(1)$ is a parameter that is used to recognize that people living with HIV who have high CD4 counts could be at higher risk of TB infection relative to those who are HIV-negative, and $p(2)$ controls the exponential increase in RR that occurs with CD4 decline. dc is the number of 100µL CD4 decline associated with the midpoint of each CD4 category relative to 500: dc= (3.0, 4.4, 8.6, 12.9, 19.2, 28.6, 37.3) for the six CD4 categories.

A reduction in RR is applied for those who have been on ART for more than one year.

Parameter assumptions

To match total TB incidence and estimates of the number of HIV-positive TB cases from HIV testing data where available, it was assumed that $p(1)$=2.5 and $p(2)$ was fitted accordingly.

In the RR-approach, the 'biological meaning' that should be attached to the parameters and a more straightforward interpretation of these parameters as regression coefficients need to be balanced. Both parameters can be fitted or both can be fixed. Varying at least $p(2)$ captures the variation among countries that is expected due to variation in the baseline (HIV-negative) CD4 count, and it strikes a balance between the biological and regression mechanisms.

The RR model approach to estimation of TB incidence was used for people on ART. Although an estimate of TB incidence among people on ART could be obtained from surveillance data reported to WHO (such that it is arguably not necessary to use the RR model), limitations of the ART data (in particular that some countries appear to report cumulative totals of people on ART) meant that the RR approach needed to be used.

Hazard ratios (HR) of 0.35 were assumed for all CD4 at ART initiation categories. Suthar et al have reported HRs of 0.16, 0.35 and 0.43 for those on ART with CD4 count < 200, 200–350 and > 350,[3] and these values could in principle be used. However, Spectrum tracks only CD4 at initiation, thus limiting the use of CD4-specific HRs for people on ART.

It was further assumed that the HR of 0.35 applies only to patients on ART for more than six months. Spectrum's ART-mortality estimates, derived mostly from ART cohorts in Sub-Saharan Africa, suggest that mortality remains very

1 Williams B. *The impact of ART for HIV on TB*. http://www.who.int/hiv/topics/artforprevention/williams.pdf (accessed July 2013).
2 Sonnenberg P, et al. How Soon after Infection with HIV Does the Risk of Tuberculosis Start to Increase? A Retrospective Cohort Study in South African Gold Miners. *Journal of Infectious Diseases*. 2005 Jan 15;191(2):150–8.
3 Suthar AB, Lawn SD, del Amo J, Getahun H, Dye C, et al. (2012) Antiretroviral Therapy for Prevention of Tuberculosis in Adults with HIV: A Systematic Review and Meta-Analysis. *PLoS Med* 9(7): e1001270. doi:10.1371/journal.pmed.1001270

high in the first six months of ART. Since TB is a leading contributor to mortality among HIV-positive people, it was judged that the HR for patients on ART for 0–6 months is likely to remain high; therefore, a reduction factor due to ART was not applied for this subset of patients.

Likelihood function

A simple least squares approach was used to fit the model to total TB incidence, and to all available estimates of TB incidence among people living with HIV. These estimates of TB incidence among people living with HIV were obtained by three sampling methods: population surveys of the prevalence of HIV among TB cases (least biased, but scarce due to logistical constraints), sentinel HIV data (biases include more testing of people with advanced HIV-related disease) and routine HIV testing of reported TB patients (variable coverage). To increase the influence of survey data, replicas of the survey data were included in the likelihood function. In other words, for years for which data from HIV testing were available, identical copies of the HIV-test data were added to the likelihood function. The estimate of total TB incidence was based on much more data, evenly spread out in the estimation period 1990–2015.

Model testing showed that using two replicates of the HIV survey data (i.e. duplicating the survey data) and two replicates of the routine testing data with coverage greater than 90% was the best approach to disaggregating TB incidence: the fit passed close to the survey or high-coverage routine testing data points that were available. For each of a) HIV sentinel and b) routine testing with coverage between 50–90%, data were not used.

A prototype Bayesian importance sampling (IMIS) algorithm was developed to handle complex data weighing possibilities, but it was based on subjective priors and likelihood functions and is more time-consuming to run than simple least squares. For the purposes of producing estimates for all countries automatically, the least squares method was used. In future, least squares and IMIS fitting could be made available to the end user.

For countries with no data, a range for $p(2)$ was estimated from countries with survey or testing data, which suggest that $p(2) = 1.96$ [1.8–2.1]. The RR-model was then fitted to total TB incidence only. There is no satisfactory way to verify results for TB incidence among people living with HIV when no HIV-testing data are available. However, comparison of the global estimate for TB incidence among people living with HIV produced by Spectrum and estimates previously published by WHO (based on a different method using HIV prevalence instead of CD4 distributions and using HIV-test data in a different way) suggests that the RR-model works reasonably well.

Provider-initiated testing and counselling with at least 50% HIV testing coverage is the most widely available source of information on the prevalence of HIV in TB patients. However, this source of data is affected by biases, particularly when coverage is closer to 50% than to 100%. In all countries with repeat data from testing, the relationship between the prevalence of HIV in TB patients and the coverage of HIV testing was examined graphically. In some countries, the prevalence of HIV in TB patients was found to decrease with increasing HIV testing coverage while in others it increased with increasing HIV testing coverage; in most countries, the prevalence of HIV followed highly inconsistent patterns (with repeat changes in direction) as HIV testing coverage increased. Therefore, it was not possible to adjust for the effect of incomplete coverage of HIV testing on estimates of the prevalence of HIV among TB patients. The assumption was thus made that TB patients with an HIV test result were statistically representative of all TB cases. As coverage of HIV testing continues to increase globally, biases will decrease.

TABLE A1.5

Sources of data on HIV prevalence among incident TB cases

DIRECT MEASUREMENT OF THE PREVALENCE OF HIV IN TB PATIENTS	NUMBER OF COUNTRY-YEARS
National surveys[a]	124
HIV sentinel surveillance	24
Provider-initiated testing and counselling with at least 50% coverage of testing	1297
Total, at least one data source available	1322

[a] the reported survey number is over-stated as a number of country reports confused survey and routine testing with near 100% coverage

For the 1003 country-year data points corresponding to countries for which no surveillance data were available, the prevalence of HIV was estimated indirectly according to the following equation:

$$t = \frac{h\rho}{1 + h(\rho - 1)}$$

In this equation, t is HIV prevalence among incident TB cases, h is HIV prevalence among the general population (from the latest time-series provided by UNAIDS) and ρ is the incidence rate ratio (IRR) (defined as the incidence rate of TB in HIV-positive people divided by the incidence rate of TB in HIV-negative people). We then let logit(t) be log(t/(1-t)) and logit(h) be log(h/(1-h)). Using data from countries where HIV prevalence has been estimated by UNAIDS as an independent variable, a linear model of logit-transformed t was fitted using logit-transformed h according to the following equation, written in matrix notation:

$$\hat{T} = X\beta$$

where $\hat{T}$ is a vector of predicted logit(t), X is an n x 2 matrix in which the first column holds 1s, and the second column holds logit(h). The vector β holds estimated model parameters. Models were tested with lags set for logit(h) ranging from no lag to a lag of eight years. The best fit was obtained with a lag of one year.

Models were run using Monte Carlo simulations in which h was drawn randomly from a Beta distribution with shape parameters computed as described in **Section 4.1**, (low and high uncertainty bounds are provided by UNAIDS – also see **Table A1.5**). The model was run 50 000 times using country-specific distributions for H and T (noted in capital letters to denote vectors or matrices) based on their uncertainty intervals. The uncertainty bounds for β were chosen as the 2.5th and 97.5th centiles.

5. Estimates of TB prevalence, 1990–2012

The best way to measure the prevalence of TB is through national population-based surveys of TB disease.[1,2] Data from such surveys are available for an increasing number of countries (**Chapter 2**). It should be noted, however, that measurements of prevalence are typically confined to the adult population. Furthermore, prevalence surveys exclude extrapulmonary cases and do not allow the diagnosis of cases of culture-negative pulmonary TB.

When there is no direct measurement from a national survey of the prevalence of TB disease, prevalence is the most uncertain of the three TB indicators used to measure disease burden. This is because prevalence is the product of two uncertain quantities: (i) incidence and (ii) disease duration. The duration of disease is very difficult to quantify because it cannot be measured during surveys of the prevalence of TB disease (surveys truncate the natural history of disease). Duration can be assessed in self-presenting patients, but there is no practical way to measure the duration of disease in patients who are not notified to NTPs.

Indirect estimates of prevalence were calculated according to the following equation:

$$P = \sum I_{i,j} d_{i,j},\ i \in \{1,2\},\ j \in \{1,2\}$$

where the index variable i denotes HIV+ and HIV–, the index variable j denotes notified and non-notified cases, d denotes the duration of disease in notified cases and I is total incidence. In the absence of measurements, we did not allow duration in notified cases to vary among countries. Given their underlying uncertainty, prevalence estimates should be used with great caution in the absence of direct measurements from a prevalence survey. Unless measurements were available from national programmes (for example, Turkey), assumptions of the duration of disease were used as shown in the last four rows of **Table A1.3**.

6. Estimates of the number of cases of and deaths from MDR-TB

6.1 Proportion of notified cases of TB that have MDR-TB, 2012

Global and regional estimates of the proportion of new and retreatment cases of TB that had MDR-TB in 2012 were calculated using country-level information. If countries had reported data on the proportion of new and retreatment cases of TB that have MDR-TB from routine surveillance or a survey of drug resistance the latest available information was used. For countries that have not reported such data, estimates of the proportion of new and retreatment cases of TB that have MDR-TB were produced using modelling (including multiple imputation) that was based on data from countries for which data do exist. Estimates for countries without data were based on countries that were considered to be similar in terms of TB epidemiology (for country groups see **Appendix 1**). The observed and imputed estimates of the proportion of new and retreatment cases of TB that have MDR-TB were then pooled to give a global estimate, with countries weighted according to their share of global notifications of new and retreatment cases.

6.2 MDR-TB mortality, 2012

The VR mortality data reported to WHO by Member States does not differentiate between MDR-TB and non-MDR-TB as a cause of death (there is no specific ICD-9 or ICD-10 codes for MDR-TB, although countries such as South Africa have allocated two specific codes U51 and U52 to classify deaths from MDR-TB and XDR-TB respectively).[3] Therefore, a systematic review and meta-analysis of the published literature was undertaken to estimate the relative risk of dying from MDR-TB compared with non MDR-TB. The global estimate of MDR-TB deaths (**Box 2.3**) was then based on the following formula:

$$m = M.p.r$$

Where:

m = global MDR-TB mortality,

M = global TB mortality,

p = overall proportion of MDR-TB among prevalent TB cases, approximated by the weighted average of the proportion of new and retreated cases that have MDR-TB,

r = the relative risk of dying from MDR-TB versus non-MDR-TB.

6.3 Numbers of incident cases of MDR-TB, 2012

The global estimate of MDR-TB incidence was calculated as the addition of three groups of MDR-TB incident cases:

1. incident MDR-TB among new pulmonary and extra-pulmonary incident TB cases, using the proportion of MDR-TB among new cases from drug resistance surveillance (DRS);
2. incident MDR-TB among relapses, using the proportion of MDR-TB among new cases from DRS and the estimated relative risk of MDR among relapse versus new cases; and
3. incident MDR-TB among retreated cases that are not relapses, which was assumed to follow a uniform distribution with min=0, max=upper limit of the global proportion of MDR-TB among retreated cases estimated from DRS.

A second method to estimate global MDR-TB incidence was also explored, in which the global estimate of mortality due

1 Glaziou P et al. Tuberculosis prevalence surveys: rationale and cost. *International Journal of Tuberculosis and Lung Disease*, 2008, 12(9):1003–1008.

2 *TB prevalence surveys: a handbook*. Geneva, World Health Organization, 2011 (WHO/HTM/TB/2010.17).

3 *Mortality and causes of death in South Africa, 2010: Findings from death notification*. http://www.statssa.gov.za/publications/p03093/p030932010.pdf

to MDR-TB was divided by the estimated case fatality ratio (CFR) among cases of MDR-TB. The CFR was calculated as a weighted average of the case fatality ratio among patients that are treated and those that are not, according to the following formula:

$$f = p_t * f_t + (1-p_t)*f_{un}$$

Where:

p_t = proportion treated, approximated by the proportion of enrolled MDR-TB patients on treatment out of those estimated to exist among notified TB patients with pulmonary TB;

f_t = case fatality rate among patients treated for MDR-TB, using treatment outcome data for MDR-TB patient cohorts;

f_{un} = case fatality rate among people with MDR-TB who are not treated, which was assumed to follow a uniform distribution with min=0.4, max=0.6.

Outputs from both methods gave similar best estimates of MDR-TB incidence with largely overlapping confidence intervals.

6.4 Resistance to second-line drugs among patients with MDR-TB

Data from 75 countries were used to produce global estimates of the following proportions: (i) patients with MDR-TB who had XDR-TB; (ii) patients with MDR-TB who had fluoroquinolone resistance; (iii) patients with MDR-TB who had resistance to second-line injectable drugs and fluoroquinolones but not XDR-TB. The latest available national and subnational data from each country were analysed using logistic regression models with robust standard errors to account for the clustering effect at the level of the country or territory. The analysis was limited to countries in which more than 66% of MDR-TB cases received second-line DST.

7. Projections of incidence, prevalence and mortality up to 2015

Projections of TB incidence, prevalence and mortality rates up to 2015 enable assessment of whether global targets set for 2015 are likely to be achieved at global, regional and country levels. Projections for the years 2013–2015 were made using exponential smoothing models fitted to data from 2006–2012.

8. Estimation of uncertainty

There are many potential sources of uncertainty associated with estimates of TB incidence, prevalence and mortality, as well as estimates of the burden of HIV-associated TB and MDR-TB. These include uncertainties in input data, in parameter values, in extrapolations used to impute missing data, and in the models used.

We used fixed population values from the UNPD. We did not account for any uncertainty in these values.

Notification data are of uneven quality. Cases may be underreported (for example, missing quarterly reports from remote administrative areas are not uncommon), misclassified (in particular, misclassification of recurrent cases in the category of new cases is common), or overreported as a result of duplicated entries in TB information systems. The latter two issues can only be addressed efficiently in countries with case-based nationwide TB databases that include patient identifiers. Sudden changes in notifications over time are often the result of errors or inconsistencies in reporting, but may sometimes reflect abrupt changes in TB epidemiology (for example, resulting from a rapid influx of migrants from countries with a high burden of TB, or from rapid improvement in case-finding efforts).

Missing national aggregates of new and recurrent cases were imputed by interpolation. Notification trajectories were smoothed using a penalized cubic splines function with parameters based on the data. Attempts to obtain corrections for historical data are made every year, but only rarely do countries provide appropriate data corrections.

Mortality estimates incorporated the following sources of uncertainty: sampling uncertainty in the underlying measurements of TB mortality rates from data sources, uncertainty in estimates of incidence rates and rates of HIV prevalence among both incident and notified TB cases, and parameter uncertainty in the Bayesian model. Time series of TB mortality were generated for each country through Monte Carlo simulations.

Unless otherwise specified, uncertainty bounds and ranges were defined as the 2.5th and 97.5th centiles of outcome distributions. Throughout this report, ranges with upper and lower bounds defined by these centiles are provided for all estimates established with the use of simulations. When uncertainty was established with the use of observed or other empirical data, 95% confidence intervals are reported.

The model used the following sequence: (1) Overall TB incidence estimation after review and cleaning of case notification data; (2) cleaning and adjustment of raw mortality data from VR systems and mortality surveys, followed by imputation of missing values in countries with VR or survey data – in some countries, step 1 was updated to account for mortality data; (3) cleaning of measurements of HIV prevalence among TB patients followed by estimating HIV-positive TB incidence using the Spectrum programme and HIV-positive TB mortality; (4) estimation of HIV prevalence among incident cases of TB through modelling in countries with no measurements; (5) estimation of HIV-negative TB mortality in countries with no VR data followed with an update of step 1 in some countries; (6) review of prevalence measurements, adjustments for childhood TB and bacteriologically unconfirmed TB, and estimation of prevalence followed with an update of step 1 in some countries; (7) estimation of incidence and mortality disaggregated by age and sex and disaggregated by drug resistance status.

The general approach to uncertainty analyses was to draw values from specified distributions for every parameter (except for notifications and population values) in Monte Carlo simulations, with the number of simulation runs set so that they were sufficient to ensure stability in the outcome distributions. For each country, the same random generator seed was used for every year, and errors were assumed to be time-dependent within countries (thus generating autocorrelation in time series). Regional parameters were used in some instances (for example, for CFRs). Summaries of quantities of interest were obtained by extracting the mean, 2.5th and 97.5th centiles of posterior distributions. Wherever possible, uncertainty was propagated analytically by approximating the moments of functions of random variables using Taylor expansions – such as when taking the product or the ratio of two random variables – rather than through Monte Carlo simulations, in order to shorten computing time.

Appendix 1. Epidemiological regions used for analyses

Africa – countries with high HIV prevalence: Botswana, Burundi, Cameroon, the Central African Republic, the Congo, Côte d'Ivoire, the Democratic Republic of the Congo, Ethiopia, Gabon, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Rwanda, South Africa, South Sudan, Swaziland, Uganda, the United Republic of Tanzania, Zambia, Zimbabwe.

Africa – countries with low HIV prevalence: Algeria, Angola, Benin, Burkina Faso, Cape Verde, Chad, the Comoros, Djibouti, Eritrea, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Madagascar, Mali, Mauritania, Mauritius, the Niger, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Togo.

Central Europe: Albania, Bosnia and Herzegovina, Montenegro, Serbia, the former Yugoslav Republic of Macedonia, Turkey.

Eastern Europe: Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, the Republic of Moldova, Romania, the Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

High-income countries: Andorra, Aruba, Australia, Austria, the Bahamas, Bahrain, Barbados, Belgium, Bermuda, Brunei Darussalam, Canada, the Cayman Islands, China, Hong Kong SAR, China Macao SAR, Croatia, Cyprus, the Czech Republic, Denmark, Equatorial Guinea, Estonia, Finland, France, French Polynesia, Germany, Greece, Greenland, Guam, Hungary, Iceland, Ireland, Israel, Italy, Japan, Kuwait, Luxembourg, Malta, Monaco, the Netherlands, the Netherlands Antilles, New Caledonia, New Zealand, Northern Mariana Islands, Norway, Oman, Poland, Portugal, Puerto Rico, Qatar, the Republic of Korea, Saint Kitts and Nevis, San Marino, Saudi Arabia, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Trinidad and Tobago, the Turks and Caicos Islands, US Virgin Islands, United Arab Emirates, the United Kingdom, the United States.

Eastern Mediterranean: Afghanistan, Egypt, Iran (Islamic Republic of), Iraq, Jordan, Lebanon, Libya, Morocco, Pakistan, Syrian Arab Republic, Tunisia, West Bank and the Gaza Strip, Yemen.

Latin America: Anguilla, Antigua and Barbuda, Argentina, Belize, Bolivia (Plurinational State of), Bonaire, Saint Eustatius and Saba, Brazil, British Virgin Islands, Chile, Colombia, Costa Rica, Cuba, Curaçao, Dominica, the Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Montserrat, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sint Maarten (Dutch part), Suriname, Uruguay, Venezuela (Bolivarian Republic of).

South East Asia: Bangladesh, Bhutan, Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, Timor-Leste.

West Pacific: American Samoa, Cambodia, China, Cook Islands, Fiji, Kiribati, Lao People's Democratic Republic, Malaysia, Marshall Islands, Micronesia (Federated State of), Mongolia, Nauru, Niue, Palau, Papua New Guinea, the Philippines, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Viet Nam, Wallis and Futuna Islands.

ANNEX 2

Country profiles

AFGHANISTAN | Population 2012 **30 million**

HIGH TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	11 (4.6–20)	37 (15–68)
Mortality (HIV+TB only)	0.087 (<0.01–0.33)	0.29 (0.01–1.1)
Prevalence (includes HIV+TB)	110 (54–180)	358 (181–595)
Incidence (includes HIV+TB)	56 (47–67)	189 (156–226)
Incidence (HIV+TB only)	0.31 (0.19–0.46)	1 (0.63–1.5)
Case detection, all forms (%)	52 (44–63)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	13 319	(47)	Relapse	1 049	(84)
Smear-negative	4 740	(17)	Treatment after failure	160	(13)
Smear-unknown / not done	2 665	(9)	Treatment after default	37	(3)
Extrapulmonary	6 906	(24)	Other		
Other	702	(2)			
Total new	**28 332**		**Total retreatment**	**1 246**	
Other (history unknown)					
Total new and relapse	**29 381**		**Total cases notified**	**29 578**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	0.5	0.7	
Age < 15	588	2 455	

Laboratories

	2012
Smear (per 100 000 population)	2.0
Culture (per 5 million population)	0.3
Drug susceptibility testing (per 5 million population)	0
Is second-line drug susceptibility testing available?	Yes, outside country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	91
New smear-negative/extrapulmonary	84
Retreatment	77
Is rifampicin used throughout treatment for new patients?	No

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	7 275	(25)
HIV-positive TB patients	5	(<1)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	5	(100)
HIV-positive TB patients on antiretroviral therapy (ART)	5	(100)
HIV-positive people screened for TB	80	
HIV-positive people provided with IPT	25	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.5 (0.1–12)	32 (7.5–56)
MDR-TB cases among notified pulmonary TB cases	750 (21–2 600)	400 (93–700)

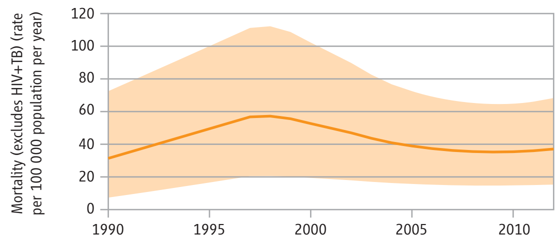
Reported cases of MDR-TB 2012

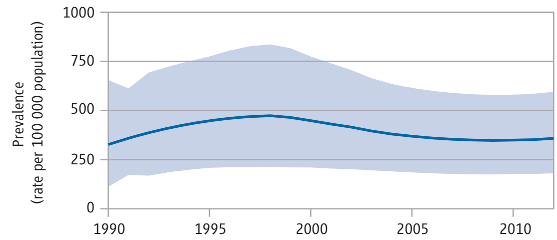
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB		38 (3%)	38
Laboratory-confirmed MDR-TB cases		31	31
Patients started on MDR-TB treatment			38

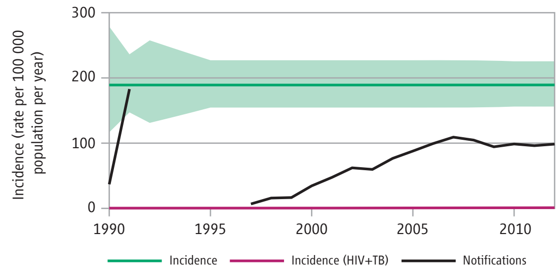
Financing TB control

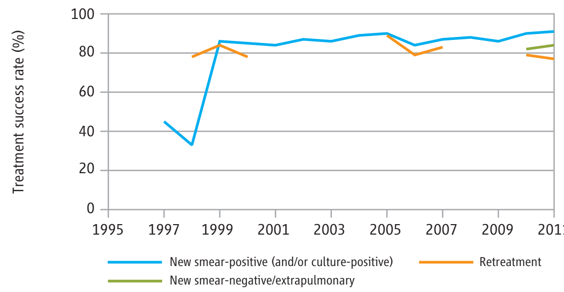
	2013
National TB programme budget (US$ millions)	13
% Funded domestically	3%
% Funded internationally	65%
% Unfunded	32%

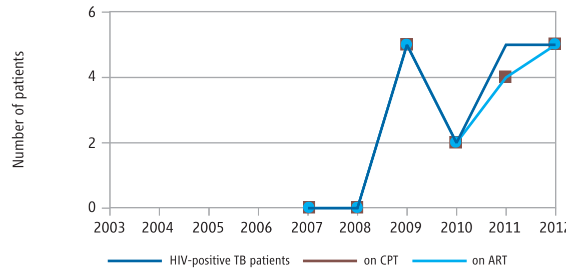
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.
[a] Ranges represent uncertainty intervals.

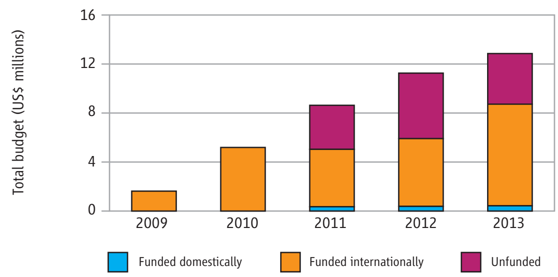












HIGH TB BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (THOUSANDS)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	70 (29–130)	45 (19–84)
Mortality (HIV+TB only)	0.092 (0.082–0.1)	0.06 (0.05–0.07)
Prevalence (includes HIV+TB)	670 (340–1 100)	434 (218–721)
Incidence (includes HIV+TB)	350 (290–410)	225 (185–268)
Incidence (HIV+TB only)	0.24 (0.2–0.29)	0.16 (0.13–0.19)
Case detection, all forms (%)	49 (41–59)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	106 790	(66)	Relapse	3 065	(38)
Smear-negative	24 451	(15)	Treatment after failure	807	(10)
Smear-unknown / not done	0	(0)	Treatment after default	257	(3)
Extrapulmonary	30 549	(19)	Other	3 872	(48)
Other	0	(0)			
Total new	**161 790**		**Total retreatment**	**8 001**	
Other (history unknown)	3 828				
Total new and relapse	**164 855**		**Total cases notified**	**173 619**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.9	1.9	0.9
Age < 15	966	1 109	2 767

Laboratories

	2012
Smear (per 100 000 population)	0.7
Culture (per 5 million population)	<0.1
Drug susceptibility testing (per 5 million population)	<0.1
Is second-line drug susceptibility testing available?	Yes, outside country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	92
New smear-negative/extrapulmonary	89
Retreatment	82
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	2 086	(1)
HIV-positive TB patients	63	(3)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	63	(100)
HIV-positive TB patients on antiretroviral therapy (ART)	63	(100)
HIV-positive people screened for TB	429	
HIV-positive people provided with IPT	0	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.4 (0.7–2.5)	29 (24–34)
MDR-TB cases among notified pulmonary TB cases	1 900 (920–3 300)	2 300 (1 900–2 700)

Reported cases of MDR-TB 2012

	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	41 (<1%)	557 (7%)	622
Laboratory-confirmed MDR-TB cases	10	503	513
Patients started on MDR-TB treatment			513

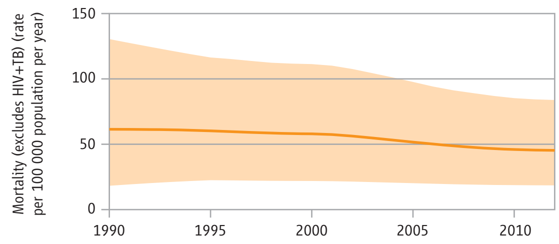
Financing TB control[b]

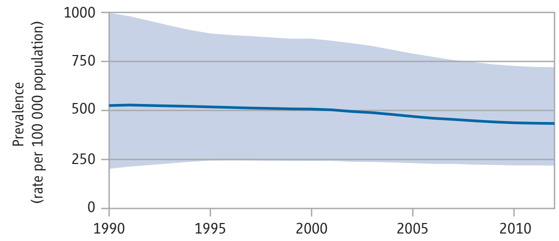
	2013
National TB programme budget (US$ millions)	43

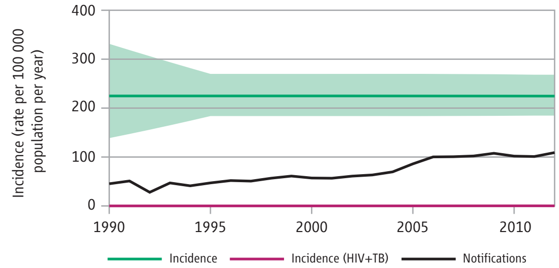
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

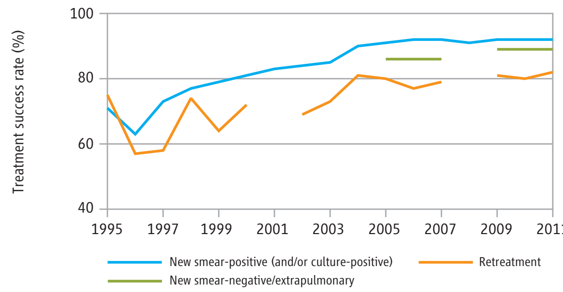
[a] Ranges represent uncertainty intervals. Estimates of TB disease burden have not been approved by the national TB programme in Bangladesh and a joint reassessment will be undertaken following the completion of the prevalence survey planned for 2014.

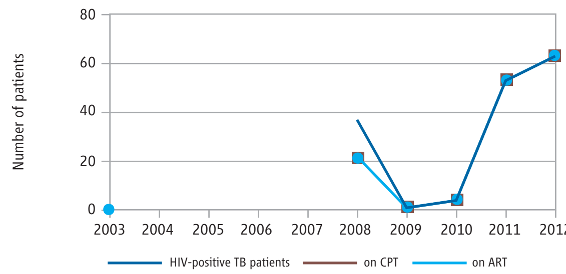
[b] Comprehensive data on domestic and international funding in 2013 could not be reported. Funding from USAID for October 2012–September 2013 was US$10 million.

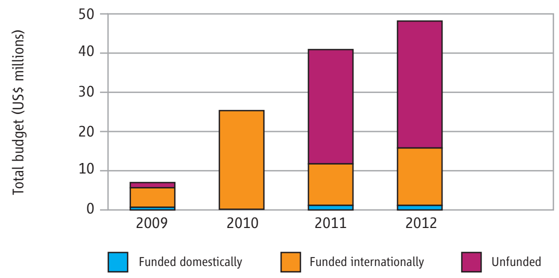












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	4.9 (4.6–5.2)	2.5 (2.3–2.6)
Mortality (HIV+TB only)	2.5 (2.2–3)	1.3 (1.1–1.5)
Prevalence (includes HIV+TB)	120 (51–210)	59 (25–107)
Incidence (includes HIV+TB)	92 (76–110)	46 (38–55)
Incidence (HIV+TB only)	16 (13–19)	8 (6.6–9.5)
Case detection, all forms (%)	82 (69–99)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	40 152	(56)	Relapse	3 867	(34)
Smear-negative	12 178	(17)	Treatment after failure	296	(3)
Smear-unknown / not done	8 592	(12)	Treatment after default	3 204	(28)
Extrapulmonary	10 297	(14)	Other	4 133	(36)
Other	11	(<1)			
Total new	**71 230**		**Total retreatment**	**11 500**	
Other (history unknown)	25				
Total new and relapse	**75 097**		**Total cases notified**	**82 755**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	2.3	1.8	1.5
Age < 15	580	1 266	542

Laboratories

	2012
Smear (per 100 000 population)	2.0
Culture (per 5 million population)	5.5
Drug susceptibility testing (per 5 million population)	0.9
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	76
New smear-negative/extrapulmonary	70
Retreatment	49
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	45 733	(55)
HIV-positive TB patients	9 049	(20)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	0	(0)
HIV-positive TB patients on antiretroviral therapy (ART)	9 049	(100)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.4 (1–1.8)	7.5 (5.7–9.9)
MDR-TB cases among notified pulmonary TB cases	850 (620–1 100)	860 (660–1 100)

Reported cases of MDR-TB 2012

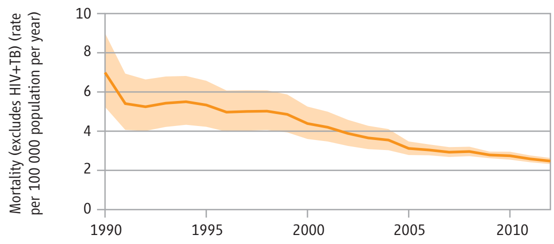
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	700 (2%)	198 (2%)	900
Laboratory-confirmed MDR-TB cases	562	122	684
Patients started on MDR-TB treatment			713

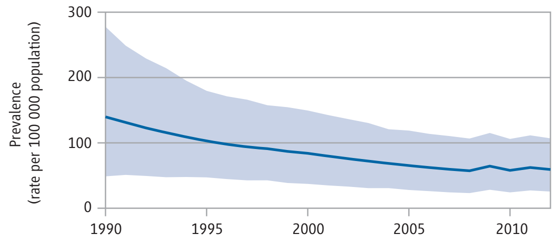
Financing TB control

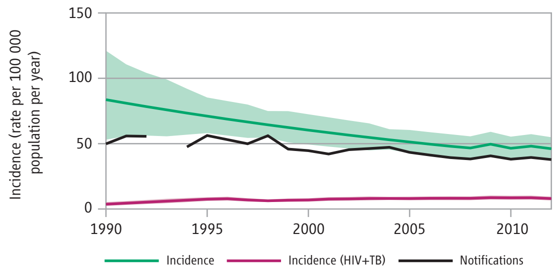
	2013
National TB programme budget (US$ millions)	87
% Funded domestically	84%
% Funded internationally	2%
% Unfunded	14%

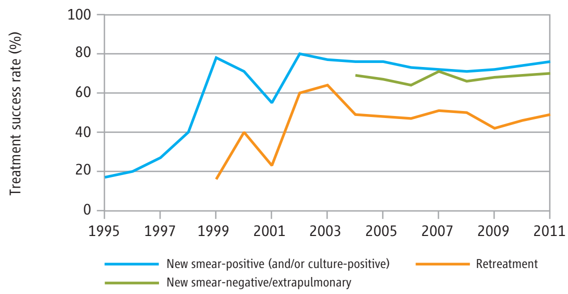
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

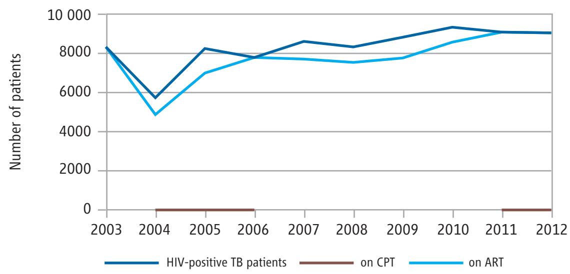
[a] Ranges represent uncertainty intervals.

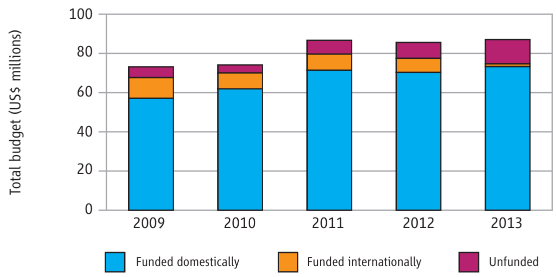












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	9.3 (4.3–16)	63 (29–110)
Mortality (HIV+TB only)	0.56 (0.41–0.7)	3.8 (2.7–4.7)
Prevalence (includes HIV+TB)	110 (96–130)	764 (645–892)
Incidence (includes HIV+TB)	61 (52–70)	411 (353–474)
Incidence (HIV+TB only)	2.7 (2.3–3.1)	18 (15–21)
Case detection, all forms (%)	66 (57–77)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	14 838	(38)	Relapse	446	(86)
Smear-negative	8 509	(22)	Treatment after failure	51	(10)
Smear-unknown / not done	0	(0)	Treatment after default	22	(4)
Extrapulmonary	15 290	(40)	Other		
Other	0	(0)			
Total new	**38 637**		**Total retreatment**	**519**	
Other (history unknown)	1 102				
Total new and relapse	**39 083**		**Total cases notified**	**40 258**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.2		
Age < 15	53		

Laboratories

	2012
Smear (per 100 000 population)	1.4
Culture (per 5 million population)	1.0
Drug susceptibility testing (per 5 million population)	0.3
Is second-line drug susceptibility testing available?	No

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	93
New smear-negative/extrapulmonary	94
Retreatment	74
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	32 359	(80)
HIV-positive TB patients	1 433	(4)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	1 410	(98)
HIV-positive TB patients on antiretroviral therapy (ART)	1 268	(88)
HIV-positive people screened for TB		
HIV-positive people provided with IPT	1 145	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.4 (0.71–2.5)	11 (4–22)
MDR-TB cases among notified pulmonary TB cases	330 (160–590)	56 (21–110)

Reported cases of MDR-TB 2012

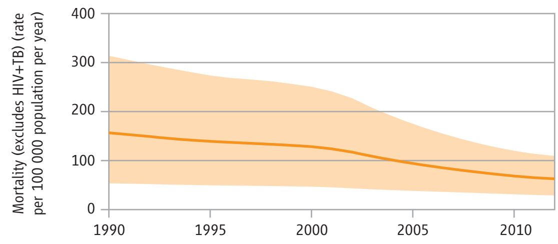
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	16 (<1%)	86 (17%)	102
Laboratory-confirmed MDR-TB cases	10	65	75
Patients started on MDR-TB treatment			110

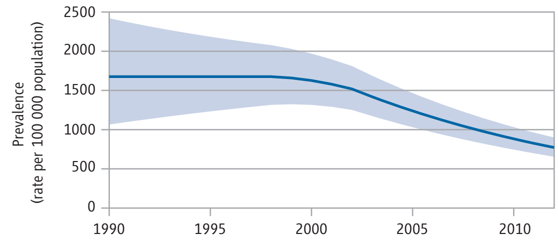
Financing TB control

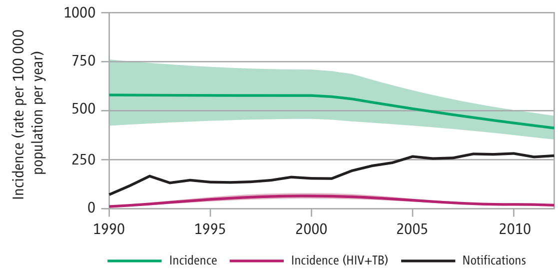
	2013
National TB programme budget (US$ millions)	24
% Funded domestically	5%
% Funded internationally	34%
% Unfunded	62%

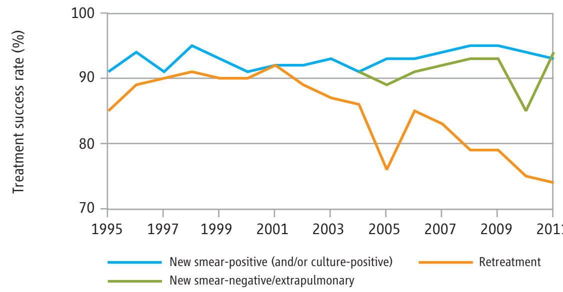
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

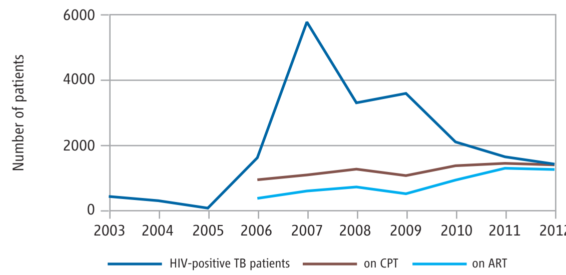
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	44 (43–46)	3.2 (3.1–3.3)
Mortality (HIV+TB only)	1.2 (0.93–1.5)	0.08 (0.07–0.11)
Prevalence (includes HIV+TB)	1 400 (1 200–1 600)	99 (86–113)
Incidence (includes HIV+TB)	1 000 (880–1 100)	73 (64–82)
Incidence (HIV+TB only)	7.3 (6.4–8.2)	0.53 (0.47–0.6)
Case detection, all forms (%)	89 (79–100)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	316 332	(37)	Relapse	31 784	(76)
Smear-negative	533 977	(62)	Treatment after failure	2 281	(5)
Smear-unknown / not done	2 073	(<1)	Treatment after default	738	(2)
Extrapulmonary	6 479	(<1)	Other	7 014	(17)
Other	0	(0)			
Total new	**858 861**		**Total retreatment**	**41 817**	
Other (history unknown)	0				
Total new and relapse	**890 645**		**Total cases notified**	**900 678**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	2.5	2.1	0.8
Age < 15	1 091	4 288	246

Laboratories

	2012
Smear (per 100 000 population)	0.2
Culture (per 5 million population)	3.7
Drug susceptibility testing (per 5 million population)	0.7
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	95
New smear-negative/extrapulmonary	95
Retreatment	90
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status[b]	309 385	(34)
HIV-positive TB patients	5 866	(2)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)		
HIV-positive TB patients on antiretroviral therapy (ART)	3 454	(59)
HIV-positive people screened for TB	294 795	
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	5.7 (4.5–7)	26 (22–30)
MDR-TB cases among notified pulmonary TB cases	49 000 (38 000–60 000)	11 000 (9 000–12 000)

Reported cases of MDR-TB 2012

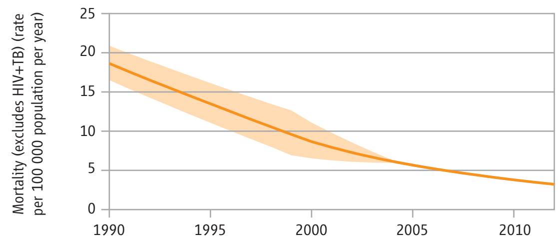
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	11 472 (4%)	4 861 (12%)	16 333
Laboratory-confirmed MDR-TB cases	826	1 678	3 007
Patients started on MDR-TB treatment			1 906

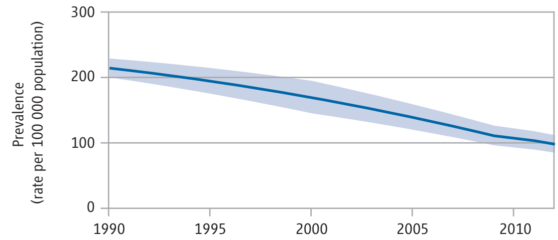
Financing TB control

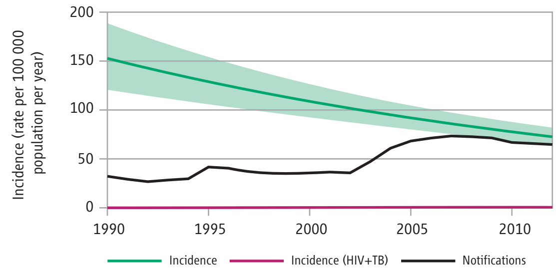
	2013
National TB programme budget (US$ millions)	359
% Funded domestically	74%
% Funded internationally	11%
% Unfunded	15%

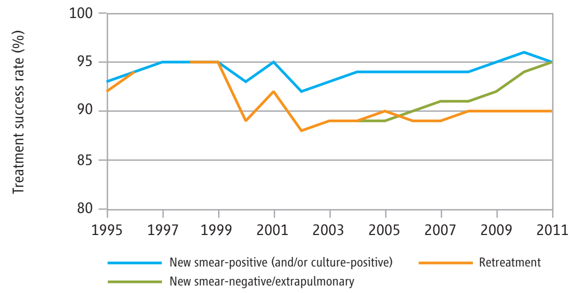
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

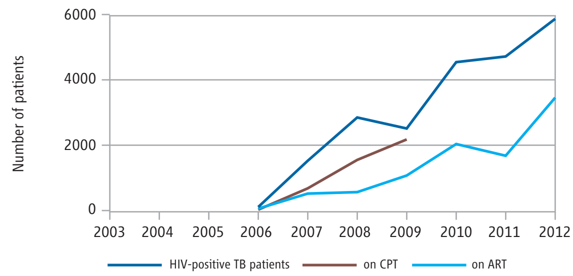
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	36 (16–64)	54 (24–97)
Mortality (HIV+TB only)	6.3 (5.5–8.1)	9.7 (8.3–12)
Prevalence (includes HIV+TB)	380 (200–620)	576 (301–938)
Incidence (includes HIV+TB)	210 (190–250)	327 (282–375)
Incidence (HIV+TB only)	16 (14–19)	25 (22–29)
Case detection, all forms (%)	51 (44–59)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	71 124	(68)	Relapse	3 977	(53)
Smear-negative	13 214	(13)	Treatment after failure	597	(8)
Smear-unknown / not done			Treatment after default	597	(8)
Extrapulmonary	20 669	(20)	Other	2 321	(31)
Other					
Total new	**105 007**		**Total retreatment**	**7 492**	
Other (history unknown)					
Total new and relapse	**108 984**		**Total cases notified**	**112 499**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.3		
Age < 15	3 138		

Laboratories

	2012
Smear (per 100 000 population)	2.3
Culture (per 5 million population)	0.3
Drug susceptibility testing (per 5 million population)	0.2
Is second-line drug susceptibility testing available?	Yes, in and outside country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	87
New smear-negative/extrapulmonary	89
Retreatment	74
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	35 097	(31)
HIV-positive TB patients	5 748	(16)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	3 485	(61)
HIV-positive TB patients on antiretroviral therapy (ART)	2 296	(40)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.5 (0.01–5)	10 (3.5–17)
MDR-TB cases among notified pulmonary TB cases	2 100 (8.4–4 200)	760 (260–1 300)

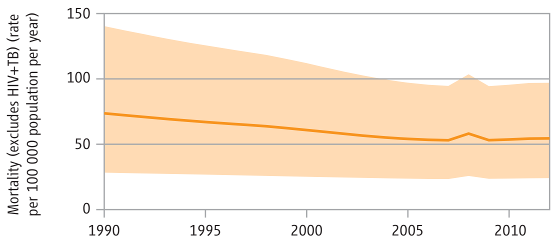
Reported cases of MDR-TB 2012

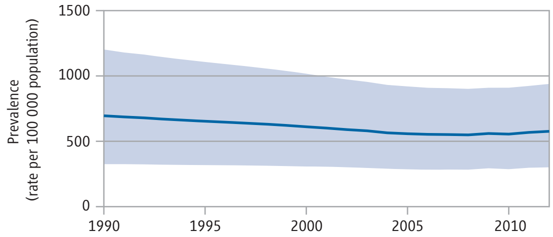
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	12 (<1%)	95 (1%)	109
Laboratory-confirmed MDR-TB cases	5	59	65
Patients started on MDR-TB treatment			179

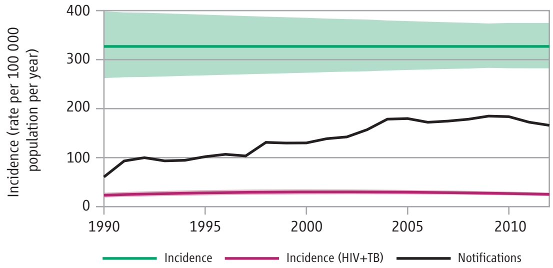
Financing TB control

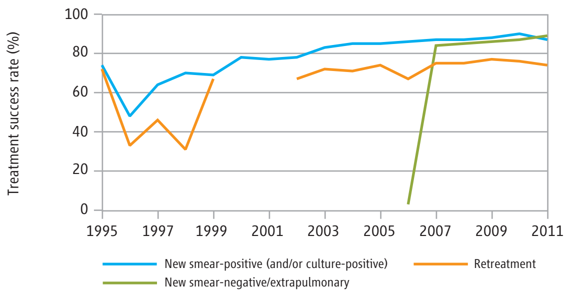
	2013
National TB programme budget (US$ millions)	61
% Funded domestically	1%
% Funded internationally	25%
% Unfunded	74%

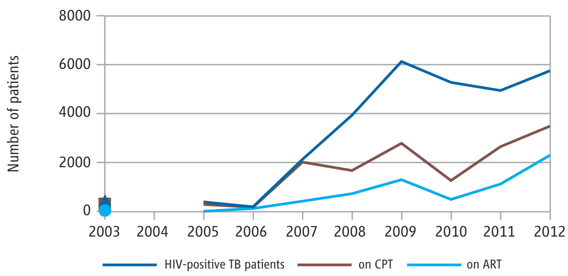
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	16 (12–21)	18 (13–23)
Mortality (HIV+TB only)	5.6 (4.6–7.3)	6.1 (5–8)
Prevalence (includes HIV+TB)	210 (170–250)	224 (180–272)
Incidence (includes HIV+TB)	230 (170–290)	247 (183–321)
Incidence (HIV+TB only)	23 (17–30)	25 (19–33)
Case detection, all forms (%)	64 (49–87)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	47 236	(33)	Relapse	1 820	(45)
Smear-negative	47 340	(33)	Treatment after failure	281	(7)
Smear-unknown / not done	2 073	(1)	Treatment after default	482	(12)
Extrapulmonary	46 854	(33)	Other	1 506	(37)
Other	0	(0)			
Total new	**143 503**		**Total retreatment**	**4 089**	
Other (history unknown)	0				
Total new and relapse	**145 323**		**Total cases notified**	**147 592**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio		1.2	1.1
Age < 15		7 682	7 852

Laboratories

	2012
Smear (per 100 000 population)	2.8
Culture (per 5 million population)	0.3
Drug susceptibility testing (per 5 million population)	<0.1
Is second-line drug susceptibility testing available?	No

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	90
New smear-negative/extrapulmonary	87
Retreatment	78
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	96 245	(65)
HIV-positive TB patients	9 819	(10)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	3 619	(37)
HIV-positive TB patients on antiretroviral therapy (ART)	8 022	(82)
HIV-positive people screened for TB	272 178	
HIV-positive people provided with IPT	30 395	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.6 (0.86–2.8)	12 (5.6–21)
MDR-TB cases among notified pulmonary TB cases	1 600 (830–2 700)	480 (230–870)

Reported cases of MDR-TB 2012

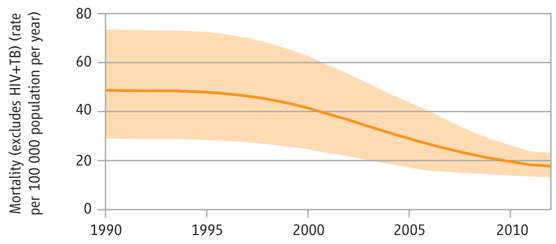
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	469 (<1%)	180 (4%)	856
Laboratory-confirmed MDR-TB cases	30	102	284
Patients started on MDR-TB treatment			289

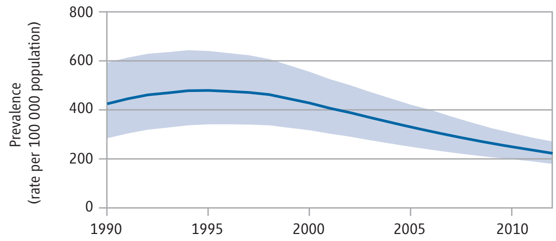
Financing TB control

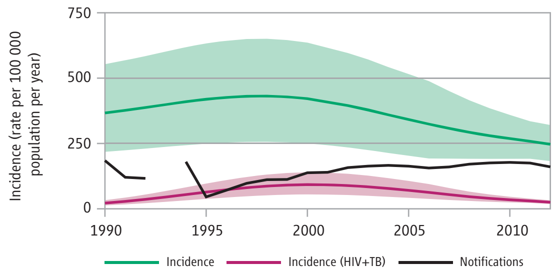
	2013
National TB programme budget (US$ millions)	145
% Funded domestically	17%
% Funded internationally	32%
% Unfunded	51%

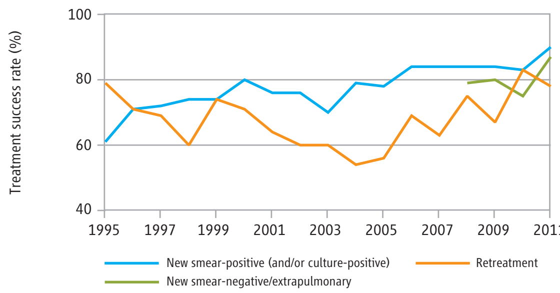
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

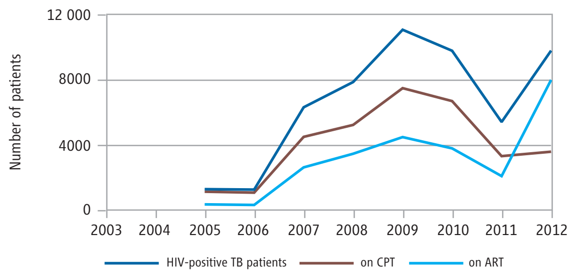
[a] Ranges represent uncertainty intervals.

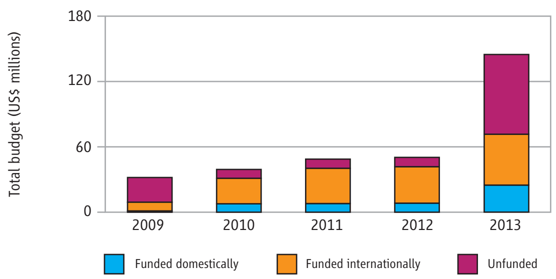












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	270 (170–390)	22 (14–32)
Mortality (HIV+TB only)	42 (37–48)	3.4 (3–3.9)
Prevalence (includes HIV+TB)	2 800 (1 900–3 900)	230 (155–319)
Incidence (includes HIV+TB)	2 200 (2 000–2 400)	176 (159–193)
Incidence (HIV+TB only)	130 (120–140)	10 (9.4–12)
Case detection, all forms (%)	59 (54–66)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	629 589	(53)	Relapse	106 463	(37)
Smear-negative	317 616	(27)	Treatment after failure	16 400	(6)
Smear-unknown / not done			Treatment after default	64 782	(23)
Extrapulmonary	234 029	(20)	Other	96 567	(34)
Other	2 139	(<1)			
Total new	**1 183 373**		**Total retreatment**	**284 212**	
Other (history unknown)					
Total new and relapse	**1 289 836**		**Total cases notified**	**1 467 585**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	2.2		
Age < 15	12 957	34 467	33 501

Laboratories

	2012
Smear (per 100 000 population)	1.1
Culture (per 5 million population)	0.3
Drug susceptibility testing (per 5 million population)	0.2
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	88
New smear-negative/extrapulmonary	90
Retreatment	75
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	821 807	(56)
HIV-positive TB patients	44 063	(5)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	40 537	(92)
HIV-positive TB patients on antiretroviral therapy (ART)	25 790	(59)
HIV-positive people screened for TB	1 324 386	
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.2 (1.9–2.6)	15 (11–19)
MDR-TB cases among notified pulmonary TB cases	21 000 (18 000–25 000)	43 000 (32 000–54 000)

Reported cases of MDR-TB 2012

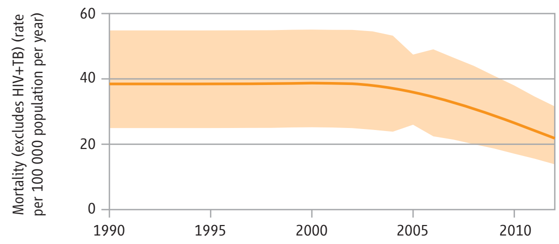
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			55 611
Laboratory-confirmed MDR-TB cases			16 588
Patients started on MDR-TB treatment			14 143

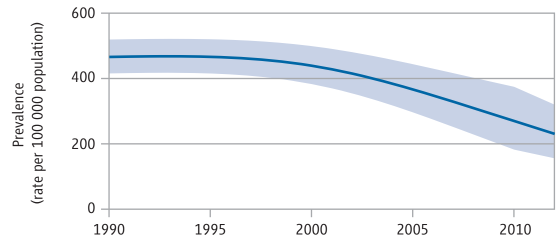
Financing TB control

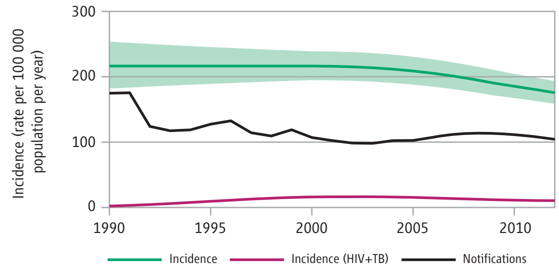
	2013
National TB programme budget (US$ millions)	182
% Funded domestically	37%
% Funded internationally	57%
% Unfunded	6%

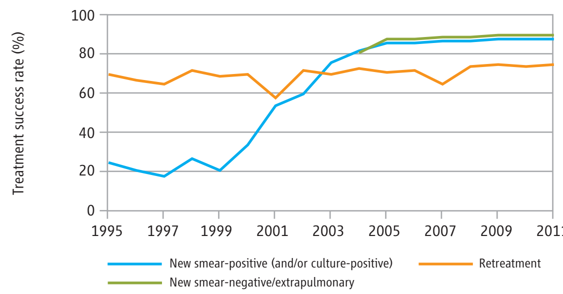
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

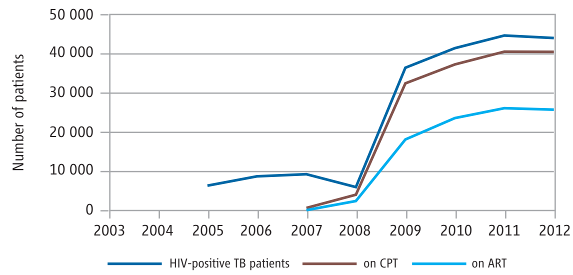
[a] Ranges represent uncertainty intervals. Estimates for India have not yet been officially approved by the Ministry of Health & Family Welfare, Government of India and should therefore be considered provisional.

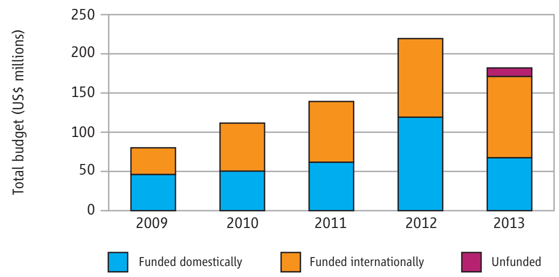












INDONESIA | Population 2012 **247 million**

HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	67 (30–120)	27 (12–48)
Mortality (HIV+TB only)	2.1 (1.8–3)	0.86 (0.74–1.2)
Prevalence (includes HIV+TB)	730 (350–1 200)	297 (144–506)
Incidence (includes HIV+TB)	460 (380–540)	185 (153–220)
Incidence (HIV+TB only)	7.5 (5.6–9.7)	3.1 (2.3–3.9)
Case detection, all forms (%)	72 (61–87)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	202 319	(63)	Relapse	5 942	(70)
Smear-negative	104 866	(32)	Treatment after failure	467	(5)
Smear-unknown / not done			Treatment after default	954	(11)
Extrapulmonary	15 697	(5)	Other	1 179	(14)
Other					
Total new	**322 882**		**Total retreatment**	**8 542**	
Other (history unknown)					
Total new and relapse	**328 824**		**Total cases notified**	**331 424**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.5	1.3	0.9
Age < 15	1 703	22 956	2 684

Laboratories

	2012
Smear (per 100 000 population)	2.3
Culture (per 5 million population)	0.9
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	90
New smear-negative/extrapulmonary	85
Retreatment	71
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	2 676	(<1)
HIV-positive TB patients	754	(28)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	133	(18)
HIV-positive TB patients on antiretroviral therapy (ART)	221	(29)
HIV-positive people screened for TB	22 677	
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.9 (1.4–2.5)	12 (8.1–17)
MDR-TB cases among notified pulmonary TB cases	5 800 (4 300–7 700)	1 000 (690–1 500)

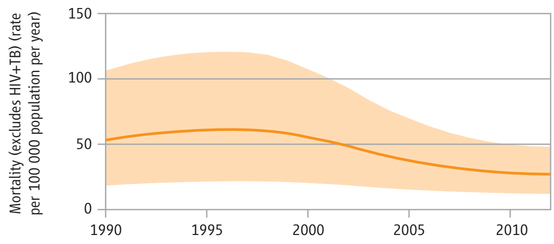
Reported cases of MDR-TB 2012

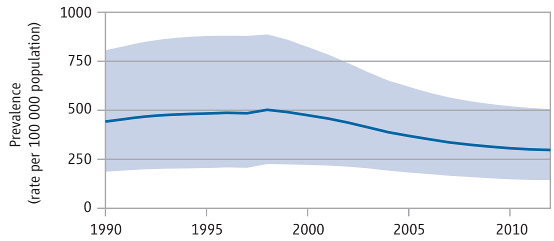
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	2 (<1%)	821 (10%)	824
Laboratory-confirmed MDR-TB cases	2	425	428
Patients started on MDR-TB treatment			426

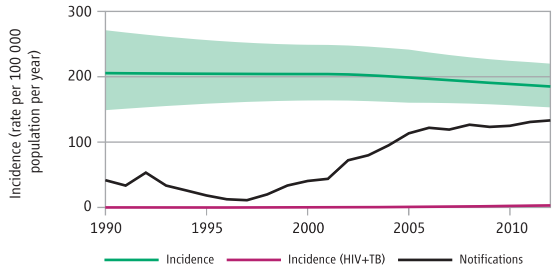
Financing TB control

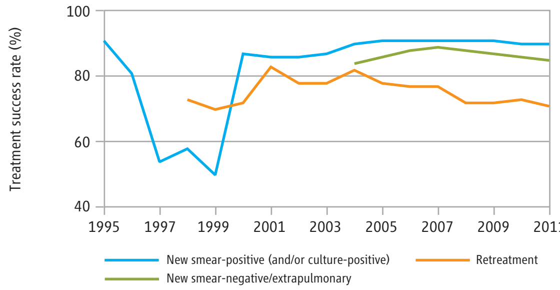
	2013
National TB programme budget (US$ millions)	119
% Funded domestically	14%
% Funded internationally	35%
% Unfunded	51%

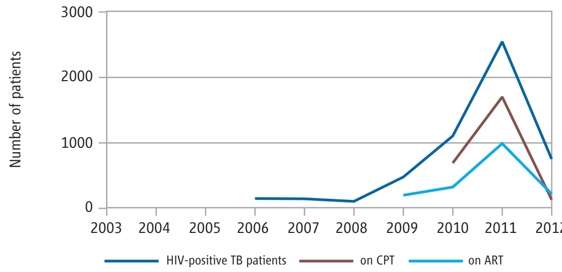
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	9.5 (5.4–15)	22 (13–34)
Mortality (HIV+TB only)	7.7 (6.6–8.9)	18 (15–21)
Prevalence (includes HIV+TB)	130 (71–210)	299 (163–475)
Incidence (includes HIV+TB)	120 (110–120)	272 (261–283)
Incidence (HIV+TB only)	45 (44–47)	105 (101–109)
Case detection, all forms (%)	79 (76–83)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	36 937	(41)	Relapse	3 419	(36)
Smear-negative	28 574	(32)	Treatment after failure	326	(3)
Smear-unknown / not done	8 123	(9)	Treatment after default	1 408	(15)
Extrapulmonary	15 934	(18)	Other	4 428	(46)
Other	0	(0)			
Total new	**89 568**		**Total retreatment**	**9 581**	
Other (history unknown)	0				
Total new and relapse	**92 987**		**Total cases notified**	**99 149**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.6	1.2	1.2
Age < 15	996	1 907	2 465

Laboratories

	2012
Smear (per 100 000 population)	4.2
Culture (per 5 million population)	0.2
Drug susceptibility testing (per 5 million population)	0.2
Is second-line drug susceptibility testing available?	Yes, in and outside country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	88
New smear-negative/extrapulmonary	85
Retreatment	82
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	92 890	(94)
HIV-positive TB patients	35 837	(39)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	35 025	(98)
HIV-positive TB patients on antiretroviral therapy (ART)	26 487	(74)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.5 (0.01–5)	10 (3.5–17)
MDR-TB cases among notified pulmonary TB cases	1 800 (7.4–3 700)	980 (340–1 600)

Reported cases of MDR-TB 2012

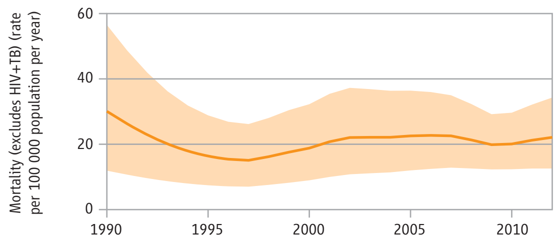
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	78 (<1%)	1 183 (12%)	1 344
Laboratory-confirmed MDR-TB cases	9	205	225
Patients started on MDR-TB treatment			202

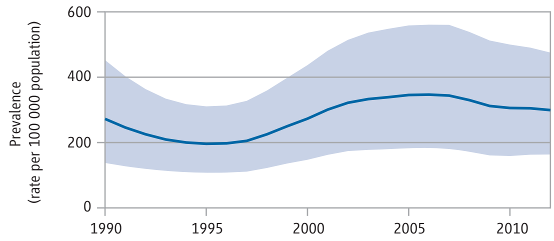
Financing TB control

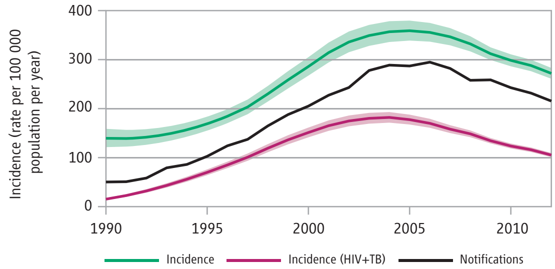
	2013
National TB programme budget (US$ millions)	55
% Funded domestically	24%
% Funded internationally	15%
% Unfunded	61%

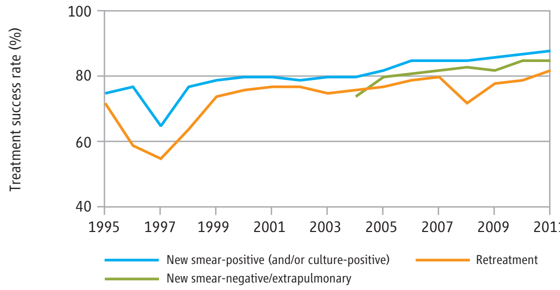
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

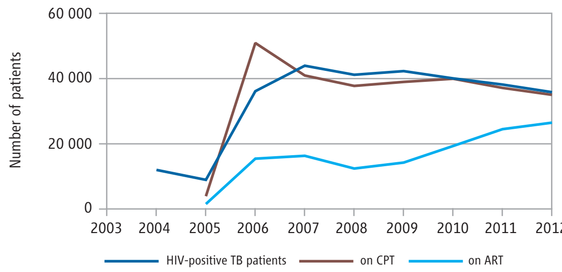
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	13 (0.98–41)	53 (3.9–163)
Mortality (HIV+TB only)	45 (35–53)	177 (138–209)
Prevalence (includes HIV+TB)	140 (28–340)	553 (111–1 342)
Incidence (includes HIV+TB)	140 (96–190)	552 (383–753)
Incidence (HIV+TB only)	83 (58–110)	330 (228–450)
Case detection, all forms (%)	34 (25–50)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	20 951	(45)	Relapse	1 451	(32)
Smear-negative	19 797	(43)	Treatment after failure	243	(5)
Smear-unknown / not done			Treatment after default	248	(5)
Extrapulmonary	5 542	(12)	Other	2 595	(57)
Other	0	(0)			
Total new	**46 290**		**Total retreatment**	**4 537**	
Other (history unknown)	0				
Total new and relapse	**47 741**		**Total cases notified**	**50 827**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio			
Age < 15		2 506	841

Laboratories

	2012
Smear (per 100 000 population)	1.2
Culture (per 5 million population)	0.6
Drug susceptibility testing (per 5 million population)	0.4
Is second-line drug susceptibility testing available?	Yes, outside country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	
New smear-negative/extrapulmonary	
Retreatment	
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	47 960	(94)
HIV-positive TB patients	27 979	(58)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	27 319	(98)
HIV-positive TB patients on antiretroviral therapy (ART)	15 391	(55)
HIV-positive people screened for TB		
HIV-positive people provided with IPT	17 317	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.5 (2.2–4.8)	12 (0–25)
MDR-TB cases among notified pulmonary TB cases	1 400 (900–2 000)	540 (0–1 100)

Reported cases of MDR-TB 2012

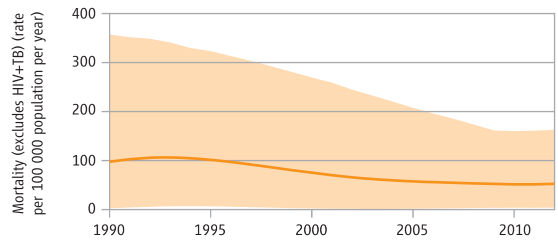
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	205 (<1%)	243 (5%)	448
Laboratory-confirmed MDR-TB cases	44	136	266
Patients started on MDR-TB treatment			213

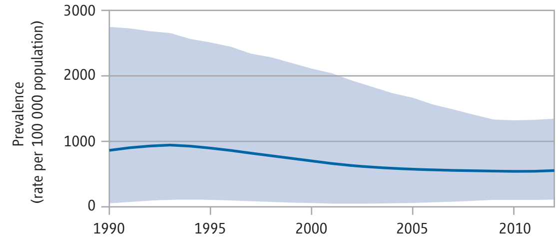
Financing TB control

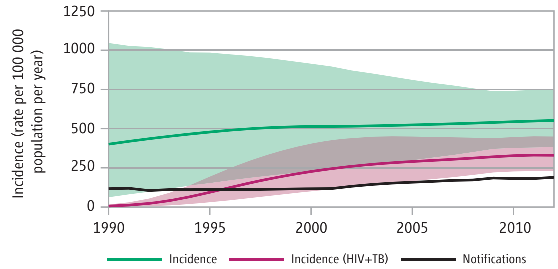
	2013
National TB programme budget (US$ millions)	11
% Funded domestically	19%
% Funded internationally	51%
% Unfunded	30%

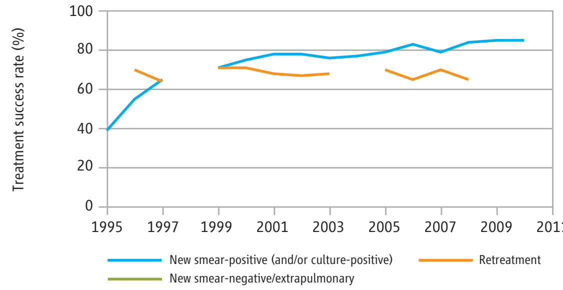
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

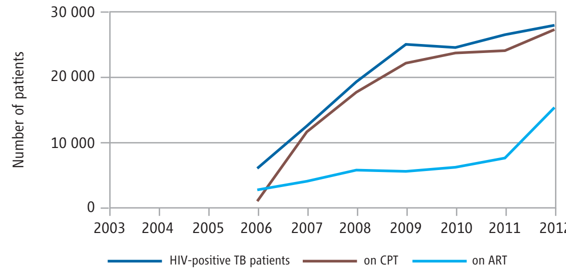
[a] Ranges represent uncertainty intervals.

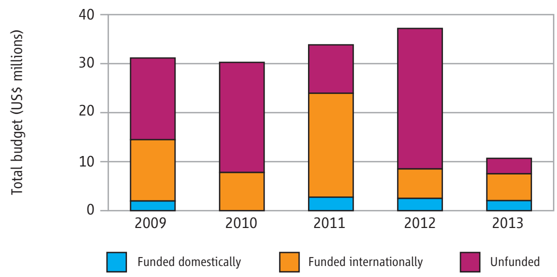












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	25 (12–44)	48 (23–84)
Mortality (HIV+TB only)	4.6 (3.8–5.3)	8.8 (7.3–10)
Prevalence (includes HIV+TB)	260 (200–320)	489 (377–616)
Incidence (includes HIV+TB)	200 (170–230)	377 (322–435)
Incidence (HIV+TB only)	19 (16–21)	35 (30–41)
Case detection, all forms (%)	71 (62–83)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	42 909	(31)	Relapse	4 558	(40)
Smear-negative	73 042	(53)	Treatment after failure	1 671	(14)
Smear-unknown / not done	0	(0)	Treatment after default	521	(5)
Extrapulmonary	20 661	(15)	Other	4 787	(41)
Other	0	(0)			
Total new	**136 612**		**Total retreatment**	**11 537**	
Other (history unknown)	0				
Total new and relapse	**141 170**		**Total cases notified**	**148 149**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.9		
Age < 15	338		

Laboratories

	2012
Smear (per 100 000 population)	0.9
Culture (per 5 million population)	0.2
Drug susceptibility testing (per 5 million population)	0.2
Is second-line drug susceptibility testing available?	Yes, in and outside country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	86
New smear-negative/extrapulmonary	90
Retreatment	72
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	19 219	(13)
HIV-positive TB patients	5 161	(27)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)		
HIV-positive TB patients on antiretroviral therapy (ART)	4 270	(83)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	4.2 (3.1–5.6)	10 (6.9–14)
MDR-TB cases among notified pulmonary TB cases	4 900 (3 600–6 500)	1 200 (790–1 600)

Reported cases of MDR-TB 2012

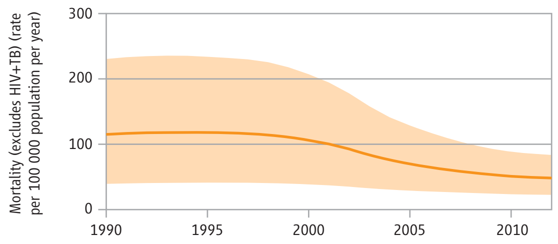
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			
Laboratory-confirmed MDR-TB cases			778
Patients started on MDR-TB treatment			442

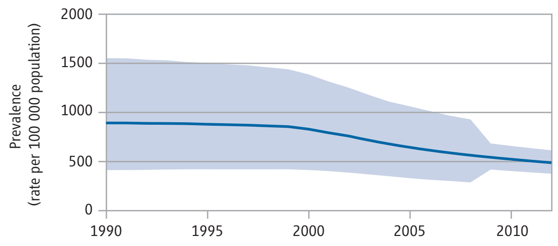
Financing TB control

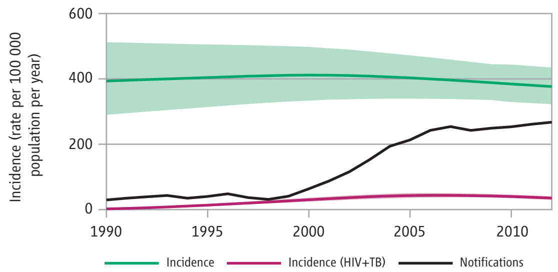
	2013
National TB programme budget (US$ millions)	36
% Funded domestically	2%
% Funded internationally	39%
% Unfunded	60%

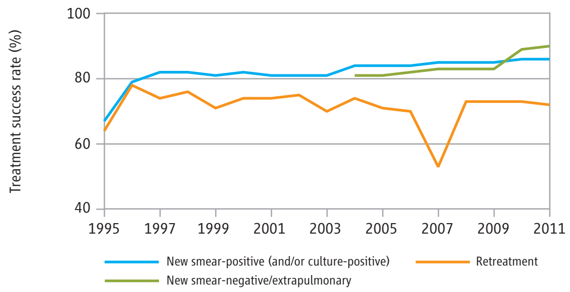
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

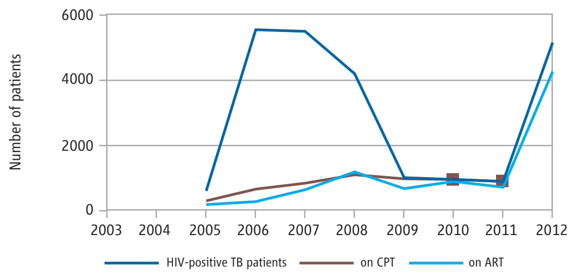
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	27 (1.6–86)	16 (0.92–51)
Mortality (HIV+TB only)	19 (11–25)	11 (6.7–15)
Prevalence (includes HIV+TB)	270 (43–710)	161 (25–420)
Incidence (includes HIV+TB)	180 (85–310)	108 (50–186)
Incidence (HIV+TB only)	46 (21–80)	27 (13–47)
Case detection, all forms (%)	51 (29–110)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	52 901	(59)	Relapse	2 513	(33)
Smear-negative	32 972	(37)	Treatment after failure	612	(8)
Smear-unknown / not done			Treatment after default	1 174	(16)
Extrapulmonary	4 432	(5)	Other	3 249	(43)
Other					
Total new	**90 305**		**Total retreatment**	**7 548**	
Other (history unknown)					
Total new and relapse	**92 818**		**Total cases notified**	**97 853**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.6		
Age < 15	1 187		

Laboratories

	2012
Smear (per 100 000 population)	0.8
Culture (per 5 million population)	0.1
Drug susceptibility testing (per 5 million population)	<0.1
Is second-line drug susceptibility testing available?	Yes, outside country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	85
New smear-negative/extrapulmonary	85
Retreatment	82
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	82 641	(84)
HIV-positive TB patients	19 342	(23)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	15 565	(80)
HIV-positive TB patients on antiretroviral therapy (ART)	10 866	(56)
HIV-positive people screened for TB	140 460	
HIV-positive people provided with IPT	2 257	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.9 (2.1–4)	14 (10–19)
MDR-TB cases among notified pulmonary TB cases	2 500 (1 800–3 400)	1 100 (770–1 500)

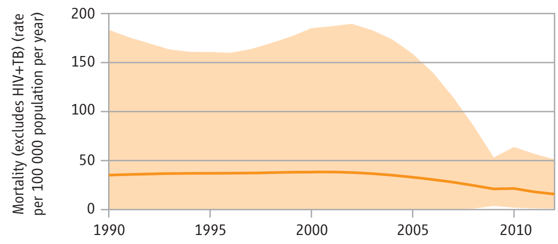
Reported cases of MDR-TB 2012

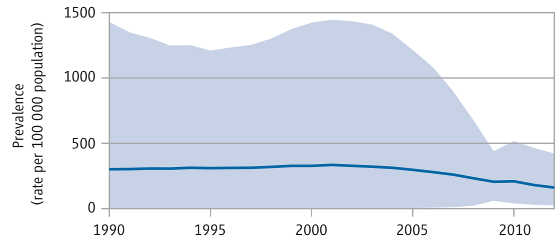
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	11 (<1%)	94 (1%)	107
Laboratory-confirmed MDR-TB cases	11	94	107
Patients started on MDR-TB treatment			125

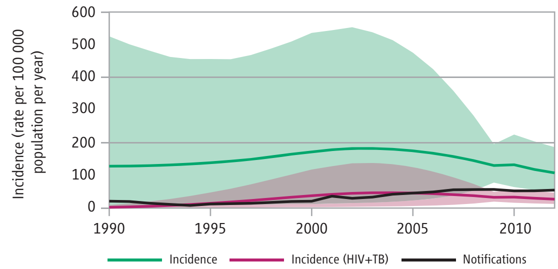
Financing TB control

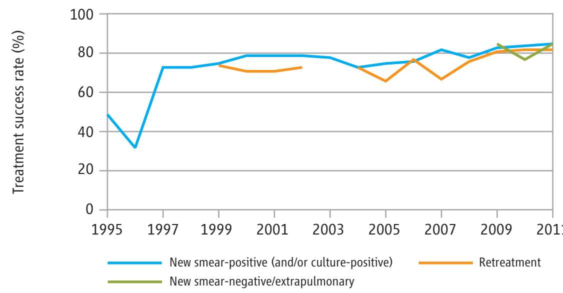
	2013
National TB programme budget (US$ millions)	154
% Funded domestically	8%
% Funded internationally	24%
% Unfunded	68%

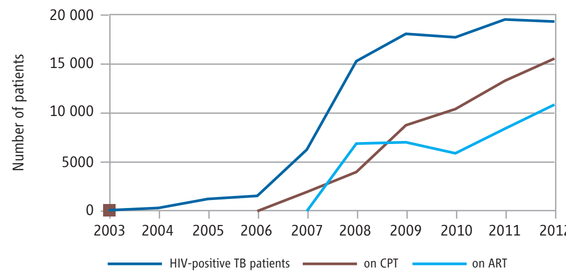
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	62 (27–110)	34 (15–61)
Mortality (HIV+TB only)	1.2 (0.83–1.3)	0.66 (0.46–0.75)
Prevalence (includes HIV+TB)	670 (320–1 100)	376 (181–641)
Incidence (includes HIV+TB)	410 (340–490)	231 (190–276)
Incidence (HIV+TB only)	3.8 (3.1–4.6)	2.1 (1.7–2.6)
Case detection, all forms (%)	65 (54–78)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	110 545	(42)	Relapse	6 095	(52)
Smear-negative	109 425	(42)	Treatment after failure	847	(7)
Smear-unknown / not done	0	(0)	Treatment after default	1 241	(11)
Extrapulmonary	41 410	(16)	Other	3 534	(30)
Other	0	(0)			
Total new	**261 380**		**Total retreatment**	**11 717**	
Other (history unknown)	0				
Total new and relapse	**267 475**		**Total cases notified**	**273 097**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.1	1.0	0.8
Age < 15	3 947	13 884	8 328

Laboratories

	2012
Smear (per 100 000 population)	0.8
Culture (per 5 million population)	0.2
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	92
New smear-negative/extrapulmonary	93
Retreatment	80
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	10 419	(4)
HIV-positive TB patients	30	(<1)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	30	(100)
HIV-positive TB patients on antiretroviral therapy (ART)	22	(73)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.5 (0.1–12)	32 (7.5–56)
MDR-TB cases among notified pulmonary TB cases	7 700 (220–27 000)	3 700 (880–6 600)

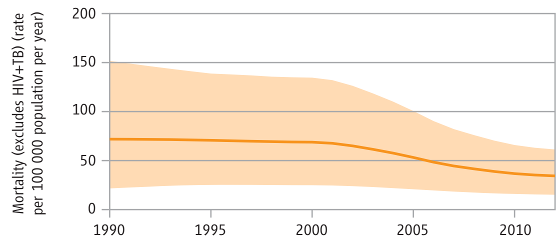
Reported cases of MDR-TB 2012

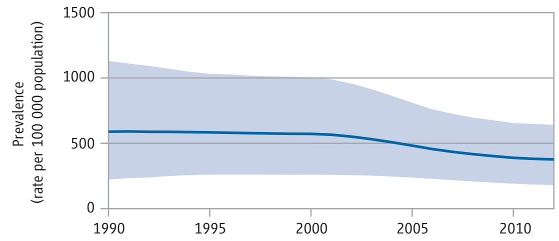
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	461 (<1%)	154 (1%)	4 198
Laboratory-confirmed MDR-TB cases	19	55	1 602
Patients started on MDR-TB treatment			1 045

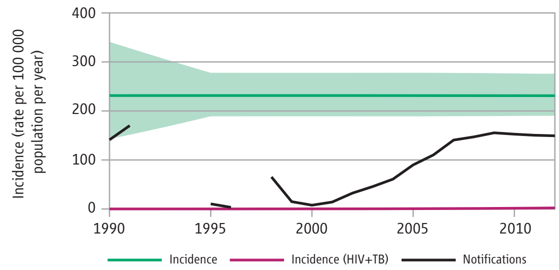
Financing TB control

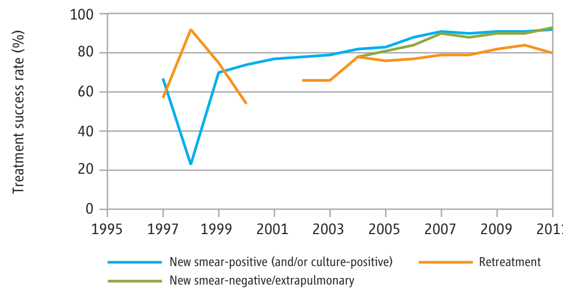
	2013
National TB programme budget (US$ millions)	73
% Funded domestically	5%
% Funded internationally	85%
% Unfunded	9%

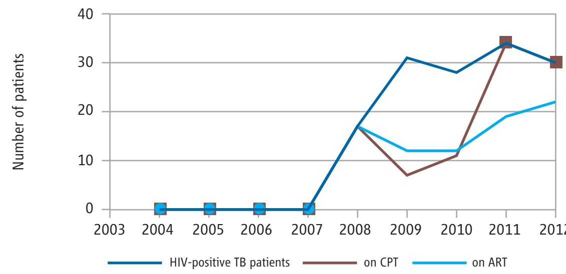
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	23 (22–25)	24 (22–26)
Mortality (HIV+TB only)	0.11 (0.09–0.13)	0.11 (0.09–0.14)
Prevalence (includes HIV+TB)	450 (390–500)	461 (405–520)
Incidence (includes HIV+TB)	260 (210–310)	265 (219–316)
Incidence (HIV+TB only)	0.46 (0.38–0.55)	0.48 (0.39–0.57)
Case detection, all forms (%)	84 (71–100)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	93 586	(44)	Relapse	4 080	(17)
Smear-negative	115 263	(54)	Treatment after failure	591	(3)
Smear-unknown / not done	0	(0)	Treatment after default	1 243	(5)
Extrapulmonary	3 270	(2)	Other	17 575	(75)
Other	0	(0)			
Total new	**212 119**		**Total retreatment**	**23 489**	
Other (history unknown)	0				
Total new and relapse	**216 199**		**Total cases notified**	**235 608**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	2.3	1.6	1.2
Age < 15	1 032		

Laboratories

	2012
Smear (per 100 000 population)	2.7
Culture (per 5 million population)	0.7
Drug susceptibility testing (per 5 million population)	0.2
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	90
New smear-negative/extrapulmonary	85
Retreatment	65
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	2 040	(<1)
HIV-positive TB patients	4	(<1)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)		
HIV-positive TB patients on antiretroviral therapy (ART)		
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	4 (2.9–5.5)	21 (14–29)
MDR-TB cases among notified pulmonary TB cases	8 400 (6 000–11 000)	4 900 (3 400–6 800)

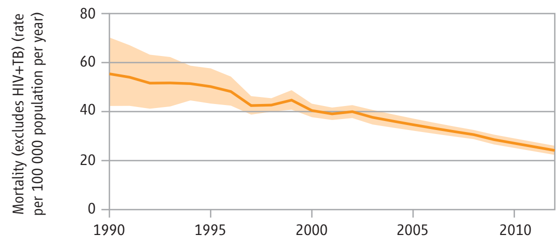
Reported cases of MDR-TB 2012

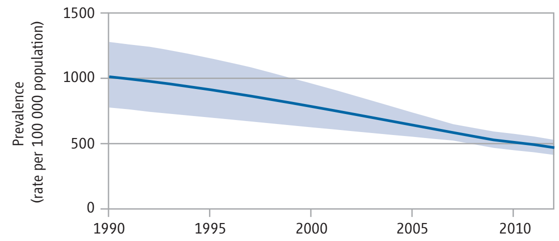
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	35 (<1%)	2 038 (9%)	2 107
Laboratory-confirmed MDR-TB cases	11	653	679
Patients started on MDR-TB treatment			1 918

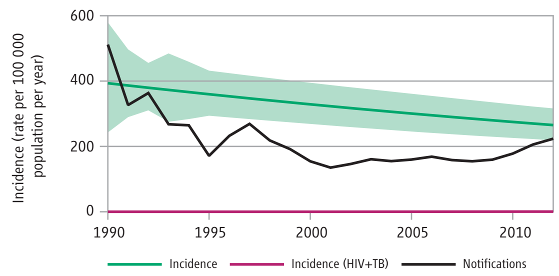
Financing TB control

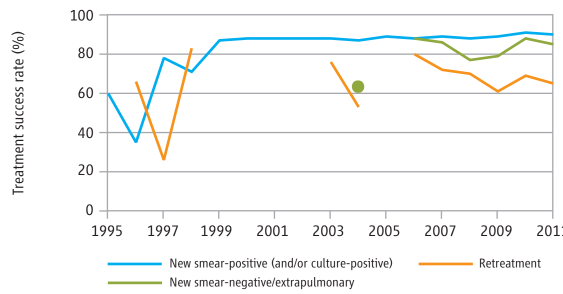
	2013
National TB programme budget (US$ millions)	149
% Funded domestically	16%
% Funded internationally	15%
% Unfunded	69%

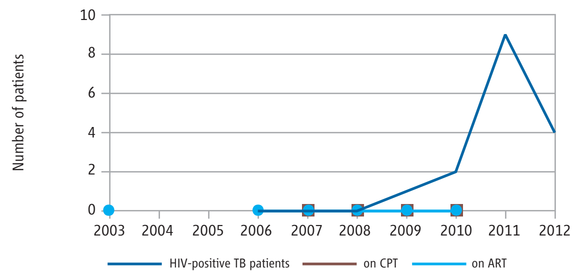
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.
[a] Ranges represent uncertainty intervals.

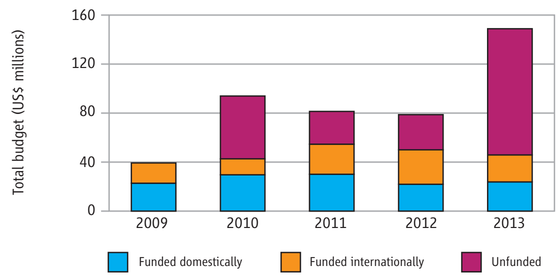












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	19 (18–20)	13 (13–14)
Mortality (HIV+TB only)	1.8 (1.5–2.2)	1.2 (1–1.5)
Prevalence (includes HIV+TB)	170 (73–320)	121 (51–221)
Incidence (includes HIV+TB)	130 (110–150)	91 (77–106)
Incidence (HIV+TB only)	9.3 (7.9–11)	6.5 (5.5–7.5)
Case detection, all forms (%)	81 (70–96)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	27 467	(28)	Relapse	8 211	(16)
Smear-negative	59 019	(61)	Treatment after failure	9 109	(17)
Smear-unknown / not done	1 039	(1)	Treatment after default	2 593	(5)
Extrapulmonary	10 017	(10)	Other	32 466	(62)
Other	0	(0)			
Total new	**97 542**		**Total retreatment**	**52 379**	
Other (history unknown)	0				
Total new and relapse	**105 753**		**Total cases notified**	**149 921**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	2.7	2.2	1.3
Age < 15	48	730	2 910

Laboratories

	2012
Smear (per 100 000 population)	0.7
Culture (per 5 million population)	4.1
Drug susceptibility testing (per 5 million population)	3.8
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	54
New smear-negative/extrapulmonary	73
Retreatment	42
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status[b]	75 995	
HIV-positive TB patients	4 880	
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)		
HIV-positive TB patients on antiretroviral therapy (ART)		
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	23 (21–25)	49 (44–53)
MDR-TB cases among notified pulmonary TB cases	20 000 (18 000–22 000)	25 000 (23 000–28 000)

Reported cases of MDR-TB 2012

	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	32 647 (79%)	12 324 (24%)	44 971
Laboratory-confirmed MDR-TB cases	6 537	7 075	13 612
Patients started on MDR-TB treatment			18 452

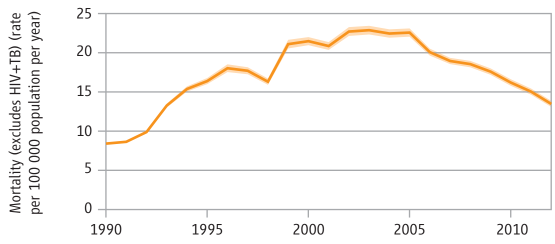
Financing TB control

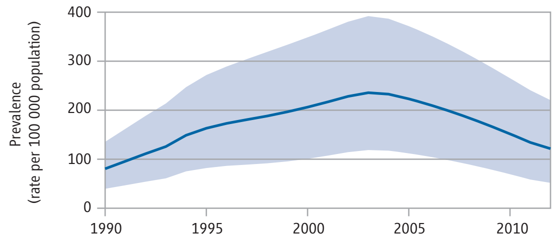
	2013
National TB programme budget (US$ millions)	1 592
% Funded domestically	100%
% Funded internationally	<1%
% Unfunded	0%

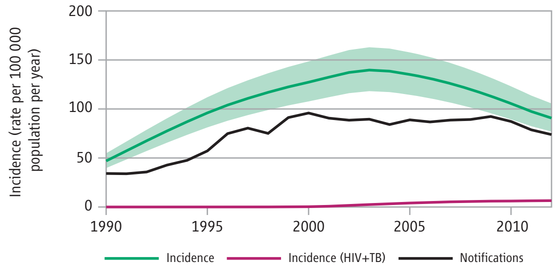
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

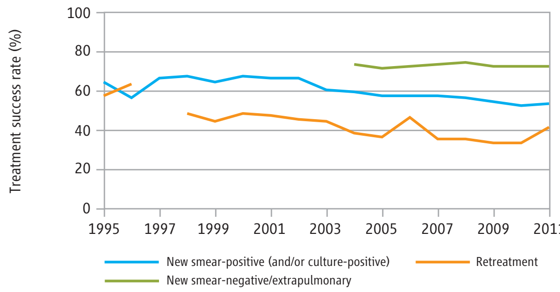
[a] Ranges represent uncertainty intervals.

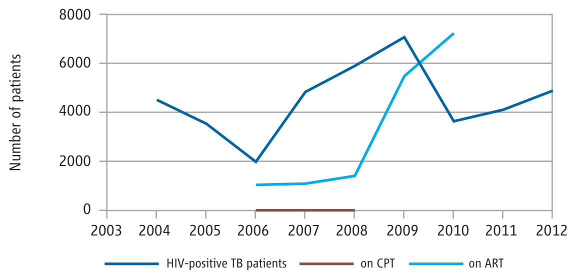
[b] The reported number of TB patients with known HIV status is for new TB patients in the civilian sector only. It was not possible to calculate the percentage of all TB patients with known HIV status.

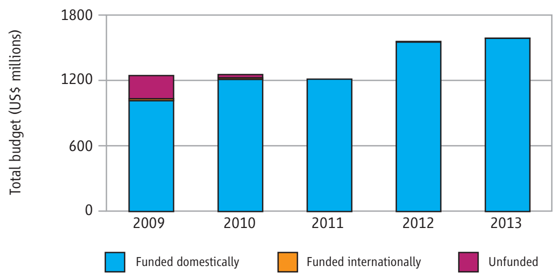












SOUTH AFRICA | Population 2012 **52 million**

HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	31 (3.7–86)	59 (7–164)
Mortality (HIV+TB only)	88 (75–100)	168 (144–192)
Prevalence (includes HIV+TB)	450 (160–880)	857 (305–1 685)
Incidence (includes HIV+TB)	530 (430–630)	1 003 (827–1 194)
Incidence (HIV+TB only)	330 (270–390)	631 (521–752)
Case detection, all forms (%)	62 (52–75)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	119 898	(40)	Relapse	26 668	(51)
Smear-negative	63 210	(21)	Treatment after failure	3 123	(6)
Smear-unknown / not done	71 421	(24)	Treatment after default	7 788	(15)
Extrapulmonary	42 467	(14)	Other	15 007	(29)
Other	0	(0)			
Total new	**296 996**		**Total retreatment**	**52 586**	
Other (history unknown)	0				
Total new and relapse	**323 664**		**Total cases notified**	**349 582**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.3	1.1	1.0
Age < 15	2 650	33 601	2 327

Laboratories

	2012
Smear (per 100 000 population)	0.4
Culture (per 5 million population)	1.4
Drug susceptibility testing (per 5 million population)	1.4
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	79
New smear-negative/extrapulmonary	76
Retreatment	66
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	294 196	(84)
HIV-positive TB patients	190 093	(65)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	140 868	(74)
HIV-positive TB patients on antiretroviral therapy (ART)	101 937	(54)
HIV-positive people screened for TB	949 800	
HIV-positive people provided with IPT	369 747	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.8 (1.4–2.3)	6.7 (5.4–8.2)
MDR-TB cases among notified pulmonary TB cases	4 600 (3 700–5 800)	3 500 (2 800–4 300)

Reported cases of MDR-TB 2012

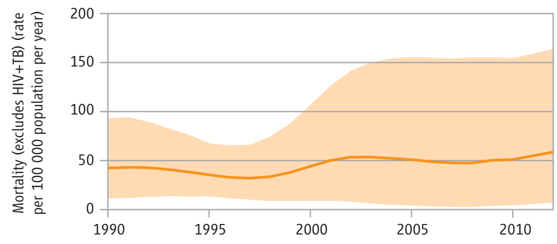
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			37 310
Laboratory-confirmed MDR-TB cases			15 419
Patients started on MDR-TB treatment			6 494

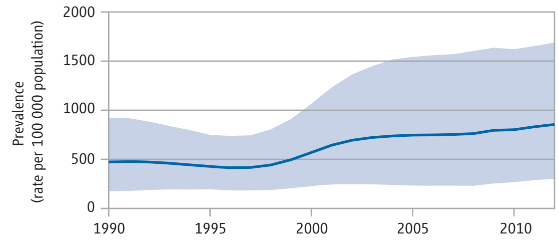
Financing TB control

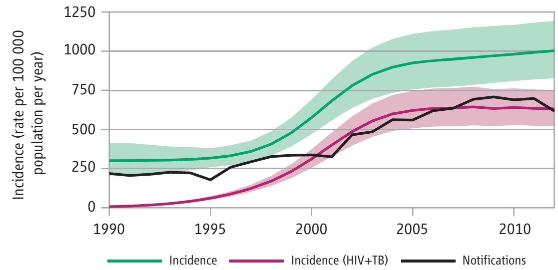
	2013
National TB programme budget (US$ millions)	475
% Funded domestically	97%
% Funded internationally	3%
% Unfunded	0%

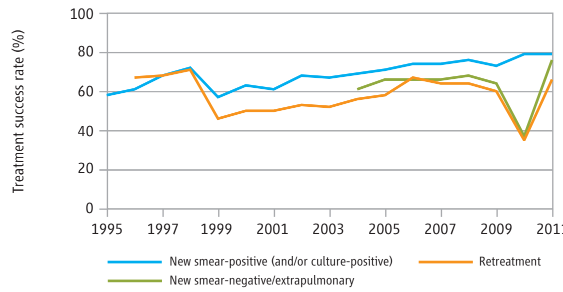
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

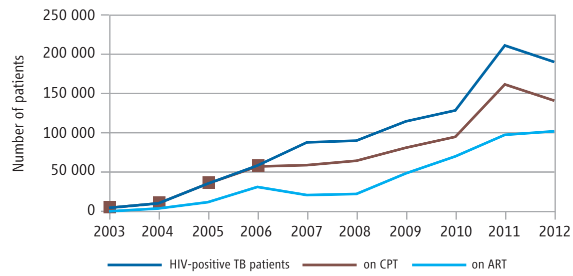
[a] Ranges represent uncertainty intervals.

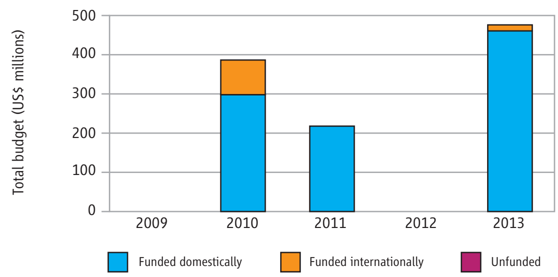












THAILAND | Population 2012 **67 million**

HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	9.2 (3.8–17)	14 (5.8–25)
Mortality (HIV+TB only)	2.2 (1.9–2.8)	3.3 (2.9–4.2)
Prevalence (includes HIV+TB)	110 (47–190)	159 (71–282)
Incidence (includes HIV+TB)	80 (66–95)	119 (98–142)
Incidence (HIV+TB only)	12 (10–14)	18 (15–22)
Case detection, all forms (%)	76 (64–92)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	30 998	(54)	Relapse	1 887	(68)
Smear-negative	17 537	(31)	Treatment after failure	327	(12)
Smear-unknown / not done			Treatment after default	577	(21)
Extrapulmonary	8 852	(15)	Other		
Other					
Total new	**57 387**		**Total retreatment**	**2 791**	
Other (history unknown)	1 030				
Total new and relapse	**59 274**		**Total cases notified**	**61 208**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	2.4		
Age < 15	117		

Laboratories

	2012
Smear (per 100 000 population)	1.6
Culture (per 5 million population)	4.9
Drug susceptibility testing (per 5 million population)	1.3
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	85
New smear-negative/extrapulmonary	78
Retreatment	69
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	44 035	(72)
HIV-positive TB patients	5 807	(13)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	4 460	(77)
HIV-positive TB patients on antiretroviral therapy (ART)	3 591	(62)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.7 (1–2.6)	35 (28–42)
MDR-TB cases among notified pulmonary TB cases	800 (480–1 200)	960 (780–1 200)

Reported cases of MDR-TB 2012

	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			7 379
Laboratory-confirmed MDR-TB cases			492
Patients started on MDR-TB treatment			

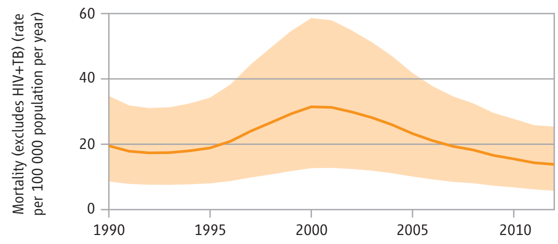
Financing TB control

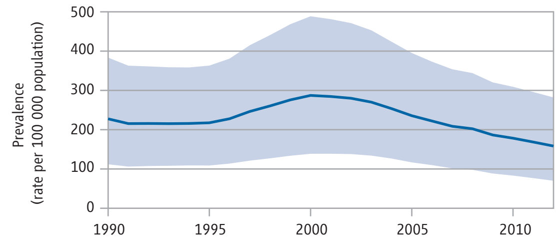
	2013
National TB programme budget (US$ millions)	44[b]
% Funded domestically	92%
% Funded internationally	2%
% Unfunded	6%

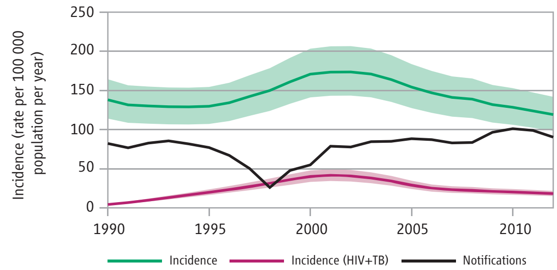
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

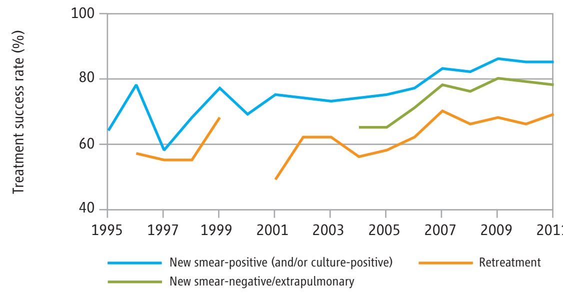
[a] Ranges represent uncertainty intervals.

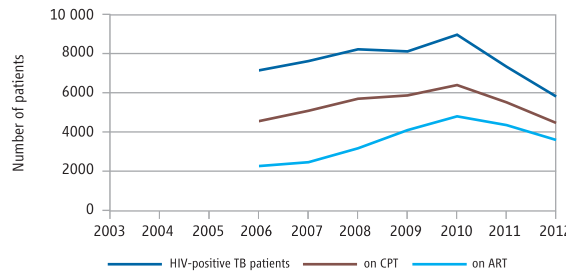
[b] Based on data reported for 2013 in the 2012 round of data collection. In 2013, Thailand was not able to report funding for the sub-national level.

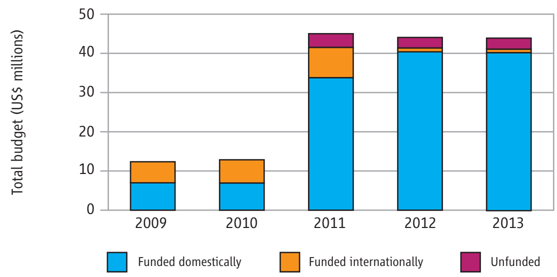












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	4.7 (0.82–12)	13 (2.3–33)
Mortality (HIV+TB only)	9.2 (8–12)	25 (22–32)
Prevalence (includes HIV+TB)	64 (24–120)	175 (67–334)
Incidence (includes HIV+TB)	65 (53–79)	179 (145–216)
Incidence (HIV+TB only)	35 (28–42)	95 (77–115)
Case detection, all forms (%)	69 (57–85)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	24 916	(58)	Relapse	1 334	(34)
Smear-negative	11 487	(27)	Treatment after failure	270	(7)
Smear-unknown / not done	1 783	(4)	Treatment after default	1 164	(30)
Extrapulmonary	5 143	(12)	Other	1 114	(29)
Other	0	(0)			
Total new	**43 329**		**Total retreatment**	**3 882**	
Other (history unknown)	0				
Total new and relapse	**44 663**		**Total cases notified**	**47 211**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.8		
Age < 15	636		

Laboratories

	2012
Smear (per 100 000 population)	3.2
Culture (per 5 million population)	0.6
Drug susceptibility testing (per 5 million population)	0.6
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	77
New smear-negative/extrapulmonary	66
Retreatment	71
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	40 581	(86)
HIV-positive TB patients	20 376	(50)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	19 163	(94)
HIV-positive TB patients on antiretroviral therapy (ART)	9 962	(49)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.4 (0.6–2.2)	12 (6.8–19)
MDR-TB cases among notified pulmonary TB cases	540 (230–860)	470 (260–750)

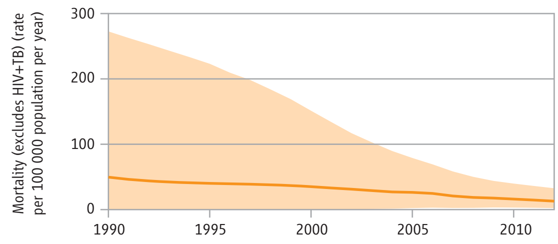
Reported cases of MDR-TB 2012

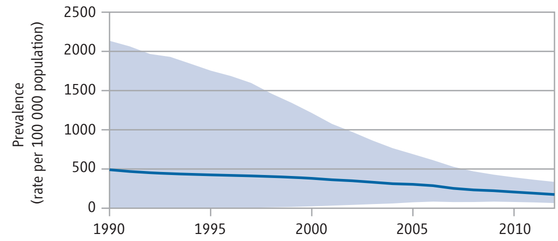
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	196 (<1%)	748 (19%)	1 406
Laboratory-confirmed MDR-TB cases	9	71	89
Patients started on MDR-TB treatment			41

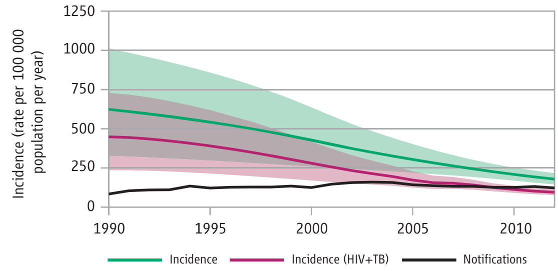
Financing TB control

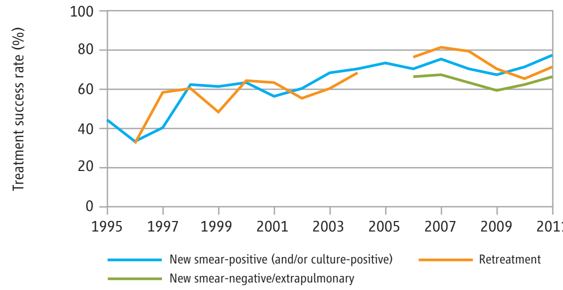
	2013
National TB programme budget (US$ millions)	31
% Funded domestically	7%
% Funded internationally	62%
% Unfunded	31%

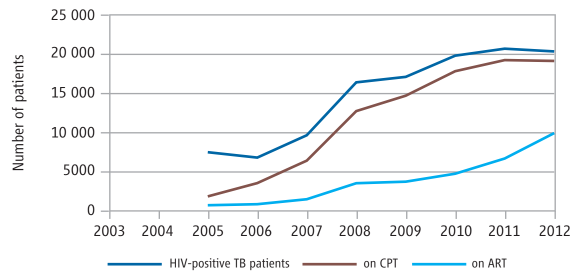
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	6.1 (3.2–9.9)	13 (6.8–21)
Mortality (HIV+TB only)	7 (5.8–8)	15 (12–17)
Prevalence (includes HIV+TB)	84 (45–140)	176 (95–283)
Incidence (includes HIV+TB)	79 (74–84)	165 (154–175)
Incidence (HIV+TB only)	32 (30–34)	68 (64–72)
Case detection, all forms (%)	79 (74–84)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	25 138	(41)	Relapse	1 052	(38)
Smear-negative	21 393	(35)	Treatment after failure	154	(6)
Smear-unknown / not done	0	(0)	Treatment after default	201	(7)
Extrapulmonary	14 595	(24)	Other	1 359	(49)
Other	0	(0)			
Total new	**61 126**		**Total retreatment**	**2 766**	
Other (history unknown)	0				
Total new and relapse	**62 178**		**Total cases notified**	**63 892**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.8	1.3	1.2
Age < 15	490	2 508	2 282

Laboratories

	2012
Smear (per 100 000 population)	2.0
Culture (per 5 million population)	0.4
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	88
New smear-negative/extrapulmonary	88
Retreatment	82
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	52 499	(82)
HIV-positive TB patients	20 269	(39)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	19 501	(96)
HIV-positive TB patients on antiretroviral therapy (ART)	10 993	(54)
HIV-positive people screened for TB	357 400	
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.1 (0.3–2.8)	0 (0–5.9)
MDR-TB cases among notified pulmonary TB cases	500 (140–1 300)	0 (0–160)

Reported cases of MDR-TB 2012

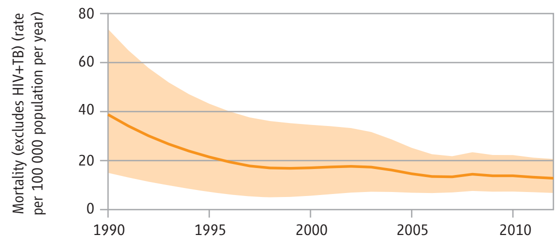
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	639 (3%)	108 (4%)	1 006
Laboratory-confirmed MDR-TB cases	12	12	42
Patients started on MDR-TB treatment			44

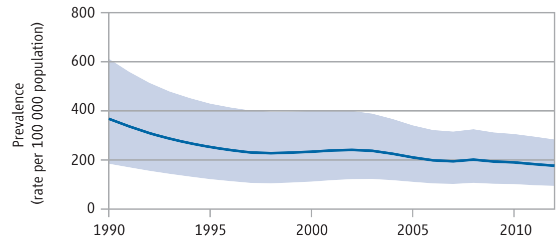
Financing TB control

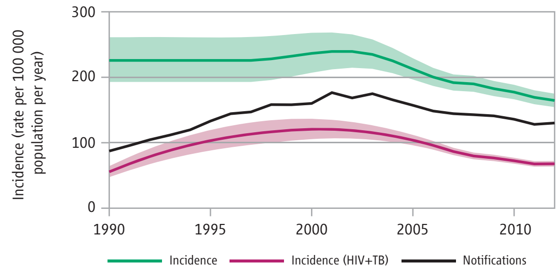
	2013
National TB programme budget (US$ millions)	58
% Funded domestically	14%
% Funded internationally	19%
% Unfunded	67%

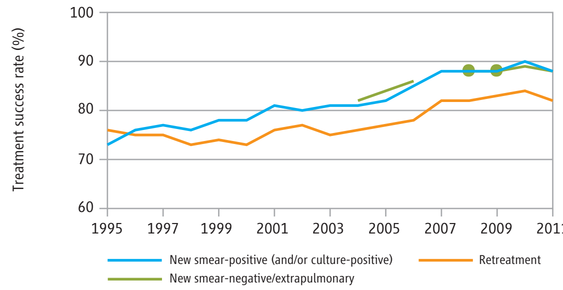
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

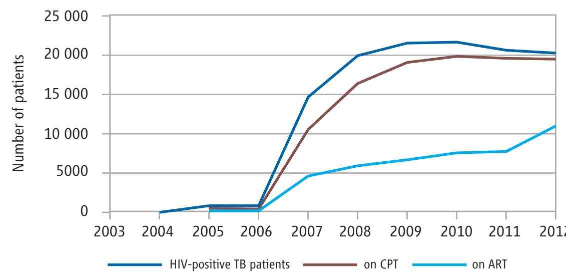
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	18 (12–25)	20 (13–27)
Mortality (HIV+TB only)	2.1 (1.8–2.7)	2.4 (2–2.9)
Prevalence (includes HIV+TB)	200 (79–370)	218 (86–410)
Incidence (includes HIV+TB)	130 (99–170)	147 (109–192)
Incidence (HIV+TB only)	9.3 (6.9–12)	10 (7.6–13)
Case detection, all forms (%)	76 (59–100)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	51 033	(54)	Relapse	7 259	(80)
Smear-negative	21 706	(23)	Treatment after failure	567	(6)
Smear-unknown / not done			Treatment after default	494	(5)
Extrapulmonary	18 904	(20)	Other	733	(8)
Other	3 210	(3)			
Total new	**94 853**		**Total retreatment**	**9 053**	
Other (history unknown)					
Total new and relapse	**102 112**		**Total cases notified**	**103 906**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	3.0		
Age < 15	142		

Laboratories

	2012
Smear (per 100 000 population)	0.9
Culture (per 5 million population)	1.4
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, in country

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	93
New smear-negative/extrapulmonary	93
Retreatment	82
Is rifampicin used throughout treatment for new patients?	No

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	68 259	(66)
HIV-positive TB patients	4 775	(7)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	3 486	(73)
HIV-positive TB patients on antiretroviral therapy (ART)	2 232	(47)
HIV-positive people screened for TB		
HIV-positive people provided with IPT	5 663	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.7 (2–3.7)	19 (14–25)
MDR-TB cases among notified pulmonary TB cases	2 100 (1 500–2 800)	1 700 (1 300–2 300)

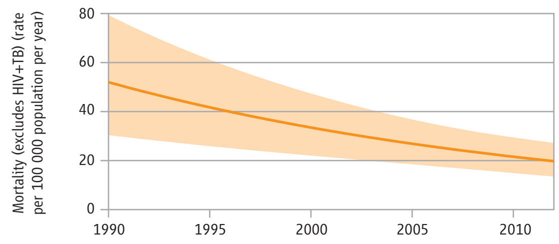
Reported cases of MDR-TB 2012

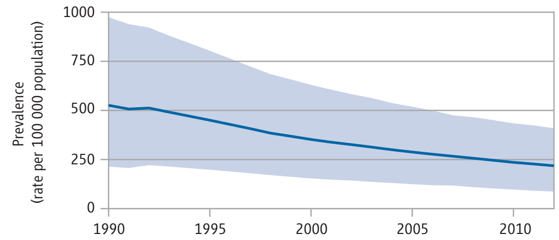
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			
Laboratory-confirmed MDR-TB cases			273
Patients started on MDR-TB treatment			713

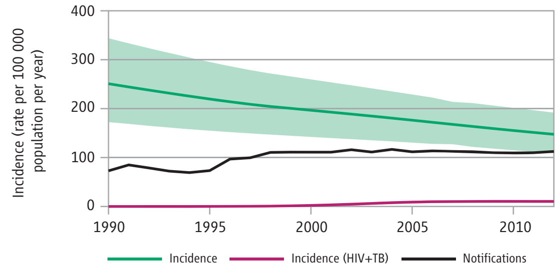
Financing TB control

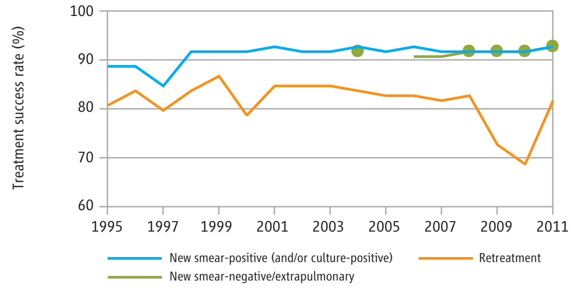
	2013
National TB programme budget (US$ millions)	66
% Funded domestically	8%
% Funded internationally	20%
% Unfunded	72%

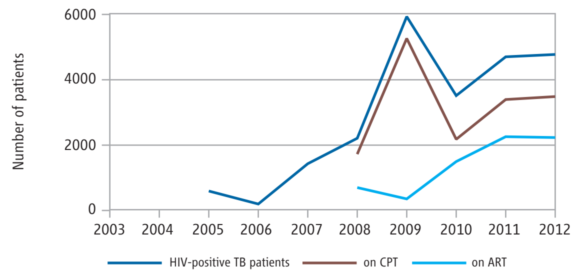
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.
[a] Ranges represent uncertainty intervals.











HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	4.6 (0.16–16)	33 (1.2–117)
Mortality (HIV+TB only)	18 (15–20)	132 (111–147)
Prevalence (includes HIV+TB)	59 (13–140)	433 (92–1 034)
Incidence (includes HIV+TB)	77 (60–97)	562 (434–706)
Incidence (HIV+TB only)	55 (42–69)	399 (308–501)
Case detection, all forms (%)	46 (37–60)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	12 163	(35)	Relapse	1 369	(32)
Smear-negative	14 354	(42)	Treatment after failure	200	(5)
Smear-unknown / not done	2 962	(9)	Treatment after default	176	(4)
Extrapulmonary	4 912	(14)	Other	2 584	(60)
Other	0	(0)			
Total new	**34 391**		**Total retreatment**	**4 329**	
Other (history unknown)	0				
Total new and relapse	**35 760**		**Total cases notified**	**38 720**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.3	1.2	1.1
Age < 15	293	2 177	441

Laboratories

	2012
Smear (per 100 000 population)	1.3
Culture (per 5 million population)	0.7
Drug susceptibility testing (per 5 million population)	0.7
Is second-line drug susceptibility testing available?	No

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	81
New smear-negative/extrapulmonary	80
Retreatment	78
Is rifampicin used throughout treatment for new patients?	Yes

TB/HIV 2012

	NUMBER	(%)
TB patients with known HIV status	34 212	(88)
HIV-positive TB patients	23 957	(70)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	6 301	(26)
HIV-positive TB patients on antiretroviral therapy (ART)	4 419	(18)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.9 (1–3.3)	8.3 (1.8–22)
MDR-TB cases among notified pulmonary TB cases	570 (300–960)	360 (76–970)

Reported cases of MDR-TB 2012

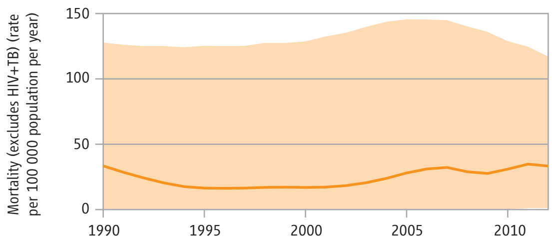
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	360 (3%)	258 (6%)	689
Laboratory-confirmed MDR-TB cases	43	35	149
Patients started on MDR-TB treatment			105

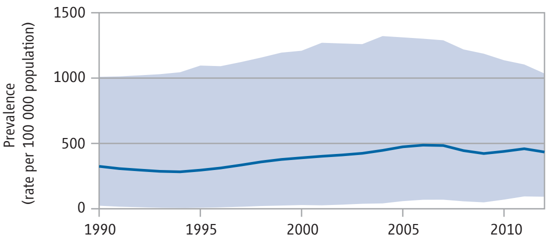
Financing TB control

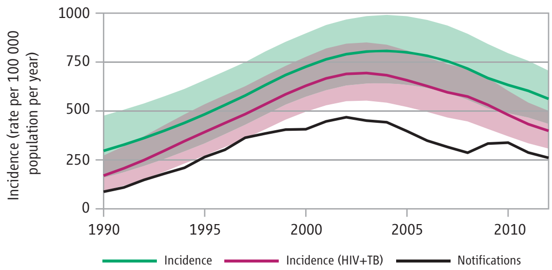
	2013
National TB programme budget (US$ millions)	38
% Funded domestically	4%
% Funded internationally	39%
% Unfunded	56%

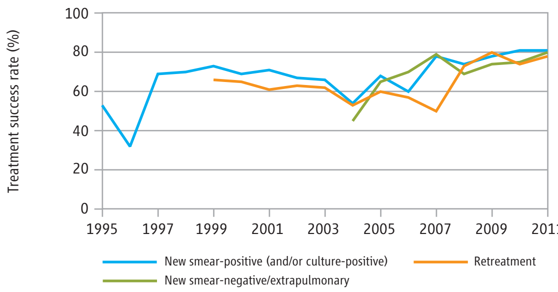
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

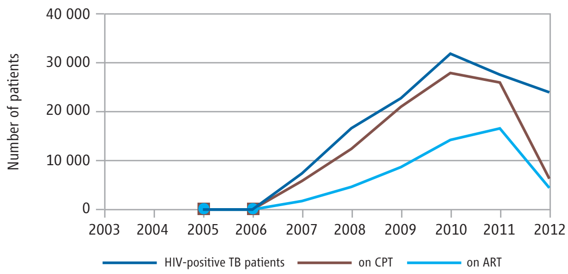
[a] Ranges represent uncertainty intervals.

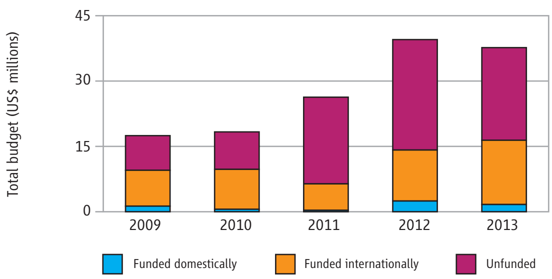












ANNEX 3

Regional profiles

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Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	230 (160–310)	26 (18–35)
Mortality (HIV+TB only)	250 (230–270)	28 (26–30)
Prevalence (includes HIV+TB)	2 700 (2 100–3 300)	303 (239–373)
Incidence (includes HIV+TB)	2 300 (2 100–2 500)	255 (235–275)
Incidence (HIV+TB only)	830 (760–910)	93 (85–102)
Case detection, all forms (%)	59 (55–64)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES	(%)
Smear-positive	600 355	(47)	Relapse	60 497 (47)
Smear-negative	345 947	(27)	Treatment after failure	9 174 (7.2)
Smear-unknown / not done	100 537	(7.8)	Treatment after default	17 468 (14)
Extrapulmonary	234 539	(18)	Other	41 128 (32)
Other	977	(<1)		
Total new	**1 282 355**		**Total retreatment**	**128 267**
Other (history unknown)	2 017			
Total new and relapse	**1 342 852**		**Total cases notified**	**1 412 639**

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.5	1.2	1.1
Age < 15	14 340	54 760	18 667

Laboratories 2012

	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	28 out of 43
Culture (per 5 million population) ≥ 1	15 out of 43
Drug susceptibility testing (per 5 million population) ≥ 1	9 out of 43

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	82
New smear-negative/extrapulmonary	76
Retreatment	68
MDR-TB (2010 cohort)	46

TB/HIV 2012

	NUMBER	(%)[c]
TB patients with known HIV status	1 040 292	(74)
HIV-positive TB patients	443 558	(43)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	346 739	(79)
HIV-positive TB patients on antiretroviral therapy (ART)	243 037	(55)
HIV-positive people screened for TB	2 391 601	
HIV-positive people provided with IPT	473 214	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.3 (0.2–4.4)	11 (4.4–17)
MDR-TB cases among notified pulmonary TB cases	24 000 (2 100–46 000)	14 000 (5 600–22 000)

Reported cases of MDR-TB 2012

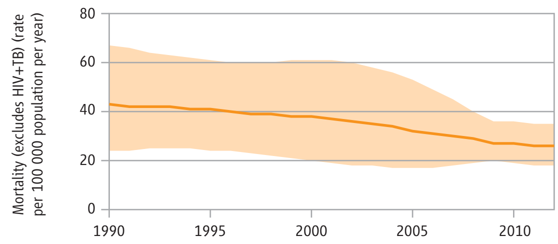
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	2 216 (<1%)	3 969 (3.1%)	45 689
Laboratory-confirmed MDR-TB cases	211	1 453	18 129
Patients started on MDR-TB treatment			9 303

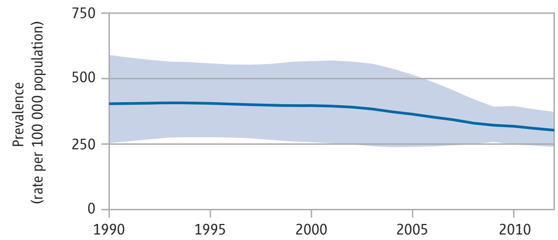
Financing TB control (low- and middle-income countries)[d]

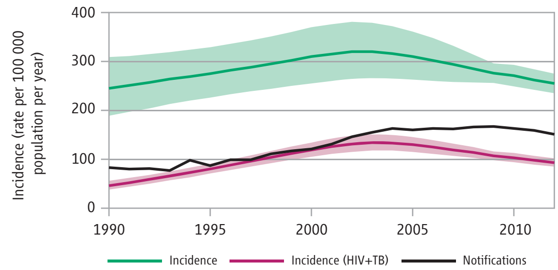
	2013
National TB programme budget (US$ millions)	1 360
% Funded domestically	44
% Funded internationally	21
% Unfunded	36

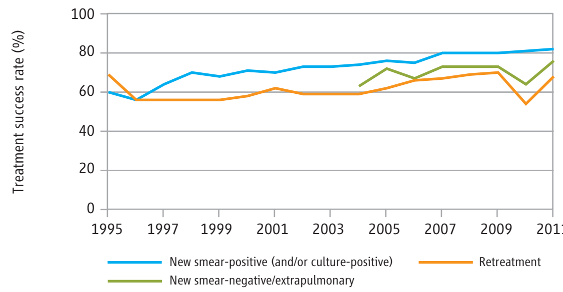
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

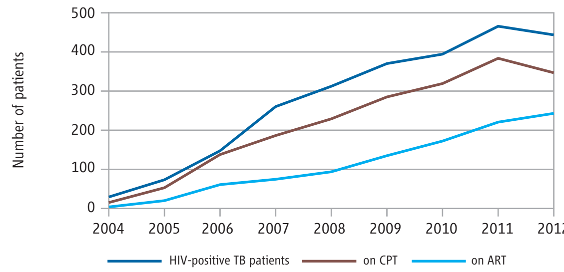
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.











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Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	19 (16–21)	1.9 (1.7–2.2)
Mortality (HIV+TB only)	6 (6–7)	0.66 (0.58–0.75)
Prevalence (includes HIV+TB)	390 (300–490)	40 (31–51)
Incidence (includes HIV+TB)	280 (260–300)	29 (27–31)
Incidence (HIV+TB only)	31 (28–34)	3.3 (3–3.6)
Case detection, all forms (%)	79 (74–85)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	122 606	(59)	Relapse	9 949	(42)
Smear-negative	35 606	(17)	Treatment after failure	1 195	(5.0)
Smear-unknown / not done	14 564	(7.0)	Treatment after default	5 858	(25)
Extrapulmonary	34 400	(16)	Other	6 809	(29)
Other	1 669	(<1)			
Total new	**208 845**		**Total retreatment**	**23 811**	
Other (history unknown)	39				
Total new and relapse	**218 794**		**Total cases notified**	**232 695**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.7	1.5	1.3
Age < 15	2 012	5 381	2 143

Laboratories 2012

	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	18 out of 23
Culture (per 5 million population) ≥ 1	20 out of 23
Drug susceptibility testing (per 5 million population) ≥ 1	9 out of 23

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	78
New smear-negative/extrapulmonary	71
Retreatment	51
MDR-TB (2010 cohort)	54

TB/HIV 2012

	NUMBER	(%)[c]
TB patients with known HIV status	129 174	(56)
HIV-positive TB patients	20 355	(16)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	3 513	(61)
HIV-positive TB patients on antiretroviral therapy (ART)	13 699	(76)
HIV-positive people screened for TB	4 485	
HIV-positive people provided with IPT	18 710	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.2 (1.4–3)	14 (4.7–22)
MDR-TB cases among notified pulmonary TB cases	3 800 (2 400–5 200)	3 200 (1 100–5 300)

Reported cases of MDR-TB 2012

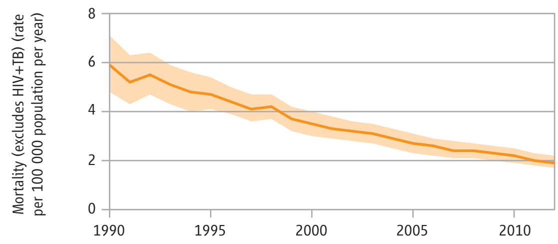
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	28 625 (22%)	5 481 (23%)	34 785
Laboratory-confirmed MDR-TB cases	1 347	1 482	2 967
Patients started on MDR-TB treatment			3 102

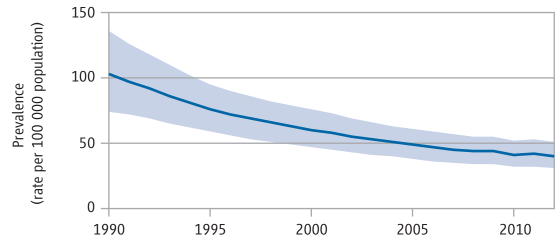
Financing TB control (low- and middle-income countries)[d]

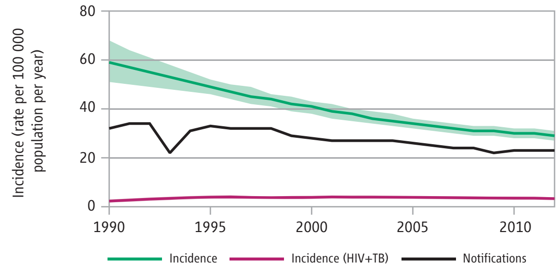
	2013
National TB programme budget (US$ millions)	185
% Funded domestically	69
% Funded internationally	12
% Unfunded	19

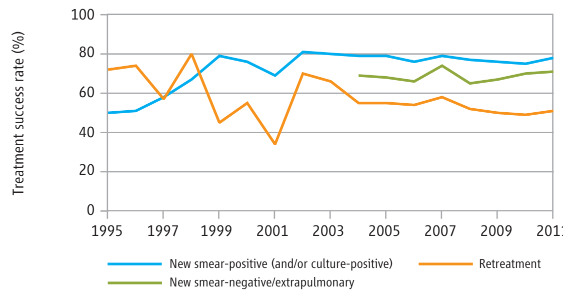
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

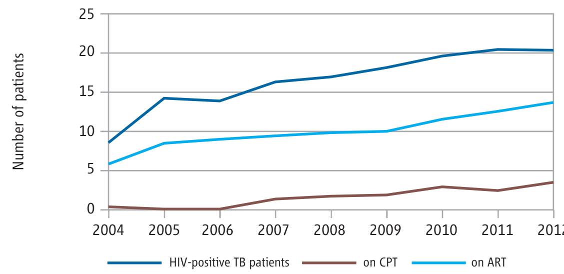
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

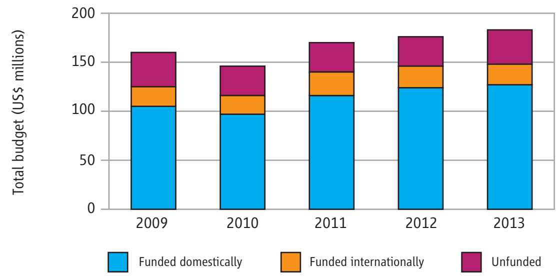












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Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	100 (63–150)	16 (10–24)
Mortality (HIV+TB only)	4 (4–5)	0.68 (0.61–0.76)
Prevalence (includes HIV+TB)	1 100 (730–1 600)	180 (118–256)
Incidence (includes HIV+TB)	670 (590–750)	109 (96–122)
Incidence (HIV+TB only)	11 (10–12)	1.8 (1.6–2)
Case detection, all forms (%)	63 (56–71)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	173 963	(42)	Relapse	11 208	(53)
Smear-negative	135 346	(33)	Treatment after failure	2 007	(9.5)
Smear-unknown / not done	8 523	(2.1)	Treatment after default	2 813	(13)
Extrapulmonary	90 943	(22)	Other	5 200	(24)
Other	702	(<1)			
Total new	**409 477**		**Total retreatment**	**21 228**	
Other (history unknown)	84				
Total new and relapse	**420 685**		**Total cases notified**	**430 789**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	1.2	1.0	0.8
Age < 15	5 641	20 716	13 451

Laboratories 2012

	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	7 out of 22
Culture (per 5 million population) ≥ 1	13 out of 22
Drug susceptibility testing (per 5 million population) ≥ 1	9 out of 22

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	88
New smear-negative/extrapulmonary	89
Retreatment	74
MDR-TB (2010 cohort)	56

TB/HIV 2012

	NUMBER	(%)[c]
TB patients with known HIV status	58 498	(14)
HIV-positive TB patients	2 020	(3.5)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	1 010	(69)
HIV-positive TB patients on antiretroviral therapy (ART)	881	(48)
HIV-positive people screened for TB	15 012	
HIV-positive people provided with IPT	243	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.5 (0.1–11)	32 (12–54)
MDR-TB cases among notified pulmonary TB cases	11 000 (320–36 000)	6 900 (2 400–11 000)

Reported cases of MDR-TB 2012

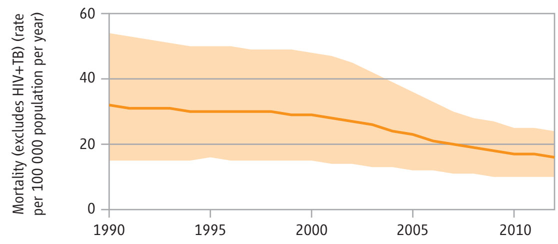
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	1 990 (1.1%)	1 617 (7.6%)	7 256
Laboratory-confirmed MDR-TB cases	104	468	2 236
Patients started on MDR-TB treatment			1 602

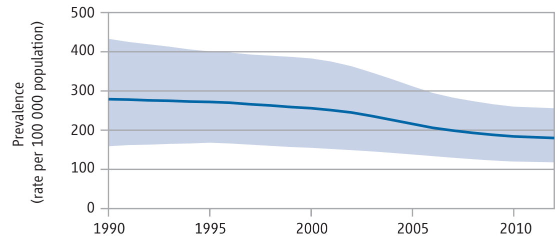
Financing TB control (low- and middle-income countries)[d]

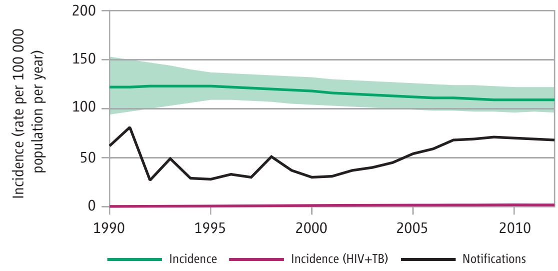
	2013
National TB programme budget (US$ millions)	188
% Funded domestically	32
% Funded internationally	53
% Unfunded	16

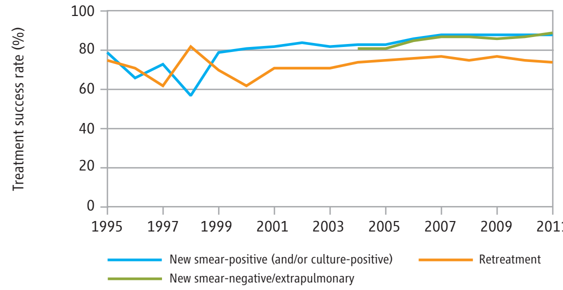
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

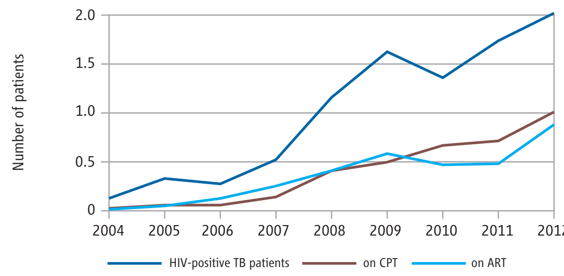
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

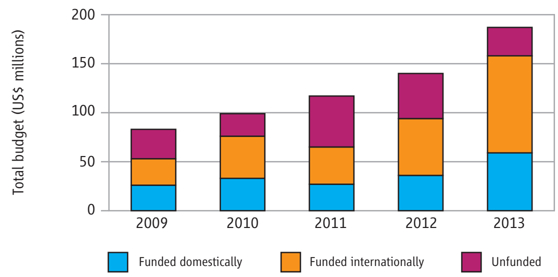












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Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	36 (35–36)	3.9 (3.9–4)
Mortality (HIV+TB only)	4 (3–4)	0.43 (0.38–0.49)
Prevalence (includes HIV+TB)	510 (380–650)	56 (42–72)
Incidence (includes HIV+TB)	360 (340–390)	40 (38–43)
Incidence (HIV+TB only)	19 (17–21)	2.1 (1.9–2.3)
Case detection, all forms (%)	74 (70–79)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	78 336	(32)	Relapse	25 185	(27)
Smear-negative	118 614	(49)	Treatment after failure	11 542	(12)
Smear-unknown / not done	6 257	(2.6)	Treatment after default	4 883	(5.3)
Extrapulmonary	39 029	(16)	Other	51 237	(55)
Other	30	(<1)			
Total new	**242 266**		**Total retreatment**	**92 847**	
Other (history unknown)	2 054				
Total new and relapse	**267 451**		**Total cases notified**	**337 167**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	2.4	1.9	1.2
Age < 15	325	2 681	7 036

Laboratories 2012

	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	8 out of 53
Culture (per 5 million population) ≥ 1	37 out of 53
Drug susceptibility testing (per 5 million population) ≥ 1	32 out of 53

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	65
New smear-negative/extrapulmonary	79
Retreatment	47
MDR-TB (2010 cohort)	49

TB/HIV 2012

	NUMBER	(%)[c]
TB patients with known HIV status	203 705	(60)
HIV-positive TB patients	12 900	(6.3)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	1 249	(67)
HIV-positive TB patients on antiretroviral therapy (ART)	5 414	(74)
HIV-positive people screened for TB	23 567	
HIV-positive people provided with IPT	17 938	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	16 (9.5–22)	45 (39–51)
MDR-TB cases among notified pulmonary TB cases	32 000 (19 000–45 000)	42 000 (36 000–48 000)

Reported cases of MDR-TB 2012

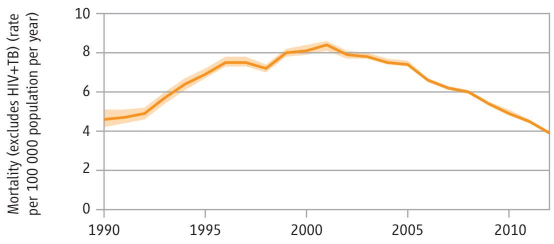
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	85 962 (73%)	37 774 (41%)	125 655
Laboratory-confirmed MDR-TB cases	13 393	18 372	37 769
Patients started on MDR-TB treatment			42 399

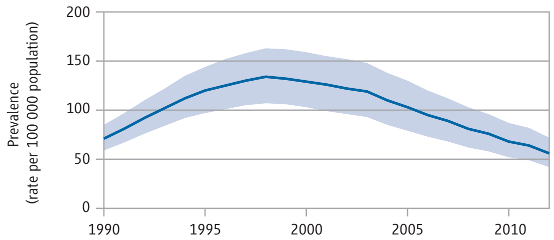
Financing TB control (low- and middle-income countries)[d]

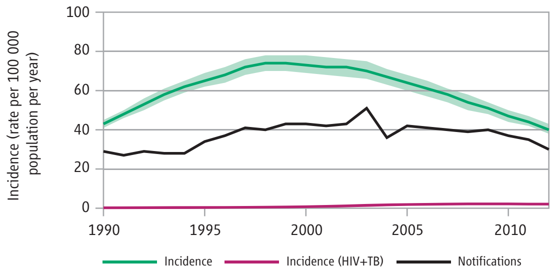
	2013
National TB programme budget (US$ millions)	2 217
% Funded domestically	92
% Funded internationally	3.7
% Unfunded	4.3

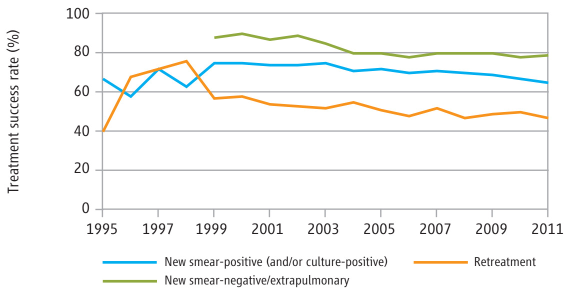
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

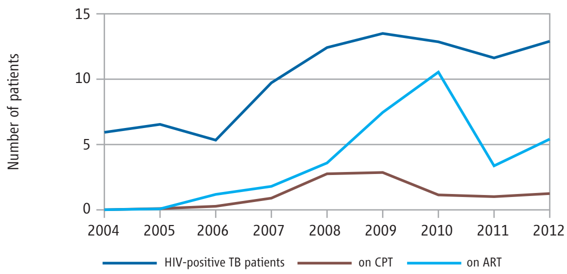
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

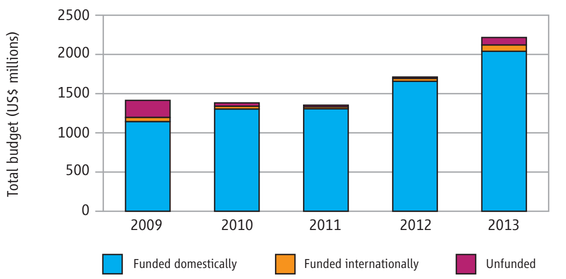












WHO MEMBER STATES 11

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	450 (330–590)	25 (18–32)
Mortality (HIV+TB only)	51 (46–56)	2.8 (2.5–3.1)
Prevalence (includes HIV+TB)	4 800 (3 700–6 100)	264 (203–333)
Incidence (includes HIV+TB)	3 400 (3 200–3 700)	187 (174–200)
Incidence (HIV+TB only)	170 (160–180)	9.2 (8.5–10)
Case detection, all forms (%)	62 (58–67)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	1 065 852	(53)	Relapse	131 245	(39)
Smear-negative	586 455	(29)	Treatment after failure	22 348	(6.7)
Smear-unknown / not done	0	(0)	Treatment after default	69 100	(21)
Extrapulmonary	338 303	(17)	Other	109 887	(33)
Other	3 004	(<1)			
Total new	**1 993 614**		**Total retreatment**	**332 580**	
Other (history unknown)	5 261				
Total new and relapse	**2 124 859**		**Total cases notified**	**2 331 455**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	2.0	1.4	1.0
Age < 15	17 116	26 320	7 782

Laboratories 2012

	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	9 out of 11
Culture (per 5 million population) ≥ 1	3 out of 11
Drug susceptibility testing (per 5 million population) ≥ 1	2 out of 11

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	89
New smear-negative/extrapulmonary	89
Retreatment	75
MDR-TB (2010 cohort)	46

TB/HIV 2012

	NUMBER	(%)[c]
TB patients with known HIV status	904 223	(39)
HIV-positive TB patients	56 093	(6.2)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	45 415	(89)
HIV-positive TB patients on antiretroviral therapy (ART)	34 167	(61)
HIV-positive people screened for TB	1 351 768	
HIV-positive people provided with IPT	8	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.2 (1.6–2.8)	16 (11–21)
MDR-TB cases among notified pulmonary TB cases	36 000 (26 000–46 000)	54 000 (37 000–70 000)

Reported cases of MDR-TB 2012

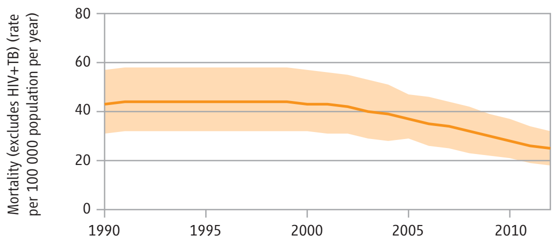
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	1 352 (<1%)	2 292 (<1%)	66 757
Laboratory-confirmed MDR-TB cases	43	1 273	19 202
Patients started on MDR-TB treatment			15 845

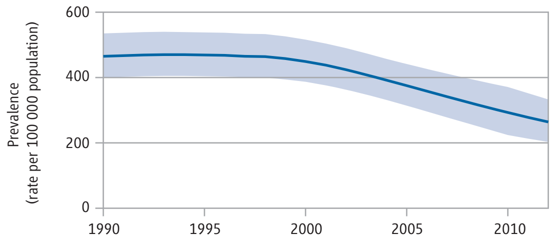
Financing TB control (low- and middle-income countries)[d]

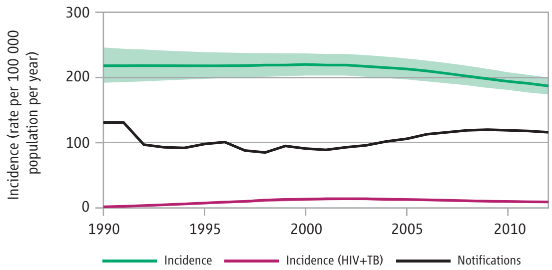
	2013
National TB programme budget (US$ millions)	469
% Funded domestically	30
% Funded internationally	41
% Unfunded	29

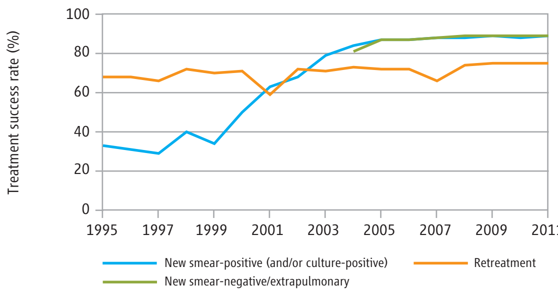
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

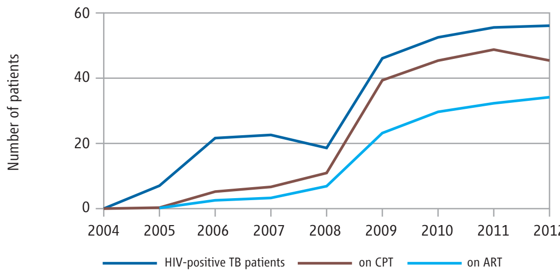
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

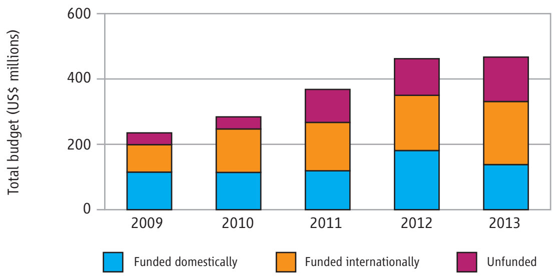












WHO MEMBER STATES 27
OTHER COUNTRIES AND TERRITORIES 9

Estimates of TB burden[a] 2012

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	110 (96–120)	5.8 (5.2–6.4)
Mortality (HIV+TB only)	5 (4–5)	0.26 (0.23–0.29)
Prevalence (includes HIV+TB)	2 400 (2 100–2 600)	128 (115–142)
Incidence (includes HIV+TB)	1 600 (1 500–1 800)	87 (80–95)
Incidence (HIV+TB only)	24 (21–27)	1.3 (1.1–1.5)
Case detection, all forms (%)	81 (75–89)	

TB case notifications 2012

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	500 171	(40)	Relapse	45 277	(57)
Smear-negative	691 714	(55)	Treatment after failure	3 714	(4.6)
Smear-unknown / not done	9 751	(<1)	Treatment after default	3 137	(3.9)
Extrapulmonary	59 294	(4.7)	Other	27 889	(35)
Other	3 287	(<1)			
Total new	**1 264 217**		**Total retreatment**	**80 017**	
Other (history unknown)	1 232				
Total new and relapse	**1 309 494**		**Total cases notified**	**1 345 466**	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/ NOT DONE	EXTRAPULMONARY
M:F ratio	2.4	2.0	1.0
Age < 15	2 693	4 945	767

Laboratories 2012

	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	12 out of 17
Culture (per 5 million population) ≥ 1	11 out of 17
Drug susceptibility testing (per 5 million population) ≥ 1	4 out of 17

Treatment success rate 2011 (%)

New smear-positive and/or culture-positive	94
New smear-negative/extrapulmonary	93
Retreatment	86
MDR-TB (2010 cohort)	46

TB/HIV 2012

	NUMBER	(%)[c]
TB patients with known HIV status	451 302	(34)
HIV-positive TB patients	14 119	(3.1)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	5 088	(79)
HIV-positive TB patients on antiretroviral therapy (ART)	7 722	(56)
HIV-positive people screened for TB	308 193	
HIV-positive people provided with IPT	8 557	

Estimates of MDR-TB burden 2012[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	4.7 (3.3–6.1)	22 (18–26)
MDR-TB cases among notified pulmonary TB cases	57 000 (40 000–74 000)	18 000 (14 000–21 000)

Reported cases of MDR-TB 2012

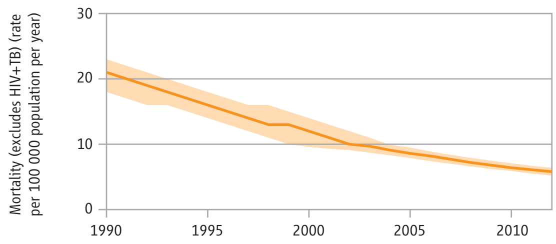
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	16 485 (3.3%)	8 134 (10%)	33 909
Laboratory-confirmed MDR-TB cases	943	2 602	4 473
Patients started on MDR-TB treatment			5 070

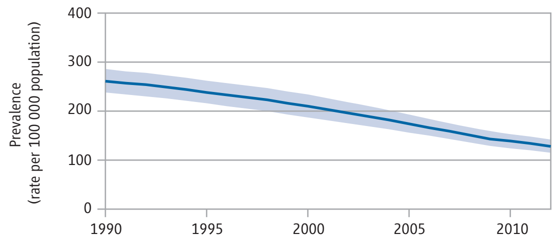
Financing TB control (low- and middle-income countries)[d]

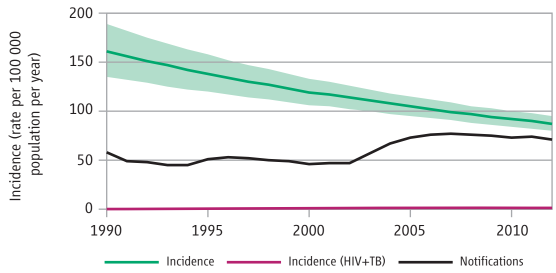
	2013
National TB programme budget (US$ millions)	662
% Funded domestically	50
% Funded internationally	15
% Unfunded	36

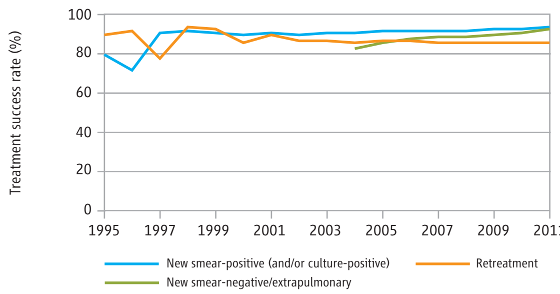
Data are as reported to WHO. Estimates of TB and MDR-TB burden are produced by WHO in consultation with countries.

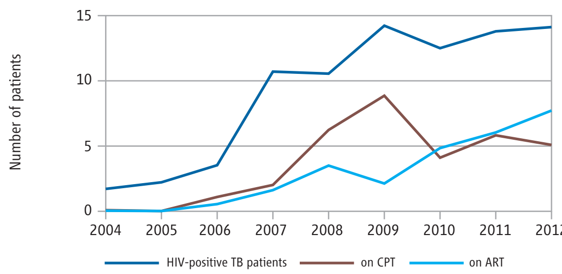
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

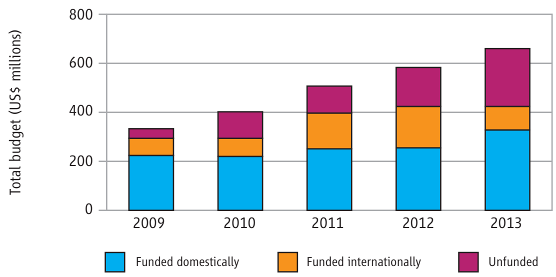












ANNEX 4

Key indicators for the world, WHO regions and individual countries

SUMMARY BY WHO REGION

Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See **ANNEX 1** for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. The main updates implemented in this report are explained in Box 2.1 of Chapter 2. *Estimates published in previous global TB control reports should no longer be used*.

Data source

Data shown in this annex are taken from the WHO global TB database on 1 October 2013. Data shown in the main part of the report were taken from the database in July 2013. As a result, data in this annex may differ slightly from those in the main part of the report.

Data for all years can be downloaded from www.who.int/tb/data.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Global	1990	5 298	1 300 (1 100–1 500)	25 (21–29)	15 000 (13 000–16 000)	274 (249–302)	7 800 (7 200–8 500)	147 (136–160)
	1995	5 718	1 400 (1 100–1 600)	24 (20–28)	16 000 (14 000–17 000)	275 (251–301)	8 400 (7 900–9 000)	148 (139–157)
	2000	6 102	1 400 (1 100–1 600)	22 (18–27)	16 000 (14 000–18 000)	263 (237–290)	9 000 (8 500–9 500)	148 (139–156)
	2005	6 489	1 200 (1 000–1 400)	19 (16–22)	15 000 (13 000–16 000)	225 (200–250)	9 200 (8 700–9 700)	142 (134–150)
	2010	6 890	1 000 (850–1 200)	15 (12–17)	13 000 (11 000–14 000)	182 (160–205)	8 800 (8 400–9 100)	128 (123–133)
	2011	6 972	980 (820–1 100)	14 (12–16)	12 000 (11 000–14 000)	176 (155–198)	8 700 (8 400–9 100)	125 (120–130)
	2012	7 054	940 (790–1 100)	13 (11–16)	12 000 (11 000–13 000)	169 (149–190)	8 600 (8 300–9 000)	122 (117–127)
Africa	1990	503	210 (120–340)	43 (24–67)	2 000 (1 300–3 000)	404 (254–590)	1 200 (950–1 600)	245 (189–309)
	1995	577	230 (140–350)	41 (24–61)	2 300 (1 600–3 200)	405 (276–558)	1 600 (1 300–1 900)	275 (226–329)
	2000	655	250 (130–400)	38 (20–61)	2 600 (1 700–3 700)	397 (257–567)	2 000 (1 700–2 400)	310 (255–370)
	2005	744	240 (130–390)	32 (17–53)	2 700 (1 800–3 800)	364 (239–515)	2 300 (2 000–2 700)	310 (263–361)
	2010	847	230 (160–310)	27 (19–36)	2 700 (2 100–3 300)	318 (249–395)	2 300 (2 100–2 500)	271 (249–293)
	2011	870	230 (160–310)	26 (18–35)	2 700 (2 100–3 300)	310 (244–383)	2 300 (2 100–2 500)	262 (242–284)
	2012	893	230 (160–310)	26 (18–35)	2 700 (2 100–3 300)	303 (239–373)	2 300 (2 100–2 500)	255 (235–275)
The Americas	1990	727	43 (35–52)	5.9 (4.8–7.1)	750 (540–990)	103 (74–136)	430 (370–490)	59 (51–68)
	1995	783	37 (32–42)	4.7 (4.1–5.4)	600 (470–750)	76 (59–95)	380 (360–410)	49 (46–52)
	2000	841	29 (25–33)	3.5 (3.0–4.0)	510 (390–640)	60 (47–76)	340 (320–370)	41 (38–43)
	2005	892	24 (21–27)	2.7 (2.3–3.1)	440 (340–550)	49 (38–61)	310 (290–330)	34 (32–36)
	2010	942	21 (18–24)	2.2 (1.9–2.5)	390 (300–490)	41 (32–52)	280 (260–300)	30 (28–32)
	2011	951	19 (17–22)	2 (1.8–2.3)	400 (300–500)	42 (32–53)	280 (260–300)	30 (28–32)
	2012	961	19 (16–21)	1.9 (1.7–2.2)	390 (300–490)	40 (31–51)	280 (260–300)	29 (27–31)
Eastern Mediterranean	1990	378	120 (57–200)	32 (15–54)	1 100 (600–1 600)	279 (159–433)	460 (360–580)	122 (94–153)
	1995	429	130 (67–210)	30 (16–50)	1 200 (720–1 700)	272 (168–401)	530 (470–590)	123 (109–137)
	2000	480	140 (70–230)	29 (15–48)	1 200 (740–1 800)	256 (155–383)	560 (500–630)	118 (104–132)
	2005	533	120 (65–190)	23 (12–36)	1 200 (740–1 700)	216 (138–312)	600 (530–670)	112 (99–126)
	2010	593	100 (61–150)	17 (10–25)	1 100 (710–1 500)	184 (120–260)	650 (570–720)	109 (96–122)
	2011	605	100 (62–150)	17 (10–25)	1 100 (720–1 600)	182 (119–258)	660 (580–740)	109 (97–122)
	2012	617	100 (63–150)	16 (10–24)	1 100 (730–1 600)	180 (118–256)	670 (590–750)	109 (96–122)
Europe	1990	849	39 (36–43)	4.6 (4.2–5.1)	610 (500–720)	71 (59–85)	370 (350–380)	43 (41–45)
	1995	863	60 (58–62)	6.9 (6.7–7.2)	1 000 (840–1 200)	120 (97–144)	560 (530–590)	65 (62–69)
	2000	870	71 (69–73)	8.1 (7.9–8.4)	1 100 (890–1 400)	129 (103–159)	640 (600–680)	73 (69–78)
	2005	882	66 (64–67)	7.4 (7.3–7.6)	910 (700–1 100)	103 (79–130)	570 (530–600)	64 (60–68)
	2010	899	44 (43–46)	4.9 (4.8–5.1)	620 (470–790)	68 (52–87)	420 (400–450)	47 (44–50)
	2011	902	40 (39–41)	4.5 (4.4–4.6)	580 (440–740)	64 (49–82)	400 (380–430)	44 (42–47)
	2012	905	36 (35–36)	3.9 (3.9–4.0)	510 (380–650)	56 (42–72)	360 (340–390)	40 (38–43)
South-East Asia	1990	1 310	570 (410–750)	43 (31–57)	6 100 (5 200–7 000)	465 (400–535)	2 900 (2 500–3 200)	218 (192–246)
	1995	1 435	640 (460–840)	44 (32–58)	6 700 (5 800–7 700)	469 (404–538)	3 100 (2 800–3 400)	218 (198–239)
	2000	1 560	680 (500–890)	43 (32–57)	7 000 (6 000–8 100)	449 (387–516)	3 400 (3 200–3 700)	220 (203–237)
	2005	1 682	620 (480–780)	37 (29–47)	6 300 (5 300–7 400)	375 (314–442)	3 600 (3 300–3 900)	213 (197–229)
	2010	1 790	500 (370–660)	28 (21–37)	5 200 (4 000–6 600)	293 (224–371)	3 500 (3 200–3 700)	194 (181–208)
	2011	1 812	480 (350–620)	26 (19–34)	5 000 (3 900–6 400)	278 (213–352)	3 500 (3 200–3 700)	191 (177–204)
	2012	1 833	450 (330–590)	25 (18–32)	4 800 (3 700–6 100)	264 (203–333)	3 400 (3 200–3 700)	187 (174–200)
Western Pacific	1990	1 532	320 (280–350)	21 (18–23)	4 000 (3 600–4 400)	261 (238–286)	2 500 (2 100–2 900)	161 (135–189)
	1995	1 630	260 (230–300)	16 (14–18)	3 900 (3 500–4 300)	238 (216–262)	2 300 (2 000–2 600)	138 (120–158)
	2000	1 697	200 (160–230)	12 (9.6–14)	3 600 (3 200–4 000)	210 (187–234)	2 000 (1 800–2 300)	119 (106–133)
	2005	1 756	150 (140–170)	8.6 (7.9–9.5)	3 100 (2 700–3 400)	174 (156–193)	1 800 (1 700–2 000)	105 (95–115)
	2010	1 820	120 (110–130)	6.4 (5.9–7.1)	2 500 (2 300–2 800)	139 (124–153)	1 700 (1 500–1 800)	92 (84–100)
	2011	1 833	110 (100–120)	6.1 (5.5–6.7)	2 500 (2 200–2 700)	134 (120–148)	1 600 (1 500–1 800)	90 (82–98)
	2012	1 846	110 (96–120)	5.8 (5.2–6.4)	2 400 (2 100–2 600)	128 (115–142)	1 600 (1 500–1 800)	87 (80–95)

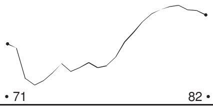
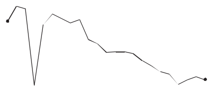
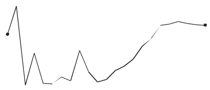
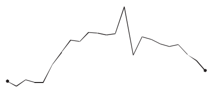
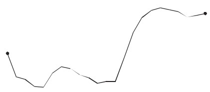
[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Global	1990	5 298	7 800 (7 200–8 500)	147 (136–160)	280 (230–320)	5.2 (4.4–6.1)	3 740 222	71	48 (44–52)
	1995	5 718	8 400 (7 900–9 000)	148 (139–157)	620 (560–680)	11 (9.8–12)	3 400 278	59	40 (38–43)
	2000	6 102	9 000 (8 500–9 500)	148 (139–156)	1 100 (960–1 200)	17 (16–19)	3 748 455	61	42 (39–44)
	2005	6 489	9 200 (8 700–9 700)	142 (134–150)	1 300 (1 200–1 400)	20 (18–21)	5 148 342	79	56 (53–59)
	2010	6 890	8 800 (8 400–9 100)	128 (123–133)	1 100 (1 100–1 200)	17 (15–18)	5 792 075	84	66 (63–69)
	2011	6 972	8 700 (8 400–9 100)	125 (120–130)	1 100 (1 000–1 200)	16 (15–17)	5 833 253	84	67 (64–70)
	2012	7 054	8 600 (8 300–9 000)	122 (117–127)	1 100 (1 000–1 200)	15 (14–16)	5 776 838	82	67 (64–70)
Africa	1990	503	1 200 (950–1 600)	245 (189–309)	230 (190–280)	46 (38–56)	418 520	83	34 (27–44)
	1995	577	1 600 (1 300–1 900)	275 (226–329)	460 (410–520)	80 (71–91)	504 377	87	32 (27–39)
	2000	655	2 000 (1 700–2 400)	310 (255–370)	780 (690–880)	119 (105–134)	794 464	121	39 (33–48)
	2005	744	2 300 (2 000–2 700)	310 (263–361)	960 (850–1 100)	130 (115–145)	1 188 876	160	52 (44–61)
	2010	847	2 300 (2 100–2 500)	271 (249–293)	880 (800–950)	103 (94–113)	1 380 530	163	60 (56–65)
	2011	870	2 300 (2 100–2 500)	262 (242–284)	850 (780–930)	98 (89–107)	1 386 327	159	61 (56–66)
	2012	893	2 300 (2 100–2 500)	255 (235–275)	830 (760–910)	93 (85–102)	1 344 122	151	59 (55–64)
The Americas	1990	727	430 (370–490)	59 (51–68)	17 (14–20)	2.3 (2.0–2.7)	231 215	32	54 (47–63)
	1995	783	380 (360–410)	49 (46–52)	31 (28–33)	3.9 (3.6–4.3)	258 232	33	67 (63–72)
	2000	841	340 (320–370)	41 (38–43)	32 (30–35)	3.8 (3.5–4.2)	238 636	28	70 (65–75)
	2005	892	310 (290–330)	34 (32–36)	34 (31–37)	3.8 (3.5–4.1)	230 124	26	75 (71–81)
	2010	942	280 (260–300)	30 (28–32)	33 (30–36)	3.5 (3.1–3.8)	214 930	23	76 (71–82)
	2011	951	280 (260–300)	30 (28–32)	33 (30–36)	3.5 (3.1–3.8)	221 625	23	78 (73–84)
	2012	961	280 (260–300)	29 (27–31)	31 (28–34)	3.3 (3.0–3.6)	219 349	23	79 (74–85)
Eastern Mediterranean	1990	378	460 (360–580)	122 (94–153)	0.91 (0.77–1.1)	0.2 (0.20–0.28)	234 620	62	51 (40–66)
	1995	429	530 (470–590)	123 (109–137)	2.8 (2.5–3.2)	0.7 (0.59–0.74)	121 745	28	23 (21–26)
	2000	480	560 (500–630)	118 (104–132)	5.9 (5.3–6.6)	1.2 (1.1–1.4)	141 748	30	25 (22–28)
	2005	533	600 (530–670)	112 (99–126)	8.6 (7.6–9.6)	1.6 (1.4–1.8)	287 178	54	48 (43–54)
	2010	593	650 (570–720)	109 (96–122)	11 (9.9–12)	1.9 (1.7–2.1)	412 913	70	64 (57–72)
	2011	605	660 (580–740)	109 (97–122)	11 (9.7–12)	1.8 (1.6–1.9)	415 719	69	63 (56–71)
	2012	617	670 (590–750)	109 (96–122)	11 (10–12)	1.8 (1.6–2.0)	420 769	68	63 (56–71)
Europe	1990	849	370 (350–380)	43 (41–45)	1.8 (1.8–1.9)	0.2 (0.21–0.23)	242 429	29	66 (63–69)
	1995	863	560 (530–590)	65 (62–69)	3.4 (3.3–3.6)	0.4 (0.38–0.42)	289 874	34	51 (49–54)
	2000	870	640 (600–680)	73 (69–78)	6.7 (6.2–7.1)	0.8 (0.71–0.82)	373 094	43	59 (55–62)
	2005	882	570 (530–600)	64 (60–68)	17 (15–18)	1.9 (1.7–2.0)	368 624	42	65 (61–70)
	2010	899	420 (400–450)	47 (44–50)	20 (18–21)	2.2 (2.0–2.4)	328 254	37	77 (73–83)
	2011	902	400 (380–430)	44 (42–47)	19 (18–21)	2.1 (2.0–2.3)	312 588	35	78 (73–83)
	2012	905	360 (340–390)	40 (38–43)	19 (17–21)	2.1 (1.9–2.3)	286 765	32	79 (74–84)
South-East Asia	1990	1 310	2 900 (2 500–3 200)	218 (192–246)	22 (19–26)	1.7 (1.5–2.0)	1 719 365	131	60 (53–68)
	1995	1 435	3 100 (2 800–3 400)	218 (198–239)	110 (96–120)	7.5 (6.7–8.4)	1 401 096	98	45 (41–49)
	2000	1 560	3 400 (3 200–3 700)	220 (203–237)	210 (190–230)	13 (12–15)	1 414 228	91	41 (38–45)
	2005	1 682	3 600 (3 300–3 900)	213 (197–229)	220 (200–240)	13 (12–14)	1 789 388	106	50 (46–54)
	2010	1 790	3 500 (3 200–3 700)	194 (181–208)	180 (160–190)	9.9 (9.1–11)	2 124 237	119	61 (57–66)
	2011	1 812	3 500 (3 200–3 700)	191 (177–204)	170 (160–180)	9.4 (8.7–10)	2 142 573	118	62 (58–67)
	2012	1 833	3 400 (3 200–3 700)	187 (174–200)	170 (160–180)	9.2 (8.5–10)	2 130 120	116	62 (58–67)
Western Pacific	1990	1 532	2 500 (2 100–2 900)	161 (135–189)	1.8 (1.5–2.1)	0.1 (0.10–0.14)	894 073	58	36 (31–43)
	1995	1 630	2 300 (2 000–2 600)	138 (120–158)	8.6 (7.4–9.9)	0.5 (0.45–0.61)	824 954	51	37 (32–42)
	2000	1 697	2 000 (1 800–2 300)	119 (106–133)	17 (15–19)	1 (0.90–1.1)	786 285	46	39 (35–44)
	2005	1 756	1 800 (1 700–2 000)	105 (95–115)	24 (21–27)	1.4 (1.2–1.5)	1 284 152	73	70 (63–77)
	2010	1 820	1 700 (1 500–1 800)	92 (84–100)	24 (22–27)	1.3 (1.2–1.5)	1 331 211	73	80 (73–87)
	2011	1 833	1 600 (1 500–1 800)	90 (82–98)	24 (22–27)	1.3 (1.2–1.5)	1 354 421	74	83 (76–90)
	2012	1 846	1 600 (1 500–1 800)	87 (80–95)	24 (21–27)	1.3 (1.1–1.5)	1 375 713	75	85 (78–93)

[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES SMEAR-POSITIVE	NEW CASES SMEAR-NEGATIVE/ UNKNOWN	NEW CASES EXTRA-PULMONARY	NEW CASES OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Global		1990	3 740 222	30 046	22 393	4 237	0	734	49	783	29	57
		1995	3 400 278	1 175 290	1 811 850	262 728	5	59 240	0	59 240	44	39
		2000	3 748 455	1 541 607	1 615 263	399 677	37	115 334	236 107	351 441	229	49
		2005	5 148 342	2 413 708	1 722 281	686 525	8 111	259 937	406 355	666 292	18 172	58
		2010	5 792 075	2 655 557	2 002 463	806 373	12 870	285 966	418 071	704 037	28 846	57
		2011	5 833 253	2 630 564	2 037 926	817 668	12 164	284 815	413 363	698 178	50 116	56
	• 71 82 •	2012	5 776 838	2 563 744	2 084 246	813 960	9 689	288 119	393 437	681 556	17 080	55
Africa		1990	418 520	24 064	6 137	2 067	0	554	49	603	0	80
		1995	504 377	212 910	191 477	72 689	0	15 133	0	15 133	0	53
		2000	794 464	368 750	222 230	141 255	0	19 173	68 118	87 291	0	62
		2005	1 188 876	550 004	364 785	208 979	2 941	60 092	66 449	126 541	2 075	60
		2010	1 380 530	601 149	477 516	247 020	561	53 967	94 506	148 473	317	56
		2011	1 386 327	606 085	467 022	240 839	1 073	52 357	74 545	126 902	18 951	56
	• 83 151 •	2012	1 344 122	600 355	446 213	234 707	977	60 085	67 960	128 045	1 785	57
The Americas		1990	231 215	1 542	516	723	0	180	0	180	29	75
		1995	258 232	138 932	72 312	32 991	5	1 723	0	1 723	44	66
		2000	238 636	131 294	60 392	32 037	37	10 834	14 344	25 178	56	68
		2005	230 124	124 840	56 056	33 285	3 685	10 152	12 481	22 633	2 106	69
		2010	214 930	116 994	52 265	32 240	2 133	10 413	12 133	22 546	885	69
		2011	221 625	122 010	51 165	34 048	1 502	10 087	11 856	21 943	2 813	70
	• 32 23 •	2012	219 349	122 730	50 338	34 496	1 636	10 100	13 879	23 979	49	71
Eastern Mediterranean		1990	234 620	1 587	12 394	754	0	0	0	0	0	11
		1995	121 745	46 851	51 823	33 382	0	2 407	0	2 407	0	47
		2000	141 748	60 959	34 289	40 754	0	5 568	0	5 568	0	64
		2005	287 178	113 765	102 274	64 612	12	6 495	5 334	11 829	20	53
		2010	412 913	168 627	137 301	92 070	633	11 203	8 713	19 916	3 079	55
		2011	415 719	170 748	135 388	93 605	623	11 223	10 102	21 325	4 132	56
	• 62 68 •	2012	420 769	173 963	143 869	90 943	702	11 208	10 020	21 228	84	55
Europe		1990	242 429	0	0	0	0	0	0	0	0	
		1995	289 874	104 444	146 592	29 866	0	7 927	0	7 927	0	42
		2000	373 094	94 442	208 147	35 081	0	21 607	19 127	40 734	173	31
		2005	368 624	96 121	157 237	49 747	0	22 248	64 831	87 079	3 663	38
		2010	328 254	91 324	145 140	40 951	8 008	24 304	60 736	85 040	18 527	39
		2011	312 588	85 551	136 456	46 012	3 381	24 628	67 986	92 614	16 560	39
	• 29 32 •	2012	286 765	80 453	129 293	43 134	83	25 133	65 121	90 254	8 669	38
South-East Asia		1990	1 719 365	2 769	3 241	656	0	0	0	0	0	46
		1995	1 401 096	357 882	939 945	76 865	0	5 546	0	5 546	0	28
		2000	1 414 228	510 053	741 471	120 708	0	27 095	80 444	107 539	0	41
		2005	1 789 388	857 371	594 185	242 332	1 439	93 859	158 215	252 074	202	59
		2010	2 124 237	1 047 013	615 463	328 421	1 508	130 714	208 542	339 256	1 118	63
		2011	2 142 573	1 067 367	598 800	333 993	2 878	135 650	215 554	351 204	3 885	64
	• 131 116 •	2012	2 130 120	1 065 852	586 455	338 303	3 004	131 245	201 335	332 580	5 261	65
Western Pacific		1990	894 073	84	105	37	0	0	0	0	0	44
		1995	824 954	314 271	409 701	16 935	0	26 504	0	26 504	0	43
		2000	786 285	376 109	348 734	29 842	0	31 057	54 074	85 131	0	52
		2005	1 284 152	671 607	447 744	87 570	34	67 091	99 045	166 136	10 106	60
		2010	1 331 211	630 450	574 778	65 671	27	55 365	33 441	88 806	4 920	52
		2011	1 354 421	578 803	649 095	69 171	2 707	50 870	33 320	84 190	3 775	47
	• 58 75 •	2012	1 375 713	520 391	728 078	72 377	3 287	50 348	35 122	85 470	1 232	42

[a] Rates are per 100 000 population.

[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

SUMMARY BY WHO REGION

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

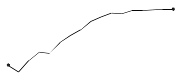
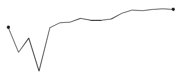
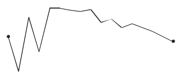
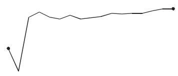
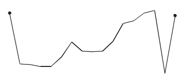
	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Global		1995	1 175 290	1 000 581	85	40	17	3	1	5	34
		2000	1 541 607	1 452 991	94	60	9	4	1	7	19
		2005	2 413 708	2 396 387	99	77	7	4	2	5	4
		2009	2 662 588	2 664 704	100	80	7	4	2	4	4
		2010	2 655 557	2 661 653	100	80	7	4	2	4	3
	• 57 87 •	2011	2 630 564	2 610 821	99	80	7	4	2	4	4
Africa		1995	212 910	177 567	83	46	14	6	2	12	20
		2000	368 750	364 804	99	59	12	7	1	11	10
		2005	550 004	563 750	102	62	13	7	1	9	7
		2009	607 254	605 932	100	70	10	5	1	6	7
		2010	601 149	598 985	100	72	9	5	1	6	6
	• 60 82 •	2011	606 085	578 920	96	72	10	5	1	6	6
The Americas		1995	138 932	128 531	93	37	14	3	1	6	39
		2000	131 294	110 642	84	60	17	5	1	8	11
		2005	124 840	118 840	95	55	24	5	1	7	9
		2009	110 614	122 534	111	53	23	5	1	8	11
		2010	116 994	126 450	108	53	22	5	1	8	11
	• 50 78 •	2011	122 010	126 859	104	54	23	5	2	7	9
Eastern Mediterranean		1995	46 851	46 318	99	60	19	2	3	13	4
		2000	60 959	63 749	105	69	12	4	2	8	6
		2005	113 765	113 742	100	72	11	3	1	8	5
		2009	168 013	167 317	100	74	14	3	1	5	3
		2010	168 627	169 872	101	74	14	2	1	5	3
	• 79 88 •	2011	170 748	170 903	100	74	14	2	1	5	4
Europe		1995	104 444	33 823	32	58	10	6	6	4	16
		2000	94 442	41 480	44	47	28	5	6	6	7
		2005	96 121	81 410	85	59	13	8	7	7	5
		2009	100 493	105 441	105	56	13	8	12	6	5
		2010	91 324	98 689	108	54	13	8	12	6	7
	• 67 66 •	2011	85 551	106 626	125	51	15	8	8	6	12
South-East Asia		1995	357 882	318 410	89	9	23	1	0	2	64
		2000	510 053	512 286	100	44	6	2	1	7	40
		2005	857 371	855 962	100	83	4	4	2	6	1
		2009	1 028 656	1 022 380	99	85	3	4	2	5	1
		2010	1 047 013	1 045 179	100	85	4	4	2	5	1
	• 33 89 •	2011	1 067 367	1 064 879	100	85	4	4	2	5	1
Western Pacific		1995	314 271	295 932	94	67	13	2	1	4	13
		2000	376 109	360 030	96	85	5	2	1	2	4
		2005	671 607	662 683	99	89	3	2	1	1	3
		2009	647 558	641 100	99	90	3	2	1	1	3
		2010	630 450	622 478	99	90	3	2	1	1	3
	• 80 94 •	2011	578 803	562 634	97	91	3	2	1	1	2

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Global		1995	59 240	71 395	121	82	4	3	3	3	4
		2000	351 441	188 509	54	60	10	6	4	11	10
		2005	666 292	546 182	82	51	19	7	4	12	6
		2009	673 854	594 019	88	49	23	7	6	10	5
		2010	704 037	613 895	87	47	22	7	5	10	10
	• 86 72 •	2011	698 178	601 904	86	48	24	7	5	10	7
Africa		1995	15 133	5 756	38	57	12	9	3	12	6
		2000	87 291	44 147	51	47	11	9	3	16	14
		2005	126 541	114 838	91	35	27	11	3	13	12
		2009	144 320	94 342	65	50	20	9	3	9	10
		2010	148 473	113 405	76	41	13	6	3	7	31
	• 69 68 •	2011	126 902	85 278	67	53	15	7	3	9	12
The Americas		1995	1 723	1 104	64	61	11	6	4	11	8
		2000	25 178	15 302	61	47	8	5	3	12	25
		2005	22 633	18 603	82	38	16	6	2	15	21
		2009	21 492	19 158	89	29	22	8	3	19	21
		2010	22 546	17 499	78	26	23	7	2	20	21
	• 72 51 •	2011	21 943	20 228	92	27	24	8	3	20	18
Eastern Mediterranean		1995	2 407	1 860	77	61	14	3	4	12	5
		2000	5 568	4 217	76	51	11	6	7	15	11
		2005	11 829	12 860	109	60	15	5	4	10	6
		2009	17 964	16 332	91	56	21	4	3	10	6
		2010	19 916	18 326	92	54	21	4	3	10	8
	• 75 74 •	2011	21 325	22 191	104	52	22	4	3	10	8
Europe		1995	7 927	480	6	20	20	11	8	32	8
		2000	40 734	10 739	26	39	19	9	14	11	8
		2005	87 079	39 497	45	32	18	11	13	14	10
		2009	67 190	58 966	88	27	22	11	22	11	7
		2010	85 040	58 698	69	25	25	11	16	10	13
	• 40 47 •	2011	92 614	58 831	64	24	23	10	15	10	18
South-East Asia		1995	5 546	3 271	59	62	6	4	5	15	8
		2000	107 539	59 337	55	57	14	6	5	15	3
		2005	252 074	254 378	101	49	22	7	5	15	2
		2009	331 424	332 286	100	48	27	7	4	12	2
		2010	339 256	338 748	100	47	28	7	4	12	2
	• 68 75 •	2011	351 204	350 251	100	45	30	7	4	11	3
Western Pacific		1995	26 504	58 924	222	88	2	3	3	1	3
		2000	85 131	54 767	64	83	3	2	2	1	9
		2005	166 136	106 006	64	81	6	3	3	2	6
		2009	91 464	72 935	80	79	7	3	2	2	7
		2010	88 806	67 219	76	79	7	3	2	2	7
	• 90 86 •	2011	84 190	65 125	77	80	6	3	3	2	6

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Global		2005	8.3	463 027	5 554 697	103 683	22	76	35	25 938
		2010	34	2 080 846	6 210 146	493 186	24	81	46	204 802
		2011	40	2 526 072	6 246 616	569 074	23	82	49	446 598
	• 8 46 •	2012	46	2 808 221	6 170 275	549 769	20	79	57	518 670
Africa		2005	11	140 713	1 255 325	73 332	52	78	29	22 211
		2010	60	888 765	1 475 036	394 332	44	81	44	182 524
		2011	69	1 013 342	1 460 872	465 647	46	82	47	438 121
	• 11 74 •	2012	74	1 040 262	1 412 082	443 558	43	79	55	473 214
The Americas		2005	35	84 032	242 605	14 232	17	10	81	3 727
		2010	53	121 421	227 063	19 615	16	50	63	12 906
		2011	56	129 613	233 481	20 497	16	41	69	1 705
	• 35 57 •	2012	57	132 943	233 228	20 798	16	63	77	18 710
Eastern Mediterranean		2005	0.88	2 582	292 512	330	13	18	16	0
		2010	11	44 596	421 626	1 360	3	50	44	253
		2011	11	48 271	425 821	1 738	3.6	60	31	52
	• 1 14 •	2012	14	58 498	430 789	2 036	3.5	69	49	243
Europe		2005	40	171 248	433 455	6 543	2.8	25	16	0
		2010	55	212 727	388 990	12 858	5.9	58	61	6 575
		2011	57	215 256	380 574	11 790	5.3	63	58	4 565
	• 40 60 •	2012	60	212 880	351 886	13 103	6.2	71	62	17 938
South-East Asia		2005	1.6	31 847	1 947 603	7 025	22	50	31	0
		2010	23	546 350	2 332 779	52 519	9.6	86	56	581
		2011	33	767 813	2 358 127	55 608	7.2	88	58	368
	• 2 39 •	2012	39	909 026	2 331 455	56 093	6.2	89	61	8
Western Pacific		2005	2.4	32 605	1 383 197	2 221	6.8	31	33	0
		2010	20	266 987	1 364 652	12 502	4.6	55	41	1 963
		2011	25	351 777	1 387 741	13 794	3.9	71	48	1 787
	• 2 32 •	2012	32	454 612	1 410 835	14 181	3.1	79	56	8 557

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Global	2005	11988			72870	2.9		24002	3.6
	2010	54887			118835	4		47315	6.7
	2011	61907			133064	4.6		48124	6.9
	2012	85085	310 000 (230 000–380 000)	170 000 (98 000–240 000)	153626	5.7	140 000 (91 000–190 000)	60589	8.9
Africa	2005	2445			1826	0.32		3922	3.1
	2010	9340			2732	0.36		4294	2.9
	2011	12384			1311	0.19		3707	2.9
	2012	18146	38 000 (14 000–62 000)	24 000 (2 100–46 000)	2565	0.39	14 000 (5 600–22 000)	4118	3.2
The Americas	2005	4427			14568	11		11003	49
	2010	2661			11309	8.6		4234	19
	2011	3474			13334	10		4234	19
	2012	2967	7 100 (4 600–9 600)	3 800 (2 400–5 200)	29869	23	3 200 (1 100–5 300)	5565	23
Eastern Mediterranean	2005	350			1442	1.3		94	0.79
	2010	873			2397	1.4		1257	6.3
	2011	841			2264	1.2		1466	6.9
	2012	2249	18 000 (0–42 000)	11 000 (320–36 000)	1990	1.1	6 900 (2 400–11 000)	1617	7.6
Europe	2005	4347			34527	27		7024	8.1
	2010	33776			89005	68		34212	40
	2011	34199			89438	67		31646	34
	2012	36772	74 000 (60 000–88 000)	33 000 (20 000–46 000)	92580	76	41 000 (35 000–46 000)	38268	42
South-East Asia	2005	68			661	<0.1		420	0.17
	2010	3942			1073	0.1		1264	0.37
	2011	6615			1204	0.1		1935	0.55
	2012	19202	90 000 (71 000–110 000)	36 000 (26 000–46 000)	1352	0.13	54 000 (37 000–70 000)	2292	0.69
Western Pacific	2005	351			19846	2.9		1539	0.93
	2010	4295			12319	1.7		2054	2.3
	2011	4394			25513	4.2		5136	6.1
	2012	5749	78 000 (60 000–95 000)	59 000 (41 000–76 000)	25270	4.6	19 000 (15 000–23 000)	8729	10

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

	YEAR	MALE								FEMALE								MALE:FEMALE RATIO
		0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	
Global	1995	7 491	48 816	76 799	65 678	49 514	41 756	34 776	0	7 730	41 378	50 102	32 741	22 688	17 816	16 686	0	1.7
	2000	12 387	115 250	172 896	156 274	121 277	82 844	75 156	0	14 749	94 641	110 306	74 705	49 823	33 696	33 829	0	1.8
	2005	18 415	242 356	329 720	312 526	261 233	184 836	166 858	42	26 178	199 700	220 530	153 503	106 029	72 022	65 717	15	1.8
	2010	20 239	268 884	345 937	336 981	298 715	227 530	186 815	7 502	28 825	210 729	225 986	163 260	118 565	86 264	75 368	2 601	1.9
	2011	19 701	265 503	349 803	333 792	300 666	229 756	183 782	579	28 133	209 821	224 552	162 884	119 644	87 668	74 004	313	1.9
	2012	17 046	246 030	330 650	321 408	290 214	225 684	177 736	268	24 834	197 407	210 454	153 967	115 659	86 968	74 189	172	1.9
Africa	1995	2 910	16 754	28 172	20 240	12 017	7 008	4 104	0	3 167	15 873	19 005	11 339	6 643	3 655	1 734	0	1.5
	2000	3 625	29 522	47 654	34 435	17 923	8 970	5 751	0	4 315	29 530	35 386	20 037	9 402	4 581	2 578	0	1.4
	2005	7 635	54 066	94 388	71 072	40 974	18 931	12 143	0	10 023	57 115	75 056	43 213	22 855	11 047	7 163	0	1.3
	2010	8 393	57 146	98 636	78 660	48 543	24 094	14 478	17	10 287	55 537	76 051	47 070	26 299	13 522	8 685	9	1.4
	2011	8 551	59 072	105 549	81 247	49 967	24 393	14 732	516	10 632	57 027	76 968	47 873	26 401	13 543	8 843	301	1.4
	2012	6 032	51 158	96 915	79 312	46 870	23 665	14 186	31	8 003	48 828	67 255	43 481	23 378	12 683	8 642	37	1.5
The Americas	1995	437	2 888	3 443	3 157	2 448	1 866	2 251	0	431	2 293	2 434	1 654	1 109	912	1 311	0	1.6
	2000	3 464	18 564	21 869	19 787	15 138	9 899	9 717	0	3 535	15 305	14 961	10 323	7 294	5 038	5 894	0	1.6
	2005	1 520	16 410	16 671	14 369	12 340	7 801	7 951	0	1 718	12 405	11 563	7 891	5 933	3 788	4 751	0	1.6
	2010	1 050	11 461	14 267	11 332	10 627	7 433	7 084	59	1 137	8 405	8 496	5 818	4 880	3 467	4 068	22	1.7
	2011	1 103	12 436	15 023	11 704	11 234	7 709	7 198	56	1 241	8 517	8 766	5 875	4 973	3 690	4 243	9	1.8
	2012	935	12 125	14 784	11 278	10 716	7 596	6 989	67	1 044	8 615	8 561	5 710	5 023	3 760	4 157	30	1.7
Eastern Mediterranean	1995	2 010	6 796	8 673	5 475	3 731	3 732	2 604	0	1 881	5 035	5 797	3 679	3 047	2 742	1 902	0	1.4
	2000	1 339	8 135	9 002	6 525	4 409	2 990	3 036	0	1 711	6 710	5 780	3 922	2 851	2 039	1 893	0	1.4
	2005	1 546	13 558	14 609	10 798	8 729	6 581	5 595	0	2 766	13 529	12 098	8 386	6 245	4 383	3 399	0	1.2
	2010	2 316	19 526	19 993	14 908	13 086	10 596	9 521	0	4 377	21 108	17 151	12 183	9 776	7 532	7 032	0	1.1
	2011	1 924	19 630	20 303	14 984	13 857	11 049	9 871	0	3 839	21 322	17 214	12 380	10 060	7 770	6 432	0	1.2
	2012	1 999	20 119	20 411	15 178	14 006	11 333	10 059	160	3 642	22 258	17 341	12 564	10 187	8 082	6 784	20	1.2
Europe	1995	553	3 588	7 046	10 157	7 625	5 716	4 842	0	548	2 906	3 636	2 594	1 549	1 560	3 289	0	2.5
	2000	201	4 636	8 322	9 862	8 065	4 313	3 321	0	290	3 506	4 405	2 945	1 798	1 243	2 490	0	2.3
	2005	299	6 170	9 151	9 150	8 704	4 443	4 089	42	422	4 667	5 101	3 161	2 242	1 336	3 176	15	2.1
	2010	156	7 319	13 259	12 447	12 270	6 916	4 125	7 423	301	4 958	6 559	4 218	3 051	2 033	3 398	2 567	2.4
	2011	164	6 536	13 704	13 498	12 966	7 569	4 329	7	257	4 734	6 767	4 507	3 195	2 292	3 693	3	2.3
	2012	138	5 997	13 038	13 394	12 301	7 624	4 113	5	224	4 258	6 336	4 387	2 986	2 125	3 528	3	2.4
South-East Asia	1995	165	3 179	6 467	6 508	5 241	4 682	3 523	0	250	2 187	2 834	2 404	2 003	1 866	1 480	0	2.3
	2000	2 453	30 093	45 720	47 107	38 058	25 080	16 208	0	3 222	21 518	25 653	19 241	13 019	8 142	5 468	0	2.1
	2005	5 064	94 638	120 560	122 256	107 228	74 084	45 533	0	8 591	71 923	76 779	54 000	37 709	24 289	12 975	0	2.0
	2010	6 737	114 806	136 683	142 080	132 411	101 728	67 131	0	10 923	84 006	84 704	63 272	48 470	34 052	20 004	0	2.0
	2011	6 490	114 254	136 142	141 636	135 592	106 420	72 264	0	10 654	85 376	84 383	64 868	50 920	36 755	21 593	0	2.0
	2012	6 581	111 501	133 040	140 542	136 569	108 866	72 554	0	10 535	85 726	82 947	64 170	52 118	38 516	22 187	0	2.0
Western Pacific	1995	1 416	15 611	22 998	20 141	18 452	18 752	17 452	0	1 453	13 084	16 396	11 071	8 337	7 081	6 970	0	1.8
	2000	1 305	24 300	40 329	38 558	37 684	31 592	37 123	0	1 676	18 072	24 121	18 237	15 459	12 653	15 506	0	2.0
	2005	2 351	57 514	74 341	84 881	83 258	72 996	91 547	0	2 658	40 061	39 933	36 852	31 045	27 179	34 253	0	2.2
	2010	1 587	58 626	63 099	77 554	81 778	76 763	84 476	3	1 800	36 715	33 025	30 699	26 089	25 658	32 181	3	2.4
	2011	1 469	53 575	59 082	70 723	77 050	72 616	75 388	0	1 510	32 845	30 454	27 381	24 095	23 618	29 200	0	2.4
	2012	1 361	45 130	52 462	61 704	69 752	66 600	69 835	5	1 386	27 722	28 014	23 655	21 967	21 802	28 891	82	2.4

AFRICAN REGION

Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See **ANNEX 1** for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. The main updates implemented in this report are explained in Box 2.1 of Chapter 2. *Estimates published in previous global TB control reports should no longer be used*.

Data source

Data shown in this annex are taken from the WHO global TB database on 1 October 2013. Data shown in the main part of the report were taken from the database in July 2013. As a result, data in this annex may differ slightly from those in the main part of the report.

Data for all years can be downloaded from www.who.int/tb/data.

AFRICAN REGION

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Algeria	1990	26	2.8 (0.970–5.5)	11 (3.7–21)	29 (13–53)	112 (49–202)	17 (13–22)	66 (48–86)
	1995	29	2.9 (0.980–5.9)	9.9 (3.4–20)	32 (13–59)	110 (46–203)	20 (15–26)	68 (50–89)
	2000	32	4.4 (1.5–8.8)	14 (4.9–28)	47 (20–85)	148 (64–267)	28 (20–36)	87 (64–114)
	2005	34	5 (1.7–9.9)	15 (5.1–29)	53 (23–95)	156 (67–281)	31 (23–41)	93 (68–121)
	2010	37	5.3 (1.8–11)	14 (5.0–28)	56 (24–100)	151 (65–273)	33 (24–44)	90 (66–118)
	2011	38	5.4 (1.9–11)	14 (5.0–29)	57 (25–100)	152 (65–274)	34 (25–44)	90 (66–117)
	2012	38	5.6 (1.9–11)	15 (5.1–29)	59 (25–110)	152 (66–274)	34 (25–45)	89 (65–117)
Angola	1990	10	4 (1.0–8.9)	39 (9.9–87)	39 (14–76)	378 (137–738)	21 (13–31)	205 (127–303)
	1995	12	6.1 (2.3–12)	50 (19–96)	55 (27–93)	458 (225–772)	27 (22–33)	226 (185–272)
	2000	14	5.8 (2.4–11)	42 (17–77)	59 (29–99)	421 (207–709)	35 (28–42)	250 (204–300)
	2005	17	4.4 (1.7–8.1)	26 (11–49)	57 (22–110)	347 (132–663)	46 (37–54)	276 (227–329)
	2010	20	6.6 (3.0–12)	34 (16–60)	80 (35–140)	411 (181–731)	59 (50–69)	304 (256–355)
	2011	20	7.6 (3.5–13)	38 (17–66)	90 (42–160)	447 (209–772)	62 (53–73)	310 (261–362)
	2012	21	8.7 (3.9–15)	42 (19–73)	99 (48–170)	474 (230–804)	66 (55–77)	316 (266–369)
Benin	1990	5	0.97 (0.390–1.8)	19 (7.9–36)	9.7 (4.7–17)	195 (93–333)	6.4 (5.3–7.6)	128 (106–152)
	1995	6	0.95 (0.390–1.7)	16 (6.6–29)	8.9 (4.3–15)	149 (72–253)	6 (4.9–7.1)	100 (82–118)
	2000	7	0.95 (0.400–1.7)	14 (5.8–25)	9.3 (4.6–16)	134 (66–225)	6 (4.9–7.1)	86 (71–102)
	2005	8	0.87 (0.380–1.6)	11 (4.7–19)	9.2 (4.6–15)	113 (56–189)	6 (5.0–7.2)	74 (61–88)
	2010	10	0.88 (0.390–1.6)	9.3 (4.1–16)	10 (5.0–17)	107 (53–179)	6.5 (5.4–7.8)	69 (57–82)
	2011	10	0.91 (0.400–1.6)	9.3 (4.1–17)	11 (5.3–18)	109 (54–182)	6.8 (5.6–8.1)	70 (58–83)
	2012	10	0.94 (0.420–1.7)	9.4 (4.2–17)	11 (5.6–18)	110 (55–184)	7 (5.8–8.3)	70 (58–83)
Botswana	1990	1	1.3 (0.095–4.2)	97 (6.9–302)	13 (1.9–33)	915 (135–2 410)	7.4 (2.9–14)	533 (212–997)
	1995	2	1.3 (0.076–4.4)	85 (4.8–276)	15 (2.6–37)	925 (166–2 310)	14 (8.8–19)	855 (553–1 220)
	2000	2	0.88 (0.046–2.9)	50 (2.6–165)	13 (3.4–28)	720 (194–1 580)	16 (13–20)	918 (736–1 120)
	2005	2	0.66 (0.190–1.4)	35 (10–76)	11 (5.2–19)	579 (276–991)	14 (13–15)	733 (667–802)
	2010	2	0.48 (0.120–1.1)	24 (6.0–56)	8.1 (3.6–14)	411 (185–727)	9.9 (8.8–11)	503 (449–560)
	2011	2	0.45 (0.120–1.0)	23 (5.9–51)	7.5 (3.4–13)	380 (172–668)	9 (8.1–10)	455 (406–507)
	2012	2	0.42 (0.110–0.920)	21 (5.5–46)	6.9 (3.1–12)	343 (157–600)	8.2 (7.3–9.1)	408 (364–454)
Burkina Faso	1990	9	1.2 (0.470–2.3)	14 (5.3–26)	12 (5.4–20)	132 (61–230)	7.6 (6.5–8.9)	87 (73–101)
	1995	10	1.4 (0.540–2.6)	14 (5.3–26)	12 (5.7–21)	121 (57–209)	8.3 (7.0–9.6)	82 (70–95)
	2000	12	1.5 (0.580–2.8)	13 (5.0–24)	13 (6.0–22)	108 (52–186)	8.2 (7.0–9.6)	71 (60–83)
	2005	13	1.5 (0.610–2.7)	11 (4.5–20)	13 (6.6–22)	97 (49–161)	8.4 (7.1–9.8)	62 (53–73)
	2010	16	1.4 (0.630–2.5)	9.2 (4.0–16)	14 (7.1–23)	89 (46–147)	9 (7.6–10)	58 (49–67)
	2011	16	1.4 (0.620–2.5)	8.8 (3.9–16)	14 (7.2–23)	88 (45–145)	9.1 (7.7–11)	57 (48–66)
	2012	16	1.4 (0.600–2.5)	8.5 (3.7–15)	14 (6.9–22)	82 (42–136)	9 (7.6–10)	54 (46–63)
Burundi	1990	6	1.3 (0.570–2.3)	23 (10–40)	15 (7.8–24)	263 (140–425)	9.1 (8.0–10)	162 (143–183)
	1995	6	3 (1.2–5.6)	48 (19–90)	32 (16–53)	510 (251–858)	20 (18–23)	321 (283–362)
	2000	7	2.6 (1.1–4.9)	40 (16–73)	27 (14–45)	408 (207–675)	19 (17–22)	288 (254–325)
	2005	8	2.2 (0.960–4.0)	28 (12–51)	22 (12–37)	289 (151–471)	15 (14–17)	198 (174–223)
	2010	9	1.8 (0.840–3.2)	20 (9.1–35)	20 (11–33)	219 (116–354)	13 (12–15)	144 (127–163)
	2011	10	1.8 (0.840–3.2)	19 (8.8–33)	20 (11–33)	214 (114–345)	13 (12–15)	139 (122–157)
	2012	10	1.8 (0.790–3.2)	18 (8.0–32)	20 (10–32)	199 (106–322)	13 (11–14)	130 (114–147)
Cameroon	1990	12	2.3 (0.980–4.1)	19 (8.1–34)	24 (12–39)	195 (98–325)	14 (11–16)	112 (92–133)
	1995	14	5.8 (2.2–11)	42 (16–80)	56 (26–98)	404 (186–704)	29 (24–34)	206 (170–246)
	2000	16	8.1 (3.1–16)	51 (19–98)	80 (36–140)	504 (227–889)	49 (41–59)	310 (255–369)
	2005	18	7.3 (3.0–14)	40 (16–75)	78 (36–140)	432 (201–750)	57 (47–68)	312 (258–372)
	2010	21	6.6 (2.8–12)	32 (14–58)	76 (36–130)	366 (174–629)	56 (47–67)	274 (226–327)
	2011	21	6.3 (2.7–11)	30 (13–54)	68 (32–120)	320 (152–549)	51 (42–61)	243 (200–290)
	2012	22	6.4 (2.7–12)	29 (12–54)	69 (33–120)	319 (153–544)	52 (43–61)	238 (197–283)
Cape Verde	1990	< 1	0.13 (0.034–0.290)	37 (9.8–81)	1.2 (0.440–2.3)	340 (125–660)	0.62 (0.380–0.910)	175 (108–259)
	1995	< 1	0.14 (0.055–0.270)	36 (14–68)	1.3 (0.640–2.2)	326 (161–549)	0.67 (0.550–0.800)	168 (137–201)
	2000	< 1	0.15 (0.057–0.290)	34 (13–65)	1.4 (0.670–2.3)	311 (152–526)	0.71 (0.580–0.850)	160 (131–193)
	2005	< 1	0.15 (0.057–0.280)	31 (12–59)	1.4 (0.680–2.3)	288 (142–485)	0.73 (0.600–0.880)	153 (125–184)
	2010	< 1	0.13 (0.051–0.240)	26 (11–49)	1.3 (0.630–2.1)	257 (129–427)	0.71 (0.590–0.850)	147 (121–175)
	2011	< 1	0.12 (0.049–0.220)	25 (10–46)	1.2 (0.610–2.0)	248 (124–414)	0.71 (0.590–0.850)	145 (120–173)
	2012	< 1	0.11 (0.047–0.210)	23 (9.5–42)	1.2 (0.590–2.0)	237 (119–395)	0.71 (0.590–0.850)	144 (119–172)
Central African Republic	1990	3	3.6 (1.3–6.9)	122 (45–236)	40 (17–72)	1 360 (583–2 460)	25 (21–30)	861 (710–1 030)
	1995	3	5.1 (1.9–9.9)	156 (57–303)	55 (23–100)	1 680 (704–3 070)	39 (32–47)	1 200 (988–1 430)
	2000	4	5.2 (1.9–10)	143 (53–277)	54 (23–99)	1 500 (631–2 720)	39 (32–46)	1 070 (884–1 280)
	2005	4	3.9 (1.5–7.5)	99 (37–190)	40 (17–71)	1 000 (438–1 790)	27 (23–33)	690 (569–822)
	2010	4	2.6 (1.0–4.8)	59 (24–110)	28 (13–47)	637 (304–1 090)	19 (16–22)	433 (357–515)
	2011	4	2.4 (0.980–4.4)	54 (22–99)	26 (12–44)	579 (279–987)	18 (15–21)	400 (330–477)
	2012	5	2.2 (0.840–4.3)	50 (19–95)	24 (11–40)	520 (251–884)	17 (14–20)	367 (302–438)
Chad	1990	6	0.86 (0.370–1.5)	14 (6.2–26)	9.4 (4.7–16)	157 (78–264)	5.6 (4.7–6.7)	95 (78–112)
	1995	7	1.5 (0.610–2.9)	22 (8.8–41)	16 (7.7–27)	228 (111–388)	9 (7.4–11)	128 (106–153)
	2000	8	2 (0.800–3.7)	24 (9.7–45)	21 (10–36)	252 (122–429)	13 (10–15)	151 (125–180)
	2005	10	2.3 (0.940–4.2)	23 (9.4–42)	24 (12–41)	243 (119–412)	15 (12–18)	150 (124–178)
	2010	12	2.3 (1.0–4.1)	20 (8.5–35)	28 (14–47)	237 (118–397)	18 (15–21)	151 (125–179)
	2011	12	2.2 (0.960–3.9)	18 (8.0–33)	28 (14–46)	229 (114–383)	18 (15–22)	151 (125–179)
	2012	12	2.3 (0.980–4.1)	18 (7.9–33)	28 (14–46)	221 (109–372)	19 (16–22)	151 (125–180)
Comoros	1990	< 1	0.043 (0.018–0.077)	10 (4.4–19)	0.38 (0.180–0.660)	93 (45–159)	0.22 (0.180–0.270)	54 (44–64)
	1995	< 1	0.038 (0.017–0.069)	8.3 (3.6–15)	0.35 (0.170–0.600)	75 (36–129)	0.21 (0.180–0.250)	46 (38–55)
	2000	< 1	0.037 (0.016–0.065)	6.9 (3.0–12)	0.34 (0.160–0.580)	64 (30–111)	0.21 (0.170–0.250)	39 (32–46)
	2005	< 1	0.045 (0.019–0.083)	7.6 (3.2–14)	0.4 (0.200–0.680)	67 (33–114)	0.22 (0.180–0.260)	36 (30–43)
	2010	< 1	0.045 (0.019–0.082)	6.6 (2.8–12)	0.42 (0.210–0.710)	62 (31–103)	0.23 (0.190–0.270)	33 (28–40)
	2011	< 1	0.046 (0.019–0.083)	6.5 (2.8–12)	0.45 (0.230–0.740)	64 (32–105)	0.24 (0.200–0.290)	34 (28–41)
	2012	< 1	0.045 (0.019–0.084)	6.3 (2.6–12)	0.44 (0.220–0.740)	62 (31–103)	0.25 (0.200–0.290)	34 (28–41)
Congo	1990	2	0.7 (0.220–1.4)	29 (9.4–61)	7.7 (2.6–16)	323 (108–654)	4 (2.5–5.9)	169 (104–250)
	1995	3	0.83 (0.340–1.5)	31 (13–56)	9.6 (4.6–16)	352 (168–601)	6.7 (5.4–8.0)	245 (200–294)
	2000	3	1.1 (0.500–2.0)	36 (16–63)	14 (6.9–24)	455 (222–770)	11 (9.3–13)	353 (298–412)
	2005	4	1.7 (0.730–3.0)	47 (21–85)	21 (9.8–35)	580 (276–994)	15 (12–18)	425 (347–510)
	2010	4	1.8 (0.790–3.3)	44 (19–80)	23 (11–39)	557 (265–955)	16 (13–19)	391 (320–470)
	2011	4	1.8 (0.800–3.3)	44 (19–78)	23 (11–40)	548 (262–938)	16 (13–20)	387 (317–465)
	2012	4	1.8 (0.780–3.4)	42 (18–77)	23 (11–40)	530 (250–913)	17 (14–20)	381 (311–458)
Côte d'Ivoire	1990	12	4.8 (1.9–9.0)	40 (16–74)	48 (23–80)	394 (193–664)	29 (25–33)	238 (206–272)
	1995	14	8.2 (3.2–16)	58 (23–109)	78 (38–130)	551 (265–940)	54 (47–62)	379 (329–433)
	2000	16	9 (3.6–17)	56 (22–105)	83 (40–140)	513 (249–870)	60 (52–68)	369 (320–422)
	2005	17	6.6 (2.8–12)	38 (16–69)	64 (33–100)	366 (187–604)	46 (40–53)	267 (232–306)
	2010	19	4.7 (2.1–8.2)	25 (11–43)	49 (25–80)	258 (133–424)	36 (31–41)	190 (165–217)
	2011	19	4.7 (2.2–8.3)	24 (11–43)	51 (26–83)	262 (135–430)	37 (32–42)	191 (165–218)
	2012	20	4.4 (1.8–8.0)	22 (9.1–41)	45 (23–75)	228 (115–380)	34 (30–39)	172 (149–198)
Democratic Republic of the Congo	1990	35	26 (9.9–49)	74 (28–140)	240 (110–420)	695 (327–1 200)	110 (92–140)	327 (262–398)
	1995	42	28 (11–53)	67 (27–126)	270 (130–470)	654 (318–1 110)	140 (110–160)	327 (268–392)
	2000	47	29 (12–53)	61 (25–112)	290 (140–480)	611 (308–1 020)	150 (130–180)	327 (273–385)
	2005	54	29 (13–52)	54 (24–97)	300 (150–500)	558 (285–920)	180 (150–200)	327 (279–379)
	2010	62	33 (15–59)	54 (24–96)	350 (180–560)	555 (288–908)	200 (180–230)	327 (282–375)
	2011	64	35 (15–62)	54 (24–97)	360 (190–590)	568 (297–923)	210 (180–240)	327 (282–375)
	2012	66	36 (16–64)	54 (24–97)	380 (200–620)	576 (301–938)	210 (190–250)	327 (282–375)
Equatorial Guinea	1990	< 1	0 (0–0.063)	0 (0–17)	0.38 (0.150–0.720)	101 (39–193)	0.3 (0.260–0.340)	80 (70–91)
	1995	< 1	0 (0–0.087)	0 (0–20)	0.42 (0.160–0.820)	96 (35–187)	0.35 (0.310–0.400)	80 (70–90)
	2000	< 1	0 (0–0.086)	0 (0–17)	0.67 (0.300–1.2)	130 (58–231)	0.52 (0.460–0.590)	101 (88–114)
	2005	< 1	0 (0–0.058)	0 (0–9.7)	0.81 (0.350–1.5)	135 (58–243)	0.66 (0.580–0.750)	110 (96–124)
	2010	< 1	0 (0–0.058)	0 (0–8.3)	1.2 (0.520–2.0)	166 (75–294)	0.94 (0.830–1.1)	135 (119–153)
	2011	< 1	0 (0–0.053)	0 (0–7.4)	1.2 (0.560–2.2)	174 (79–305)	1 (0.890–1.1)	142 (124–161)
	2012	< 1	0 (0–0.054)	0 (0–7.4)	1.2 (0.510–2.2)	164 (69–299)	1 (0.900–1.2)	139 (122–158)
Eritrea	1990	3	0.39 (0.260–0.540)	12 (7.9–17)	16 (6.5–29)	484 (198–894)	8 (5.3–11)	243 (162–341)
	1995	3	0.33 (0.220–0.460)	9.7 (6.4–14)	12 (4.1–25)	362 (121–731)	6.7 (4.5–9.5)	198 (132–278)
	2000	4	0.3 (0.200–0.420)	7.7 (5.1–11)	7.6 (1.9–17)	194 (49–436)	6.2 (4.1–8.7)	157 (104–220)
	2005	5	0.29 (0.190–0.400)	5.9 (3.9–8.3)	9.1 (3.2–18)	187 (67–368)	5.9 (3.9–8.2)	121 (80–169)
	2010	6	0.28 (0.190–0.390)	4.9 (3.2–6.9)	9.6 (3.6–18)	167 (63–319)	5.8 (3.8–8.1)	100 (67–140)
	2011	6	0.28 (0.190–0.390)	4.7 (3.1–6.6)	9.5 (3.6–18)	160 (60–307)	5.7 (3.8–8.1)	97 (64–136)
	2012	6	0.28 (0.190–0.400)	4.6 (3.0–6.5)	9.3 (3.5–18)	152 (56–294)	5.7 (3.8–8.0)	93 (62–131)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Ethiopia	1990	48	23 (14–35)	49 (29–73)	200 (140–290)	426 (285–594)	180 (100–270)	367 (218–553)
	1995	57	27 (16–41)	48 (28–72)	270 (200–370)	480 (342–642)	240 (140–360)	419 (249–633)
	2000	66	27 (16–41)	41 (25–63)	280 (210–370)	429 (318–556)	280 (170–420)	421 (251–636)
	2005	76	22 (13–33)	29 (17–44)	250 (190–320)	331 (250–422)	260 (150–390)	342 (203–516)
	2010	87	17 (12–23)	20 (14–26)	220 (170–270)	250 (199–307)	230 (170–310)	269 (191–359)
	2011	89	16 (12–21)	18 (14–24)	210 (170–260)	237 (191–288)	230 (170–300)	258 (191–335)
	2012	92	16 (12–21)	18 (13–23)	210 (170–250)	224 (180–272)	230 (170–290)	247 (183–321)
Gabon	1990	< 1	0.39 (0.160–0.710)	41 (17–74)	4 (2.0–6.6)	419 (210–699)	2.1 (1.7–2.5)	221 (182–263)
	1995	1	0.62 (0.250–1.2)	57 (23–107)	6.4 (3.1–11)	592 (289–1 000)	3.4 (2.8–4.1)	315 (260–375)
	2000	1	0.99 (0.390–1.9)	81 (32–152)	11 (5.2–19)	898 (426–1 540)	6.5 (5.3–7.7)	527 (435–627)
	2005	1	1.1 (0.430–2.0)	78 (32–145)	13 (6.0–21)	908 (434–1 550)	8.1 (6.7–9.6)	586 (484–698)
	2010	2	0.8 (0.340–1.4)	51 (22–93)	10 (5.0–17)	663 (323–1 120)	7.4 (6.1–8.8)	475 (392–566)
	2011	2	0.73 (0.320–1.3)	46 (20–83)	9.8 (4.7–17)	612 (295–1 040)	7.2 (5.9–8.6)	450 (372–536)
	2012	2	0.72 (0.300–1.3)	44 (18–81)	9.2 (4.3–16)	563 (265–971)	7 (5.8–8.3)	428 (354–510)
Gambia	1990	< 1	0.33 (0.087–0.730)	36 (9.4–80)	3.2 (1.2–6.2)	350 (129–679)	1.7 (1.0–2.5)	185 (114–273)
	1995	1	0.4 (0.160–0.740)	38 (15–70)	4 (2.0–6.6)	372 (186–622)	2.2 (1.8–2.6)	204 (167–245)
	2000	1	0.44 (0.180–0.810)	36 (15–66)	4.6 (2.3–7.7)	373 (184–628)	2.8 (2.3–3.3)	225 (184–271)
	2005	1	0.57 (0.230–1.1)	39 (16–74)	5.8 (2.9–9.7)	404 (200–677)	3.6 (2.9–4.3)	248 (203–298)
	2010	2	0.78 (0.300–1.5)	46 (18–87)	7.7 (3.8–13)	455 (227–762)	4.6 (3.8–5.5)	273 (226–325)
	2011	2	0.84 (0.330–1.6)	49 (19–92)	8.2 (4.1–14)	472 (236–788)	4.8 (4.0–5.7)	279 (230–331)
	2012	2	0.91 (0.360–1.7)	51 (20–96)	8.8 (4.4–15)	490 (245–819)	5.1 (4.2–6.0)	284 (234–337)
Ghana	1990	15	5.3 (0.880–14)	36 (6.0–93)	47 (12–110)	320 (81–722)	23 (10–40)	155 (69–275)
	1995	17	5.4 (1.1–13)	32 (6.3–79)	50 (15–110)	301 (91–634)	28 (16–44)	167 (93–263)
	2000	19	5.1 (1.2–12)	27 (6.3–62)	48 (17–96)	257 (89–510)	29 (18–41)	152 (97–220)
	2005	21	4 (1.3–8.3)	19 (5.9–39)	40 (17–72)	188 (81–338)	25 (19–33)	119 (88–154)
	2010	24	2.5 (1.2–4.4)	10 (5.0–18)	29 (15–48)	121 (62–199)	21 (18–24)	86 (75–97)
	2011	25	2.1 (1.0–3.6)	8.6 (4.2–15)	26 (13–44)	106 (52–179)	20 (17–22)	79 (69–89)
	2012	25	1.7 (0.880–2.9)	6.9 (3.5–11)	23 (11–41)	92 (41–162)	18 (16–21)	72 (63–82)
Guinea	1990	6	3.7 (1.4–7.2)	62 (23–119)	33 (15–58)	556 (257–968)	15 (12–18)	248 (204–295)
	1995	8	4.2 (1.6–8.1)	54 (21–103)	40 (19–68)	505 (237–873)	20 (16–23)	249 (205–297)
	2000	9	3.9 (1.5–7.3)	44 (17–83)	38 (18–64)	429 (205–734)	20 (17–24)	234 (193–279)
	2005	10	3.3 (1.4–6.1)	34 (14–63)	33 (16–57)	350 (171–590)	20 (17–24)	211 (173–251)
	2010	11	2.8 (1.2–5.0)	25 (11–46)	33 (16–54)	299 (149–500)	20 (17–24)	188 (155–224)
	2011	11	2.6 (1.2–4.7)	24 (10–42)	32 (16–54)	287 (143–481)	20 (17–24)	183 (151–219)
	2012	11	2.6 (1.1–4.8)	23 (9.8–42)	31 (16–53)	274 (136–459)	20 (17–24)	178 (146–213)
Guinea-Bissau	1990	1	0.21 (0.051–0.480)	21 (5.0–47)	2.4 (0.860–4.8)	237 (84–469)	1.6 (1.1–2.2)	158 (108–217)
	1995	1	0.26 (0.100–0.470)	22 (9.2–41)	2.9 (1.4–5.0)	256 (120–442)	2 (1.6–2.4)	174 (142–209)
	2000	1	0.36 (0.130–0.690)	28 (11–54)	3.7 (1.8–6.2)	290 (142–490)	2.4 (2.0–2.9)	192 (157–230)
	2005	1	0.32 (0.110–0.660)	23 (7.5–46)	3.8 (1.7–6.6)	264 (121–462)	3 (2.5–3.6)	211 (173–254)
	2010	2	0.43 (0.150–0.860)	27 (9.4–54)	4.8 (2.3–8.1)	300 (144–513)	3.7 (3.0–4.4)	233 (192–278)
	2011	2	0.46 (0.150–0.920)	28 (9.5–57)	5 (2.4–8.5)	306 (145–525)	3.9 (3.2–4.6)	238 (196–283)
	2012	2	0.49 (0.160–0.990)	29 (9.8–59)	5.2 (2.5–8.9)	312 (148–537)	4 (3.3–4.8)	242 (200–289)
Kenya	1990	23	7.1 (2.8–13)	30 (12–57)	64 (32–110)	272 (138–452)	33 (28–37)	139 (121–159)
	1995	27	4.5 (2.0–7.9)	16 (7.4–29)	54 (29–85)	196 (108–311)	46 (43–50)	169 (155–184)
	2000	31	5.9 (2.8–10)	19 (9.0–32)	85 (46–140)	273 (147–437)	89 (84–95)	286 (267–305)
	2005	36	8.1 (4.3–13)	23 (12–36)	120 (65–200)	345 (183–559)	130 (120–140)	359 (339–380)
	2010	41	8.2 (5.1–12)	20 (12–30)	130 (65–200)	306 (159–500)	120 (120–130)	298 (286–311)
	2011	42	8.9 (5.3–14)	21 (13–32)	130 (68–210)	305 (163–491)	120 (120–130)	288 (276–300)
	2012	43	9.5 (5.4–15)	22 (13–34)	130 (71–210)	299 (164–475)	120 (110–120)	272 (261–283)
Lesotho	1990	2	0.35 (0.100–0.730)	22 (6.5–46)	4.3 (1.6–8.2)	267 (99–515)	2.9 (2.2–3.8)	184 (135–240)
	1995	2	0.34 (0.110–0.680)	19 (6.5–39)	5.7 (2.4–10)	323 (134–593)	5.7 (5.0–6.4)	323 (283–367)
	2000	2	0.29 (<0.01–1.1)	16 (0.38–58)	7.2 (2.4–15)	387 (129–784)	10 (9.0–12)	553 (484–626)
	2005	2	0.2 (0–1.6)	10 (0–82)	7.9 (1.3–20)	409 (65–1 060)	12 (10–14)	639 (535–752)
	2010	2	0.27 (<0.01–1.3)	14 (<0.1–66)	8.5 (2.5–18)	425 (126–903)	13 (11–14)	633 (553–719)
	2011	2	0.34 (<0.01–1.4)	17 (0.20–67)	8.9 (2.8–18)	439 (139–905)	13 (11–15)	632 (551–717)
	2012	2	0.34 (<0.01–1.4)	17 (0.18–68)	8.7 (2.7–18)	424 (130–888)	13 (11–15)	630 (550–716)
Liberia	1990	2	0.62 (0.130–1.5)	29 (6.0–71)	6.7 (2.2–14)	321 (102–661)	4.2 (2.6–6.2)	199 (123–293)
	1995	2	1.1 (0.400–2.0)	51 (19–97)	9.4 (4.6–16)	453 (220–769)	4.6 (3.7–5.5)	219 (179–263)
	2000	3	1.6 (0.580–3.0)	54 (20–104)	14 (6.7–24)	482 (231–822)	7 (5.7–8.4)	242 (197–290)
	2005	3	1.6 (0.630–3.1)	50 (19–94)	16 (7.7–26)	475 (234–798)	8.7 (7.1–10)	266 (218–320)
	2010	4	1.9 (0.790–3.5)	48 (20–88)	20 (9.8–33)	493 (247–822)	12 (9.6–14)	293 (242–349)
	2011	4	1.9 (0.810–3.5)	47 (20–86)	20 (10–34)	494 (245–827)	12 (10–15)	299 (247–356)
	2012	4	1.9 (0.830–3.5)	46 (20–84)	21 (10–35)	495 (244–832)	13 (11–15)	304 (251–362)
Madagascar	1990	12	13 (4.9–25)	114 (43–220)	110 (50–190)	946 (434–1 650)	45 (37–54)	391 (322–466)
	1995	13	11 (4.4–21)	82 (33–154)	98 (48–170)	729 (356–1 230)	45 (37–54)	335 (276–400)
	2000	16	11 (4.4–20)	69 (28–127)	96 (47–160)	609 (300–1 020)	46 (38–55)	293 (241–349)
	2005	18	10 (4.3–19)	56 (24–103)	95 (48–160)	522 (261–870)	48 (39–57)	262 (216–313)
	2010	21	10 (4.3–18)	48 (21–88)	97 (49–160)	461 (233–767)	51 (42–61)	242 (199–288)
	2011	22	10 (4.4–18)	47 (20–85)	98 (50–160)	452 (228–749)	52 (43–62)	238 (196–284)
	2012	22	10 (4.3–19)	46 (19–84)	99 (50–160)	442 (222–735)	52 (43–62)	234 (193–280)
Malawi	1990	9	3.8 (0.700–9.5)	40 (7.4–101)	39 (12–80)	412 (131–849)	31 (22–41)	326 (230–438)
	1995	10	3.7 (0.760–8.9)	37 (7.6–90)	43 (16–81)	427 (165–810)	46 (38–55)	462 (383–548)
	2000	11	3.2 (0.360–9.0)	28 (3.2–80)	41 (13–85)	365 (118–749)	53 (44–63)	467 (387–554)
	2005	13	2.3 (0.130–7.4)	18 (1.0–57)	34 (10–72)	262 (77–556)	46 (38–54)	354 (292–421)
	2010	15	1.8 (0.680–3.5)	12 (4.5–23)	27 (14–45)	182 (95–298)	33 (31–35)	219 (203–236)
	2011	15	1.5 (0.560–3.0)	9.9 (3.6–19)	24 (12–40)	156 (80–256)	30 (27–32)	191 (177–206)
	2012	16	1.4 (0.570–2.7)	9 (3.6–17)	22 (11–36)	140 (72–229)	26 (24–28)	163 (151–176)
Mali	1990	8	1.2 (0.510–2.1)	15 (6.4–26)	11 (6.0–18)	138 (75–221)	6 (5.8–6.3)	76 (72–80)
	1995	9	1.2 (0.540–2.2)	13 (6.0–24)	12 (6.5–18)	131 (73–206)	7.2 (6.9–7.6)	80 (76–84)
	2000	10	1.2 (0.560–2.2)	12 (5.5–21)	12 (6.7–19)	117 (65–184)	7.9 (7.6–8.3)	77 (74–81)
	2005	12	1.3 (0.600–2.2)	11 (5.0–19)	12 (7.0–20)	105 (58–164)	8.3 (7.9–8.7)	69 (66–73)
	2010	14	1.3 (0.620–2.2)	9.3 (4.4–16)	13 (7.3–21)	94 (52–149)	8.8 (8.4–9.2)	63 (60–66)
	2011	14	1.3 (0.630–2.2)	9.1 (4.4–16)	13 (7.4–21)	94 (52–148)	8.9 (8.5–9.3)	62 (59–65)
	2012	15	1.3 (0.630–2.3)	9 (4.3–15)	14 (7.6–22)	92 (51–146)	9 (8.5–9.4)	60 (57–63)
Mauritania	1990	2	0.38 (0.015–1.3)	19 (0.76–65)	5.7 (1.1–14)	283 (53–703)	4.6 (2.8–6.8)	228 (140–336)
	1995	2	0.92 (0.390–1.7)	39 (17–71)	9.7 (4.7–17)	417 (202–707)	5.9 (4.8–7.0)	251 (205–302)
	2000	3	1.5 (0.610–2.9)	57 (23–106)	15 (7.3–24)	536 (268–895)	7.5 (6.1–9.0)	277 (226–333)
	2005	3	2.3 (0.880–4.4)	73 (28–140)	20 (9.9–35)	651 (315–1 110)	9.6 (7.9–12)	305 (250–367)
	2010	4	3.2 (1.2–6.1)	88 (33–170)	27 (13–47)	756 (357–1 300)	12 (10–15)	337 (277–402)
	2011	4	3.4 (1.2–6.5)	91 (34–175)	29 (13–50)	775 (364–1 340)	13 (10–15)	344 (283–410)
	2012	4	3.5 (1.3–6.9)	93 (34–181)	30 (14–52)	794 (373–1 370)	13 (11–16)	350 (288–418)
Mauritius	1990	1	0.027 (0.026–0.028)	2.5 (2.4–2.6)	0.58 (0.220–1.1)	55 (21–105)	0.29 (0.180–0.430)	28 (17–41)
	1995	1	0.013 (0.012–0.013)	1.1 (1.1–1.2)	0.57 (0.290–0.950)	51 (25–85)	0.29 (0.240–0.350)	26 (21–31)
	2000	1	<0.01 (<0.01–<0.01)	0.68 (0.67–0.70)	0.54 (0.270–0.910)	46 (23–76)	0.29 (0.240–0.350)	24 (20–29)
	2005	1	0.013 (0.013–0.014)	1.1 (1.1–1.1)	0.52 (0.260–0.870)	43 (22–72)	0.28 (0.230–0.330)	23 (19–28)
	2010	1	0.012 (0.011–0.012)	0.94 (0.93–0.95)	0.5 (0.250–0.830)	41 (20–68)	0.27 (0.220–0.320)	22 (18–26)
	2011	1	0.019 (0.019–0.019)	1.5 (1.5–1.6)	0.49 (0.250–0.820)	40 (20–66)	0.26 (0.220–0.310)	21 (18–25)
	2012	1	0.012 (0.012–0.012)	0.97 (0.96–0.98)	0.48 (0.240–0.810)	39 (20–65)	0.26 (0.210–0.310)	21 (17–25)
Mozambique	1990	14	13 (0.360–48)	98 (2.6–357)	120 (7.5–370)	863 (56–2 730)	54 (8.5–140)	401 (62–1 050)
	1995	16	16 (1.0–52)	101 (6.4–323)	140 (17–400)	897 (104–2 520)	76 (24–160)	478 (153–985)
	2000	18	14 (0.430–49)	75 (2.3–270)	130 (10–390)	701 (56–2 130)	94 (41–170)	513 (227–914)
	2005	21	12 (0.360–44)	58 (1.7–208)	120 (12–350)	576 (59–1 660)	110 (63–170)	524 (298–811)
	2010	24	12 (0.890–38)	51 (3.7–160)	130 (25–320)	541 (105–1 320)	130 (90–180)	544 (377–741)
	2011	25	13 (0.890–40)	51 (3.6–161)	130 (26–330)	544 (106–1 330)	130 (93–180)	548 (380–747)
	2012	25	13 (0.980–41)	53 (3.9–163)	140 (28–340)	553 (111–1 340)	140 (96–190)	552 (383–753)
Namibia	1990	1	0.074 (0.058–0.091)	5.2 (4.1–6.4)	11 (5.1–18)	751 (358–1 280)	5.4 (4.3–6.6)	379 (300–468)
	1995	2	0.15 (0.110–0.180)	8.8 (6.9–11)	13 (5.7–23)	770 (344–1 360)	9.5 (7.5–12)	575 (456–709)
	2000	2	0.46 (0.360–0.580)	24 (19–31)	27 (9.8–53)	1 430 (517–2 790)	27 (21–33)	1 410 (1 110–1 730)
	2005	2	0.46 (0.350–0.580)	23 (17–28)	23 (6.5–51)	1 160 (321–2 510)	28 (22–35)	1 390 (1 100–1 720)
	2010	2	0.34 (0.270–0.410)	15 (12–19)	18 (6.3–36)	834 (291–1 660)	19 (15–23)	867 (686–1 070)
	2011	2	0.32 (0.250–0.390)	14 (11–18)	15 (5.3–31)	699 (241–1 390)	16 (13–20)	723 (573–891)
	2012	2	0.32 (0.260–0.400)	14 (11–18)	16 (6.1–29)	688 (271–1 300)	15 (12–18)	655 (524–800)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Niger	1990	8	7.7 (2.9–15)	99 (37–191)	65 (30–110)	839 (388–1 460)	28 (23–33)	358 (295–426)
	1995	9	6.8 (2.5–13)	74 (28–143)	57 (26–99)	620 (283–1 080)	25 (20–29)	270 (223–321)
	2000	11	5 (2.0–9.5)	46 (18–86)	44 (21–75)	396 (189–678)	21 (17–25)	191 (157–227)
	2005	13	3.7 (1.5–6.8)	28 (12–51)	34 (17–57)	261 (130–436)	19 (15–22)	142 (118–170)
	2010	16	2.9 (1.3–5.2)	18 (8.0–33)	30 (15–50)	187 (94–312)	18 (15–21)	113 (94–135)
	2011	17	2.8 (1.2–5.0)	17 (7.4–30)	29 (14–49)	176 (88–294)	18 (15–21)	108 (90–129)
	2012	17	2.8 (1.2–5.1)	16 (6.8–30)	28 (14–48)	166 (83–277)	18 (15–21)	104 (86–124)
Nigeria	1990	96	34 (0.019–180)	35 (<0.1–183)	290 (0.550–1 400)	302 (0.58–1 440)	120 (1.3–500)	128 (1.3–526)
	1995	108	40 (0.250–170)	37 (0.23–161)	340 (4.9–1 300)	311 (4.5–1 230)	150 (8.0–490)	139 (7.4–456)
	2000	123	47 (0.077–230)	38 (<0.1–185)	400 (2.6–1 700)	326 (2.1–1 400)	210 (15–660)	172 (12–536)
	2005	140	46 (0.084–220)	33 (<0.1–159)	420 (4.2–1 700)	298 (3.0–1 220)	240 (33–660)	175 (23–476)
	2010	160	34 (3.1–100)	22 (2.0–64)	330 (62–830)	210 (39–521)	210 (100–360)	133 (64–225)
	2011	164	30 (2.0–93)	18 (1.2–57)	300 (49–760)	181 (30–464)	190 (91–340)	118 (55–204)
	2012	169	27 (1.6–86)	16 (0.92–51)	270 (43–710)	161 (25–420)	180 (85–310)	108 (50–186)
Rwanda	1990	7	2.7 (1.1–5.1)	37 (15–70)	26 (13–44)	356 (173–603)	21 (19–23)	290 (259–323)
	1995	6	4.4 (1.7–8.4)	78 (30–149)	37 (17–64)	655 (305–1 130)	29 (26–32)	513 (458–571)
	2000	8	4.1 (1.6–7.7)	49 (19–91)	35 (17–59)	417 (205–701)	27 (24–30)	325 (290–362)
	2005	9	2 (0.880–3.7)	22 (9.3–39)	21 (11–35)	228 (120–370)	17 (15–19)	181 (162–202)
	2010	11	1.3 (0.610–2.3)	12 (5.7–21)	15 (7.9–24)	136 (73–219)	11 (10–13)	106 (94–118)
	2011	11	1.2 (0.580–2.1)	11 (5.2–19)	14 (7.2–22)	121 (65–196)	11 (9.4–12)	94 (84–105)
	2012	11	1.2 (0.530–2.1)	10 (4.6–18)	13 (7.0–21)	114 (61–183)	9.8 (8.8–11)	86 (77–96)
Sao Tome and Principe	1990	< 1	0.031 (<0.01–0.070)	27 (7.1–59)	0.3 (0.110–0.590)	258 (96–499)	0.16 (0.098–0.230)	135 (83–199)
	1995	< 1	0.034 (0.013–0.064)	26 (10–49)	0.32 (0.160–0.530)	244 (122–408)	0.16 (0.130–0.190)	124 (102–149)
	2000	< 1	0.018 (<0.01–0.032)	13 (5.3–23)	0.22 (0.093–0.410)	159 (67–291)	0.16 (0.130–0.190)	114 (93–137)
	2005	< 1	0.012 (<0.01–0.023)	7.6 (2.8–15)	0.2 (0.070–0.390)	128 (46–253)	0.16 (0.140–0.190)	105 (88–123)
	2010	< 1	0.024 (0.010–0.045)	14 (5.7–25)	0.26 (0.130–0.450)	149 (72–252)	0.17 (0.140–0.200)	96 (79–115)
	2011	< 1	0.027 (0.011–0.050)	15 (6.1–27)	0.28 (0.140–0.470)	154 (76–258)	0.17 (0.140–0.210)	94 (78–113)
	2012	< 1	0.03 (0.012–0.055)	16 (6.4–29)	0.3 (0.150–0.500)	159 (80–264)	0.17 (0.140–0.210)	93 (76–111)
Senegal	1990	8	1.8 (0.800–3.3)	24 (11–44)	19 (9.4–31)	249 (125–414)	10 (8.5–12)	138 (114–164)
	1995	9	2.2 (0.980–4.0)	26 (11–46)	23 (12–39)	269 (135–448)	13 (11–16)	153 (126–183)
	2000	10	2.6 (1.1–4.7)	26 (12–48)	27 (14–45)	273 (137–453)	15 (13–18)	155 (128–184)
	2005	11	2.5 (1.1–4.4)	22 (9.6–39)	26 (13–44)	234 (116–393)	16 (13–19)	142 (117–169)
	2010	13	2.5 (1.1–4.5)	20 (8.7–35)	28 (14–47)	217 (106–366)	18 (15–21)	137 (113–163)
	2011	13	2.6 (1.2–4.7)	20 (8.7–35)	29 (14–49)	217 (106–366)	18 (15–22)	136 (112–162)
	2012	14	2.7 (1.2–4.8)	20 (8.8–35)	30 (15–50)	219 (108–368)	19 (16–22)	137 (113–163)
Seychelles	1990	< 1	<0.01 (<0.01–<0.01)	2 (1.9–2.0)	0.035 (<0.01–0.091)	50 (7.7–131)	0.03 (0.019–0.044)	43 (27–64)
	1995	< 1	<0.01 (<0.01–<0.01)	2 (1.9–2.0)	0.059 (0.028–0.100)	79 (37–135)	0.03 (0.025–0.036)	40 (33–48)
	2000	< 1	<0.01 (<0.01–<0.01)	2 (1.9–2.0)	0.045 (0.021–0.080)	57 (26–100)	0.029 (0.024–0.035)	37 (30–44)
	2005	< 1	<0.01 (<0.01–<0.01)	2.5 (2.4–2.7)	0.053 (0.026–0.091)	61 (29–104)	0.029 (0.024–0.035)	33 (27–40)
	2010	< 1	<0.01 (<0.01–<0.01)	1.8 (1.8–1.9)	0.048 (0.023–0.082)	52 (25–90)	0.028 (0.023–0.033)	31 (25–37)
	2011	< 1	<0.01 (<0.01–<0.01)	1.8 (1.8–1.9)	0.039 (0.016–0.071)	42 (17–78)	0.028 (0.023–0.033)	30 (25–36)
	2012	< 1	<0.01 (<0.01–<0.01)	1.8 (1.8–1.9)	0.036 (0.013–0.072)	39 (14–78)	0.027 (0.023–0.033)	30 (24–35)
Sierra Leone	1990	4	2.4 (0.730–5.2)	61 (18–128)	21 (7.8–39)	507 (194–968)	8.4 (5.2–12)	207 (128–305)
	1995	4	2 (0.730–3.9)	51 (18–99)	18 (8.3–31)	454 (211–788)	8.3 (6.4–11)	212 (162–269)
	2000	4	2.4 (0.860–4.8)	59 (21–116)	22 (10–39)	537 (245–940)	11 (8.1–14)	264 (196–341)
	2005	5	5.9 (2.2–11)	116 (43–223)	53 (25–90)	1 030 (491–1 750)	26 (21–31)	503 (410–605)
	2010	6	8.2 (3.1–16)	142 (54–273)	74 (36–130)	1 290 (624–2 180)	38 (31–45)	660 (540–791)
	2011	6	8.3 (3.1–16)	142 (53–274)	76 (37–130)	1 290 (625–2 200)	39 (32–47)	668 (542–807)
	2012	6	8.5 (3.2–16)	143 (53–275)	78 (37–130)	1 300 (626–2 220)	40 (32–49)	674 (540–821)
South Africa	1990	37	16 (4.2–34)	42 (11–93)	170 (64–340)	475 (173–925)	110 (76–150)	301 (206–413)
	1995	41	15 (5.6–28)	35 (14–68)	180 (81–310)	427 (195–747)	130 (110–160)	317 (259–381)
	2000	45	20 (4.0–48)	44 (8.9–107)	250 (100–480)	568 (225–1 070)	260 (210–310)	576 (471–691)
	2005	48	25 (2.0–75)	51 (4.1–156)	360 (110–750)	748 (234–1 560)	450 (360–540)	925 (756–1 110)
	2010	51	26 (2.2–80)	51 (4.3–155)	410 (140–840)	803 (266–1 630)	500 (420–600)	981 (809–1 170)
	2011	52	28 (2.9–83)	55 (5.6–159)	430 (150–860)	831 (289–1 650)	520 (430–610)	993 (819–1 180)
	2012	52	31 (3.7–86)	59 (7.0–164)	450 (160–880)	857 (305–1 680)	530 (430–630)	1 000 (827–1 190)
Swaziland	1990	< 1	0.31 (0.051–0.800)	36 (5.9–93)	3.4 (1.0–7.3)	397 (116–847)	2.3 (1.4–3.4)	267 (165–394)
	1995	< 1	0.27 (0.065–0.620)	28 (6.8–64)	3.4 (1.4–6.3)	357 (149–653)	3.2 (2.7–3.9)	337 (275–405)
	2000	1	0.37 (<0.01–1.4)	34 (0.74–129)	6.1 (1.5–14)	573 (145–1 290)	8.5 (7.0–10)	803 (657–964)
	2005	1	0.32 (<0.01–2.0)	29 (0–177)	7.4 (1.1–19)	666 (104–1 730)	13 (10–15)	1 150 (938–1 380)
	2010	1	0.46 (<0.01–2.3)	39 (<0.1–196)	9 (1.5–23)	751 (130–1 900)	15 (13–18)	1 290 (1 060–1 530)
	2011	1	0.67 (0.015–2.5)	56 (1.3–208)	11 (2.6–24)	870 (213–1 970)	16 (13–19)	1 320 (1 090–1 570)
	2012	1	0.78 (0.031–2.7)	63 (2.5–219)	11 (2.9–25)	907 (232–2 030)	17 (14–20)	1 350 (1 110–1 610)
Togo	1990	4	0.23 (0.100–0.410)	6.1 (2.7–11)	2.7 (1.3–4.6)	71 (34–122)	1.8 (1.5–2.1)	47 (39–56)
	1995	4	0.37 (0.160–0.670)	8.7 (3.8–16)	4 (2.0–6.6)	92 (46–155)	2.5 (2.0–3.0)	58 (48–69)
	2000	5	0.59 (0.250–1.1)	12 (5.0–22)	5.6 (2.7–9.4)	114 (56–193)	3.5 (2.9–4.2)	72 (59–86)
	2005	6	0.58 (0.250–1.0)	10 (4.5–19)	5.9 (2.9–10)	107 (52–181)	4.2 (3.5–5.1)	77 (63–91)
	2010	6	0.54 (0.230–0.970)	8.5 (3.7–15)	6.2 (3.0–11)	99 (47–169)	4.6 (3.8–5.5)	73 (60–87)
	2011	6	0.56 (0.240–1.0)	8.6 (3.8–15)	6.6 (3.2–11)	102 (49–174)	4.7 (3.9–5.6)	73 (60–87)
	2012	7	0.58 (0.250–1.0)	8.7 (3.8–15)	6.9 (3.4–12)	104 (51–176)	4.9 (4.0–5.8)	73 (60–87)
Uganda	1990	18	8.7 (<0.01–48)	50 (<0.1–273)	86 (0.490–370)	492 (2.8–2 140)	110 (57–180)	624 (328–1 010)
	1995	21	8.3 (<0.01–46)	40 (<0.1–223)	89 (0.760–370)	429 (3.6–1 800)	110 (62–180)	542 (297–860)
	2000	24	8.5 (0.055–37)	35 (0.23–151)	92 (6.1–290)	380 (25–1 200)	100 (63–150)	427 (259–636)
	2005	29	7.6 (0.660–23)	26 (2.3–79)	88 (22–200)	305 (76–689)	87 (63–120)	304 (220–402)
	2010	34	5.5 (1.0–14)	16 (3.0–40)	70 (27–130)	207 (80–392)	71 (57–86)	209 (169–253)
	2011	35	5.1 (0.960–13)	15 (2.7–36)	68 (26–130)	192 (74–366)	68 (55–82)	193 (156–234)
	2012	36	4.7 (0.820–12)	13 (2.3–33)	64 (24–120)	175 (67–334)	65 (53–79)	179 (145–216)
United Republic of Tanzania	1990	25	9.9 (3.8–19)	39 (15–74)	94 (47–160)	368 (185–611)	58 (49–67)	226 (193–261)
	1995	30	6.4 (2.2–13)	21 (7.3–43)	76 (37–130)	254 (123–430)	68 (58–78)	226 (193–261)
	2000	34	5.8 (1.9–12)	17 (5.6–35)	80 (38–140)	234 (113–399)	80 (70–91)	236 (207–268)
	2005	39	5.7 (2.7–9.8)	15 (6.9–25)	82 (43–130)	211 (111–341)	83 (76–89)	213 (197–229)
	2010	45	6.2 (3.3–10)	14 (7.4–22)	86 (46–140)	190 (102–306)	80 (75–85)	177 (166–189)
	2011	46	6.1 (3.3–9.8)	13 (7.1–21)	85 (45–140)	183 (97–295)	78 (74–83)	169 (159–180)
	2012	48	6.1 (3.2–9.9)	13 (6.8–21)	84 (45–140)	176 (95–283)	79 (74–84)	165 (154–175)
Zambia	1990	8	4.9 (1.5–10)	63 (19–132)	52 (24–91)	665 (308–1 160)	56 (49–63)	710 (624–801)
	1995	9	3.9 (1.1–8.3)	44 (13–93)	53 (26–90)	605 (299–1 020)	70 (64–76)	788 (719–861)
	2000	10	3.1 (0.940–6.5)	31 (9.4–64)	53 (26–89)	524 (256–885)	72 (67–77)	713 (661–767)
	2005	11	2.2 (0.450–5.4)	19 (3.9–47)	47 (20–83)	406 (177–727)	65 (59–71)	566 (519–615)
	2010	13	3.2 (0.970–6.8)	24 (7.4–51)	51 (25–87)	387 (186–659)	61 (55–67)	462 (418–509)
	2011	14	3.4 (1.1–7.0)	25 (8.0–52)	52 (25–87)	379 (185–640)	61 (55–67)	444 (401–489)
	2012	14	3.9 (1.4–7.7)	28 (9.8–55)	55 (28–90)	388 (197–642)	60 (54–66)	427 (385–470)
Zimbabwe	1990	10	3.5 (0.068–13)	33 (0.65–128)	34 (2.4–110)	323 (23–1 000)	31 (17–50)	296 (159–476)
	1995	12	1.9 (0–15)	16 (0–125)	34 (0.760–130)	295 (7.4–1 090)	56 (39–77)	483 (335–658)
	2000	13	2.1 (0–16)	17 (0–129)	49 (3.9–150)	389 (31–1 180)	91 (72–110)	726 (573–897)
	2005	13	3.6 (<0.01–18)	28 (<0.1–146)	60 (7.0–170)	473 (55–1 320)	100 (81–130)	799 (634–984)
	2010	13	4 (0.037–17)	31 (0.28–129)	57 (9.1–150)	438 (70–1 140)	83 (64–100)	633 (489–795)
	2011	13	4.6 (0.140–17)	35 (1.1–125)	61 (12–150)	458 (93–1 110)	81 (62–100)	603 (466–757)
	2012	14	4.6 (0.160–16)	33 (1.2–117)	59 (13–140)	433 (92–1 030)	77 (60–97)	562 (434–706)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Algeria	1990	26	17 (13–22)	66 (48–86)	<0.01 (<0.01–<0.01)	<0.1 (0–<0.1)	11 607	44	67 (52–92)
	1995	29	20 (15–26)	68 (50–89)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	13 507	46	68 (52–92)
	2000	32	28 (20–36)	87 (64–114)	0.025 (0.018–0.032)	<0.1 (<0.1–0.10)	18 572	59	67 (52–92)
	2005	34	31 (23–41)	93 (68–121)	0.057 (0.042–0.074)	0.2 (0.12–0.22)	21 336	63	68 (52–92)
	2010	37	33 (24–44)	90 (66–118)	0.08 (0.059–0.10)	0.2 (0.16–0.28)	22 336	60	67 (51–91)
	2011	38	34 (25–44)	90 (66–117)	0.085 (0.062–0.11)	0.2 (0.16–0.29)	21 429	57	63 (48–87)
	2012	38	34 (25–45)	89 (65–117)	0.086 (0.063–0.11)	0.2 (0.16–0.29)	21 880	57	64 (49–87)
Angola	1990	10	21 (13–31)	205 (127–303)	0.51 (0.31–0.75)	4.9 (3.0–7.2)	10 271	99	48 (33–78)
	1995	12	27 (22–33)	226 (185–272)	1.3 (1.1–1.5)	11 (8.7–13)	5 143	42	19 (16–23)
	2000	14	35 (28–42)	250 (204–300)	2.5 (2.0–3.0)	18 (14–21)	16 062	115	46 (38–56)
	2005	17	46 (37–54)	276 (227–329)	4 (3.3–4.8)	24 (20–29)	37 175	225	82 (68–99)
	2010	20	59 (50–69)	304 (256–355)	5.3 (4.5–6.2)	27 (23–32)	44 655	228	75 (64–89)
	2011	20	62 (53–73)	310 (261–362)	5.3 (4.5–6.2)	26 (22–31)	47 240	234	76 (65–90)
	2012	21	66 (55–77)	316 (266–369)	5.5 (4.7–6.5)	27 (22–31)	51 819	249	79 (67–94)
Benin	1990	5	6.4 (5.3–7.6)	128 (106–152)	2.1 (1.7–2.4)	41 (34–49)	2 074	41	32 (27–39)
	1995	6	6 (4.9–7.1)	100 (82–118)	1.9 (1.5–2.2)	31 (26–37)	2 400	40	40 (34–49)
	2000	7	6 (4.9–7.1)	86 (71–102)	1.5 (1.3–1.8)	22 (18–26)	2 697	39	45 (38–55)
	2005	8	6 (5.0–7.2)	74 (61–88)	1.2 (1.0–1.5)	15 (12–18)	3 270	40	54 (46–66)
	2010	10	6.5 (5.4–7.8)	69 (57–82)	0.99 (0.82–1.2)	10 (8.6–12)	3 756	39	57 (48–69)
	2011	10	6.8 (5.6–8.1)	70 (58–83)	1 (0.84–1.2)	10 (8.6–12)	4 212	43	62 (52–75)
	2012	10	7 (5.8–8.3)	70 (58–83)	1 (0.84–1.2)	10 (8.3–12)	3 966	39	57 (48–68)
Botswana	1990	1	7.4 (2.9–14)	533 (212–997)	1.5 (0.58–2.7)	105 (42–196)	2 938	212	40 (21–100)
	1995	2	14 (8.8–19)	855 (553–1 220)	7.2 (4.7–10)	456 (295–651)	5 665	358	42 (29–65)
	2000	2	16 (13–20)	918 (736–1 120)	11 (9.0–14)	638 (511–777)	9 292	529	58 (47–72)
	2005	2	14 (13–15)	733 (667–802)	9.3 (8.4–10)	494 (449–541)	10 058	536	73 (67–80)
	2010	2	9.9 (8.8–11)	503 (449–560)	6.3 (5.6–7.0)	321 (286–357)	7 013	356	71 (64–79)
	2011	2	9 (8.1–10)	455 (406–507)	5.7 (5.1–6.3)	285 (254–317)	6 603	332	73 (66–82)
	2012	2	8.2 (7.3–9.1)	408 (364–454)	5.1 (4.5–5.6)	253 (226–281)	6 161	307	75 (68–84)
Burkina Faso	1990	9	7.6 (6.5–8.9)	87 (73–101)	2.9 (2.5–3.4)	33 (28–38)	1 497	17	20 (17–23)
	1995	10	8.3 (7.0–9.6)	82 (70–95)	3.3 (2.8–3.8)	32 (27–37)	2 572	25	31 (27–37)
	2000	12	8.2 (7.0–9.6)	71 (60–83)	2.8 (2.4–3.3)	25 (21–29)	2 331	20	28 (24–33)
	2005	13	8.4 (7.1–9.8)	62 (53–73)	2.3 (2.0–2.7)	17 (15–20)	3 478	26	41 (36–49)
	2010	16	9 (7.6–10)	58 (49–67)	1.8 (1.5–2.1)	11 (9.7–13)	4 800	31	54 (46–63)
	2011	16	9.1 (7.7–11)	57 (48–66)	1.7 (1.4–1.9)	10 (8.9–12)	5 286	33	58 (50–68)
	2012	16	9 (7.6–10)	54 (46–63)	1.6 (1.3–1.8)	9.5 (8.0–11)	5 210	32	58 (50–69)
Burundi	1990	6	9.1 (8.0–10)	162 (143–183)	1.6 (1.4–1.8)	28 (25–31)	4 575	82	50 (45–57)
	1995	6	20 (18–23)	321 (283–362)	6.7 (5.9–7.5)	107 (94–121)	3 326	54	17 (15–19)
	2000	7	19 (17–22)	288 (254–325)	7.4 (6.5–8.3)	110 (97–124)	6 421	96	33 (30–38)
	2005	8	15 (14–17)	198 (174–223)	4.8 (4.3–5.5)	62 (55–70)	6 585	85	43 (38–49)
	2010	9	13 (12–15)	144 (127–163)	3 (2.7–3.4)	33 (29–37)	7 611	82	57 (51–65)
	2011	10	13 (12–15)	139 (122–157)	2.8 (2.4–3.1)	29 (26–33)	6 742	71	51 (45–58)
	2012	10	13 (11–14)	130 (114–147)	2.5 (2.2–2.8)	25 (22–28)	6 921	70	54 (48–62)
Cameroon	1990	12	14 (11–16)	112 (92–133)	0.71 (0.58–0.84)	5.8 (4.8–7.0)	5 892	49	44 (37–53)
	1995	14	29 (24–34)	206 (170–246)	5.5 (4.6–6.6)	40 (33–47)	3 292	24	11 (9.6–14)
	2000	16	49 (41–59)	310 (255–369)	17 (14–20)	105 (87–126)	5 251	33	11 (8.9–13)
	2005	18	57 (47–68)	312 (258–372)	22 (18–26)	121 (100–145)	21 499	119	38 (32–46)
	2010	21	56 (47–67)	274 (226–327)	21 (18–25)	103 (85–123)	24 073	117	43 (36–52)
	2011	21	51 (42–61)	243 (200–290)	19 (16–23)	91 (75–109)	24 533	116	48 (40–58)
	2012	22	52 (43–61)	238 (197–283)	19 (16–23)	88 (73–104)	24 802	114	48 (40–58)
Cape Verde	1990	< 1	0.62 (0.380–0.910)	175 (108–259)	0.039 (0.024–0.058)	11 (6.8–16)	221	63	36 (24–58)
	1995	< 1	0.67 (0.550–0.800)	168 (137–201)	0.057 (0.046–0.069)	14 (12–17)	303	76	45 (38–55)
	2000	< 1	0.71 (0.580–0.850)	160 (131–193)	0.071 (0.057–0.085)	16 (13–19)			
	2005	< 1	0.73 (0.600–0.880)	153 (125–184)	0.074 (0.060–0.089)	15 (12–19)	292	61	40 (33–49)
	2010	< 1	0.71 (0.590–0.850)	147 (121–175)	0.067 (0.055–0.081)	14 (11–17)	356	73	50 (42–60)
	2011	< 1	0.71 (0.590–0.850)	145 (120–173)	0.068 (0.055–0.081)	14 (11–17)	380	77	53 (45–65)
	2012	< 1	0.71 (0.590–0.850)	144 (119–172)	0.071 (0.058–0.086)	14 (12–17)	420	85	59 (49–72)
Central African Republic	1990	3	25 (21–30)	861 (710–1 030)	9.8 (8.1–12)	336 (277–400)	2 124	73	8.5 (7.1–10)
	1995	3	39 (32–47)	1 200 (988–1 430)	18 (15–21)	549 (453–654)	3 339	102	8.5 (7.1–10)
	2000	4	39 (32–46)	1 070 (884–1 280)	18 (15–21)	492 (406–587)			
	2005	4	27 (23–33)	690 (569–822)	11 (9.4–14)	287 (237–342)	3 210	81	12 (9.9–14)
	2010	4	19 (16–22)	433 (357–515)	6.3 (5.2–7.5)	145 (119–172)	6 643	153	35 (30–43)
	2011	4	18 (15–21)	400 (330–477)	5.8 (4.8–6.9)	131 (108–156)	5 611	126	32 (27–38)
	2012	5	17 (14–20)	367 (302–438)	5.3 (4.4–6.4)	118 (97–141)	8 084	179	49 (41–59)
Chad	1990	6	5.6 (4.7–6.7)	95 (78–112)	0.69 (0.57–0.83)	12 (9.7–14)	2 591	44	46 (39–56)
	1995	7	9 (7.4–11)	128 (106–153)	1.8 (1.5–2.2)	26 (22–31)	3 186	46	36 (30–43)
	2000	8	13 (10–15)	151 (125–180)	3.1 (2.5–3.6)	37 (31–44)			
	2005	10	15 (12–18)	150 (124–178)	3.7 (3.1–4.4)	37 (31–44)	6 311	63	42 (35–51)
	2010	12	18 (15–21)	151 (125–179)	3.6 (2.9–4.2)	30 (25–36)	9 452	81	53 (45–65)
	2011	12	18 (15–22)	151 (125–179)	3.8 (3.2–4.6)	32 (26–38)	10 505	87	58 (48–70)
	2012	12	19 (16–22)	151 (125–180)	4.1 (3.4–4.8)	33 (27–39)	10 585	85	56 (47–68)
Comoros	1990	< 1	0.22 (0.180–0.270)	54 (44–64)			140	34	63 (53–76)
	1995	< 1	0.21 (0.180–0.250)	46 (38–55)			123	26	58 (48–70)
	2000	< 1	0.21 (0.170–0.250)	39 (32–46)			120	23	58 (49–71)
	2005	< 1	0.22 (0.180–0.260)	36 (30–43)			111	18	51 (43–62)
	2010	< 1	0.23 (0.190–0.270)	33 (28–40)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.13)			
	2011	< 1	0.24 (0.200–0.290)	34 (28–41)	<0.01 (<0.01–<0.01)	0.5 (0.45–0.65)	117	17	49 (41–59)
	2012	< 1	0.25 (0.200–0.290)	34 (28–41)	0.01 (<0.01–0.012)	1.4 (1.2–1.7)	120	17	49 (41–59)
Congo	1990	2	4 (2.5–5.9)	169 (104–250)	0.94 (0.58–1.4)	40 (24–58)	591	25	15 (9.9–24)
	1995	3	6.7 (5.4–8.0)	245 (200–294)	2.1 (1.7–2.5)	76 (62–91)	3 615	133	54 (45–66)
	2000	3	11 (9.3–13)	353 (298–412)	3.2 (2.7–3.7)	102 (86–119)	9 239	296	84 (72–99)
	2005	4	15 (12–18)	425 (347–510)	3.8 (3.1–4.6)	108 (88–130)	9 853	278	66 (55–80)
	2010	4	16 (13–19)	391 (320–470)	3.4 (2.8–4.1)	83 (68–100)	10 150	247	63 (53–77)
	2011	4	16 (13–20)	387 (317–465)	3.5 (2.8–4.2)	82 (67–98)	10 975	260	67 (56–82)
	2012	4	17 (14–20)	381 (311–458)	3.6 (2.9–4.3)	83 (68–100)	11 303	261	68 (57–84)
Côte d'Ivoire	1990	12	29 (25–33)	238 (206–272)	8.3 (7.2–9.5)	68 (59–78)	7 841	65	27 (24–31)
	1995	14	54 (47–62)	379 (329–433)	21 (19–24)	151 (131–172)	11 988	84	22 (19–26)
	2000	16	60 (52–68)	369 (320–422)	25 (22–28)	154 (134–177)	15 094	94	25 (22–29)
	2005	17	46 (40–53)	267 (232–306)	17 (15–19)	98 (85–112)	19 681	113	42 (37–49)
	2010	19	36 (31–41)	190 (165–217)	9.4 (8.2–11)	50 (43–57)	22 708	120	63 (55–73)
	2011	19	37 (32–42)	191 (165–218)	9.5 (8.3–11)	49 (43–56)	22 476	116	61 (53–70)
	2012	20	34 (30–39)	172 (149–198)	8.8 (7.6–10)	44 (38–51)	23 762	120	69 (61–81)
Democratic Republic of the Congo	1990	35	110 (92–140)	327 (262–398)	8.1 (6.5–9.9)	23 (19–28)	21 131	61	19 (15–23)
	1995	42	140 (110–160)	327 (268–392)	12 (9.7–14)	28 (23–34)	42 819	102	31 (26–38)
	2000	47	150 (130–180)	327 (273–385)	14 (12–17)	30 (25–35)	61 024	130	40 (34–48)
	2005	54	180 (150–200)	327 (279–379)	16 (14–19)	30 (25–34)	97 075	180	55 (47–64)
	2010	62	200 (180–230)	327 (282–375)	16 (14–19)	26 (23–30)	114 170	184	56 (49–65)
	2011	64	210 (180–240)	327 (282–375)	17 (14–19)	26 (22–30)	110 132	172	53 (46–61)
	2012	66	210 (190–250)	327 (282–375)	16 (14–19)	25 (22–29)	108 984	166	51 (44–59)
Equatorial Guinea	1990	< 1	0.3 (0.260–0.340)	80 (70–91)	0.014 (0.012–0.016)	3.7 (3.2–4.2)	260	70	87 (77–99)
	1995	< 1	0.35 (0.310–0.400)	80 (70–90)	0.028 (0.024–0.032)	6.3 (5.5–7.1)	306	69	87 (77–99)
	2000	< 1	0.52 (0.460–0.590)	101 (88–114)	0.062 (0.054–0.071)	12 (11–14)			
	2005	< 1	0.66 (0.580–0.750)	110 (96–124)	0.11 (0.095–0.12)	18 (16–20)			
	2010	< 1	0.94 (0.830–1.1)	135 (119–153)	0.18 (0.16–0.21)	26 (23–30)	820	118	87 (77–99)
	2011	< 1	1 (0.890–1.1)	142 (124–161)	0.2 (0.18–0.23)	29 (25–32)	883	123	87 (77–99)
	2012	< 1	1 (0.900–1.2)	139 (122–158)	0.2 (0.17–0.23)	27 (24–31)			
Eritrea	1990	3	8 (5.3–11)	243 (162–341)	0.15 (0.098–0.21)	4.5 (3.0–6.3)	3 699	113	46 (33–70)
	1995	3	6.7 (4.5–9.5)	198 (132–278)	0.4 (0.27–0.56)	12 (7.8–16)	21 453	630	320 (230–480)
	2000	4	6.2 (4.1–8.7)	157 (104–220)	0.97 (0.64–1.4)	25 (16–34)	6 652	169	110 (77–160)
	2005	5	5.9 (3.9–8.2)	121 (80–169)	1.1 (0.72–1.5)	22 (15–31)	3 585	74	61 (44–92)
	2010	6	5.8 (3.8–8.1)	100 (67–140)	0.8 (0.53–1.1)	14 (9.3–20)	2 870	50	50 (36–75)
	2011	6	5.7 (3.8–8.1)	97 (64–136)	0.79 (0.53–1.1)	13 (8.9–19)	3 049	51	53 (38–80)
	2012	6	5.7 (3.8–8.0)	93 (62–131)	0.73 (0.49–1.0)	12 (7.9–17)	3 143	51	55 (39–83)

[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Ethiopia	1990	48	180 (100–270)	367 (218–553)	11 (6.3–16)	22 (13–33)	88 634	184	50 (33–85)
	1995	57	240 (140–360)	419 (249–633)	36 (22–55)	64 (38–97)	26 034	46	11 (7.2–18)
	2000	66	280 (170–420)	421 (251–636)	61 (36–92)	93 (55–140)	91 101	138	33 (22–55)
	2005	76	260 (150–390)	342 (203–516)	54 (32–81)	71 (42–107)	124 262	163	48 (32–80)
	2010	87	230 (170–310)	269 (191–359)	30 (21–40)	35 (25–46)	154 694	178	66 (49–93)
	2011	89	230 (170–300)	258 (191–335)	27 (20–35)	30 (22–39)	156 539	175	68 (52–91)
	2012	92	230 (170–290)	247 (183–321)	23 (17–30)	25 (19–33)	145 323	158	64 (49–87)
Gabon	1990	< 1	2.1 (1.7–2.5)	221 (182–263)	0.12 (0.096–0.14)	12 (10–15)	917	97	44 (37–53)
	1995	1	3.4 (2.8–4.1)	315 (260–375)	0.47 (0.39–0.56)	44 (36–52)	1 115	103	33 (28–40)
	2000	1	6.5 (5.3–7.7)	527 (435–627)	1.6 (1.3–1.9)	132 (108–157)			
	2005	1	8.1 (6.7–9.6)	586 (484–698)	2.5 (2.0–2.9)	178 (146–212)	2 512	182	31 (26–38)
	2010	2	7.4 (6.1–8.8)	475 (392–566)	2.1 (1.7–2.5)	136 (112–162)	3 790	244	51 (43–62)
	2011	2	7.2 (5.9–8.6)	450 (372–536)	2 (1.6–2.4)	125 (103–149)	4 404	276	61 (52–74)
	2012	2	7 (5.8–8.3)	428 (354–510)	1.9 (1.5–2.2)	115 (95–137)	4 929	302	71 (59–85)
Gambia	1990	< 1	1.7 (1.0–2.5)	185 (114–273)	0.023 (0.014–0.033)	2.5 (1.5–3.6)			
	1995	1	2.2 (1.8–2.6)	204 (167–245)	0.071 (0.058–0.085)	6.7 (5.5–8.0)	1 023	96	47 (39–57)
	2000	1	2.8 (2.3–3.3)	225 (184–271)	0.2 (0.16–0.24)	16 (13–19)	1 553	126	56 (47–69)
	2005	1	3.6 (2.9–4.3)	248 (203–298)	0.47 (0.38–0.56)	33 (27–39)	2 031	141	57 (47–70)
	2010	2	4.6 (3.8–5.5)	273 (226–325)	0.78 (0.65–0.93)	47 (39–56)	1 989	118	43 (36–52)
	2011	2	4.8 (4.0–5.7)	279 (230–331)	0.77 (0.64–0.91)	44 (37–53)	2 302	133	48 (40–58)
	2012	2	5.1 (4.2–6.0)	284 (234–337)	0.76 (0.63–0.90)	42 (35–50)	2 333	130	46 (39–56)
Ghana	1990	15	23 (10–40)	155 (69–275)	1.7 (0.74–2.9)	11 (5.0–20)	6 407	44	28 (16–63)
	1995	17	28 (16–44)	167 (93–263)	4.2 (2.3–6.6)	25 (14–39)	8 636	52	31 (20–55)
	2000	19	29 (18–41)	152 (97–220)	5.9 (3.8–8.6)	31 (20–46)	10 933	58	38 (26–60)
	2005	21	25 (19–33)	119 (88–154)	5.4 (4.0–7.0)	25 (19–33)	12 124	57	48 (37–64)
	2010	24	21 (18–24)	86 (75–97)	3.7 (3.2–4.2)	15 (13–17)	14 607	60	70 (62–80)
	2011	25	20 (17–22)	79 (69–89)	3.3 (2.9–3.7)	13 (12–15)	15 389	62	79 (70–90)
	2012	25	18 (16–21)	72 (63–82)	2.8 (2.4–3.1)	11 (9.6–12)	14 753	58	81 (71–92)
Guinea	1990	6	15 (12–18)	248 (204–295)	1.1 (0.90–1.3)	18 (15–22)	1 988	33	13 (11–16)
	1995	8	20 (16–23)	249 (205–297)	2.8 (2.3–3.3)	35 (29–42)	3 523	45	18 (15–22)
	2000	9	20 (17–24)	234 (193–279)	4.1 (3.3–4.8)	46 (38–55)	5 440	62	27 (22–32)
	2005	10	20 (17–24)	211 (173–251)	4.5 (3.7–5.4)	47 (39–56)	6 863	72	34 (29–41)
	2010	11	20 (17–24)	188 (155–224)	3.8 (3.2–4.6)	35 (29–42)	11 038	101	54 (45–66)
	2011	11	20 (17–24)	183 (151–219)	3.7 (3.1–4.5)	33 (28–40)	11 359	102	55 (47–67)
	2012	11	20 (17–24)	178 (146–213)	3.7 (3.0–4.4)	32 (27–39)	11 407	100	56 (47–68)
Guinea-Bissau	1990	1	1.6 (1.1–2.2)	158 (108–217)	0.08 (0.054–0.11)	7.8 (5.3–11)	1 163	114	73 (53–110)
	1995	1	2 (1.6–2.4)	174 (142–209)	0.23 (0.19–0.27)	20 (16–24)	1 613	142	81 (68–100)
	2000	1	2.4 (2.0–2.9)	192 (157–230)	0.55 (0.45–0.66)	43 (35–52)	1 273	100	52 (43–64)
	2005	1	3 (2.5–3.6)	211 (173–254)	1 (0.84–1.2)	73 (59–87)	1 774	125	59 (49–72)
	2010	2	3.7 (3.0–4.4)	233 (192–278)	1.3 (1.1–1.5)	81 (67–97)	2 183	138	59 (50–72)
	2011	2	3.9 (3.2–4.6)	238 (196–283)	1.4 (1.2–1.7)	88 (73–105)	2 063	127	53 (45–65)
	2012	2	4 (3.3–4.8)	242 (200–289)	1.6 (1.3–1.9)	94 (77–112)	1 939	117	48 (40–58)
Kenya	1990	23	33 (28–37)	139 (121–159)	3.6 (3.1–4.1)	15 (13–17)	11 788	50	36 (32–41)
	1995	27	46 (43–50)	169 (155–184)	19 (18–21)	70 (64–76)	28 142	103	61 (56–66)
	2000	31	89 (84–95)	286 (267–305)	47 (44–50)	151 (141–161)	64 159	205	72 (67–77)
	2005	36	130 (120–140)	359 (339–380)	64 (60–67)	177 (168–188)	102 680	287	80 (76–85)
	2010	41	120 (120–130)	298 (286–311)	51 (49–53)	124 (119–129)	99 272	243	81 (78–85)
	2011	42	120 (120–130)	288 (276–300)	49 (47–51)	116 (111–121)	97 320	232	80 (77–84)
	2012	43	120 (110–120)	272 (261–283)	45 (44–47)	105 (101–109)	92 987	215	79 (76–83)
Lesotho	1990	2	2.9 (2.2–3.8)	184 (135–240)	0.083 (0.061–0.11)	5.2 (3.8–6.8)	2 525	158	86 (66–120)
	1995	2	5.7 (5.0–6.4)	323 (283–367)	2.2 (1.9–2.5)	125 (109–142)	5 181	295	91 (81–100)
	2000	2	10 (9.0–12)	553 (484–626)	7.6 (6.6–8.6)	408 (357–462)	9 746	525	95 (84–110)
	2005	2	12 (10–14)	639 (535–752)	10 (8.3–12)	517 (433–608)	10 802	561	88 (75–100)
	2010	2	13 (11–14)	633 (553–719)	9.7 (8.5–11)	483 (422–549)	11 674	581	92 (81–110)
	2011	2	13 (11–15)	632 (551–717)	9.5 (8.3–11)	467 (408–531)	11 561	570	90 (79–100)
	2012	2	13 (11–15)	630 (550–716)	9.9 (8.7–11)	485 (423–550)	10 776	525	83 (73–95)
Liberia	1990	2	4.2 (2.6–6.2)	199 (123–293)	0.095 (0.058–0.14)	4.5 (2.8–6.7)			
	1995	2	4.6 (3.7–5.5)	219 (179–263)	0.31 (0.25–0.38)	15 (12–18)	1 393	67	31 (25–37)
	2000	3	7 (5.7–8.4)	242 (197–290)	0.8 (0.65–0.98)	28 (22–34)	1 500	52	21 (18–26)
	2005	3	8.7 (7.1–10)	266 (218–320)	1 (0.83–1.3)	32 (25–38)	3 432	105	39 (33–48)
	2010	4	12 (9.6–14)	293 (242–349)	0.91 (0.73–1.1)	23 (18–28)	6 597	167	57 (48–69)
	2011	4	12 (10–15)	299 (247–356)	0.83 (0.67–1.0)	20 (16–25)	7 906	194	65 (54–79)
	2012	4	13 (11–15)	304 (251–362)	0.76 (0.61–0.93)	18 (15–22)	8 093	193	64 (53–77)
Madagascar	1990	12	45 (37–54)	391 (322–466)	0.34 (0.28–0.40)	2.9 (2.4–3.5)	6 261	54	14 (12–17)
	1995	13	45 (37–54)	335 (276–400)	0.55 (0.46–0.66)	4.1 (3.4–4.9)	21 616	161	48 (40–58)
	2000	16	46 (38–55)	293 (241–349)	0.73 (0.60–0.87)	4.6 (3.8–5.5)			
	2005	18	48 (39–57)	262 (216–313)	0.77 (0.64–0.92)	4.2 (3.5–5.0)	18 993	104	40 (33–48)
	2010	21	51 (42–61)	242 (199–288)	0.7 (0.57–0.83)	3.3 (2.7–3.9)	24 432	116	48 (40–58)
	2011	22	52 (43–62)	238 (196–284)	0.67 (0.55–0.80)	3.1 (2.6–3.7)	26 019	120	50 (42–61)
	2012	22	52 (43–62)	234 (193–280)	0.64 (0.53–0.77)	2.9 (2.4–3.4)	25 782	116	49 (41–60)
Malawi	1990	9	31 (22–41)	326 (230–438)	13 (9.5–18)	143 (101–192)	12 395	131	40 (30–57)
	1995	10	46 (38–55)	462 (383–548)	29 (24–34)	291 (241–345)	19 155	192	42 (35–50)
	2000	11	53 (44–63)	467 (387–554)	37 (31–44)	329 (273–391)	23 604	208	45 (38–54)
	2005	13	46 (38–54)	354 (292–421)	33 (27–39)	256 (211–305)	25 491	197	56 (47–68)
	2010	15	33 (31–35)	219 (203–236)	21 (20–23)	142 (132–153)	21 092	140	64 (59–69)
	2011	15	30 (27–32)	191 (177–206)	19 (18–21)	125 (116–135)	19 361	125	66 (61–71)
	2012	16	26 (24–28)	163 (151–176)	16 (15–17)	100 (93–108)	20 335	128	78 (73–85)
Mali	1990	8	6 (5.8–6.3)	76 (72–80)	0.59 (0.56–0.62)	7.4 (7.0–7.8)	2 933	37	49 (46–51)
	1995	9	7.2 (6.9–7.6)	80 (76–84)	1.2 (1.2–1.3)	14 (13–14)	3 087	34	43 (41–45)
	2000	10	7.9 (7.6–8.3)	77 (74–81)	1.6 (1.6–1.7)	16 (15–17)	4 216	41	53 (51–56)
	2005	12	8.3 (7.9–8.7)	69 (66–73)	1.6 (1.5–1.7)	13 (13–14)	4 704	39	57 (54–60)
	2010	14	8.8 (8.4–9.2)	63 (60–66)	1.3 (1.3–1.4)	9.4 (9.0–9.9)	5 291	38	60 (57–63)
	2011	14	8.9 (8.5–9.3)	62 (59–65)	1.3 (1.2–1.4)	8.9 (8.5–9.4)	5 428	38	61 (58–64)
	2012	15	9 (8.5–9.4)	60 (57–63)	1.2 (1.2–1.3)	8.2 (7.8–8.6)	5 446	37	61 (58–64)
Mauritania	1990	2	4.6 (2.8–6.8)	228 (140–336)	0.05 (0.031–0.074)	2.5 (1.5–3.7)	5 284	261	110 (78–190)
	1995	2	5.9 (4.8–7.0)	251 (205–302)	0.1 (0.083–0.12)	4.4 (3.6–5.2)	3 849	165	66 (55–80)
	2000	3	7.5 (6.1–9.0)	277 (226–333)	0.17 (0.14–0.20)	6.3 (5.1–7.5)	3 067	113	41 (34–50)
	2005	3	9.6 (7.9–12)	305 (250–367)	0.27 (0.22–0.32)	8.4 (6.9–10)	2 162	69	22 (19–28)
	2010	4	12 (10–15)	337 (277–402)	0.44 (0.36–0.53)	12 (10–15)	2 461	68	20 (17–25)
	2011	4	13 (10–15)	344 (283–410)	0.5 (0.41–0.60)	14 (11–16)	1 804	49	14 (12–17)
	2012	4	13 (11–16)	350 (288–418)	0.57 (0.47–0.68)	15 (12–18)	2 616	69	20 (16–24)
Mauritius	1990	1	0.29 (0.180–0.430)	28 (17–41)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	119	11	41 (28–66)
	1995	1	0.29 (0.240–0.350)	26 (21–31)	<0.01 (<0.01–<0.01)	0.3 (0.24–0.35)	131	12	45 (37–55)
	2000	1	0.29 (0.240–0.350)	24 (20–29)	0.011 (<0.01–0.013)	0.9 (0.74–1.1)	160	14	55 (46–68)
	2005	1	0.28 (0.230–0.330)	23 (19–28)	0.017 (0.014–0.021)	1.4 (1.2–1.7)	125	10	45 (37–55)
	2010	1	0.27 (0.220–0.320)	22 (18–26)	0.016 (0.013–0.020)	1.3 (1.1–1.6)	122	9.9	46 (39–56)
	2011	1	0.26 (0.220–0.310)	21 (18–25)	0.015 (0.013–0.018)	1.2 (1.0–1.5)	114	9.2	43 (36–53)
	2012	1	0.26 (0.210–0.310)	21 (17–25)	0.014 (0.011–0.017)	1.1 (0.92–1.3)	128	10	49 (41–60)
Mozambique	1990	14	54 (8.5–140)	401 (62–1 050)	0.84 (0.13–2.2)	6.2 (0.97–16)	15 899	117	29 (11–190)
	1995	16	76 (24–160)	478 (153–985)	15 (4.8–31)	94 (30–194)	17 882	112	23 (11–73)
	2000	18	94 (41–170)	513 (227–914)	41 (18–74)	227 (100–404)	21 158	116	23 (13–51)
	2005	21	110 (63–170)	524 (298–811)	61 (35–94)	290 (165–449)	33 231	158	30 (20–53)
	2010	24	130 (90–180)	544 (377–741)	78 (54–110)	327 (227–446)	43 558	182	33 (25–48)
	2011	25	130 (93–180)	548 (380–747)	81 (56–110)	331 (229–451)	44 627	182	33 (24–48)
	2012	25	140 (96–190)	552 (383–753)	83 (58–110)	330 (228–450)	47 741	189	34 (25–50)
Namibia	1990	1	5.4 (4.3–6.6)	379 (300–468)	0.48 (0.38–0.59)	34 (27–41)	2 671	189	50 (40–63)
	1995	2	9.5 (7.5–12)	575 (456–709)	2.8 (2.2–3.4)	168 (133–207)	1 540	93	16 (13–20)
	2000	2	27 (21–33)	1 410 (1 110–1 730)	15 (12–19)	798 (631–983)	10 799	569	40 (33–51)
	2005	2	28 (22–35)	1 390 (1 100–1 720)	19 (15–23)	932 (738–1 150)	14 920	736	53 (43–67)
	2010	2	19 (15–23)	867 (686–1 070)	11 (8.3–13)	483 (383–596)	11 281	518	60 (48–75)
	2011	2	16 (13–20)	723 (573–891)	8.7 (6.9–11)	391 (310–482)	10 806	487	67 (55–85)
	2012	2	15 (12–18)	655 (524–800)	7.3 (5.8–8.9)	323 (258–394)	10 003	443	68 (55–84)

[a] Rates are per 100 000 population.

[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE[b]		CASE DETECTION
			NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Niger	1990	8	28 (23–33)	358 (295–426)	1.1 (0.91–1.3)	14 (12–17)	5 200	67	19 (16–23)
	1995	9	25 (20–29)	270 (223–321)	1.7 (1.4–2.1)	19 (16–22)	1 980	22	8 (6.7–9.7)
	2000	11	21 (17–25)	191 (157–227)	2.1 (1.7–2.5)	19 (16–23)	4 701	43	22 (19–27)
	2005	13	19 (15–22)	142 (118–170)	2.2 (1.8–2.6)	16 (14–20)	7 873	60	42 (35–51)
	2010	16	18 (15–21)	113 (94–135)	1.9 (1.6–2.3)	12 (9.8–14)	10 130	64	56 (47–68)
	2011	17	18 (15–21)	108 (90–129)	1.9 (1.6–2.3)	11 (9.5–14)	10 510	64	59 (49–71)
	2012	17	18 (15–21)	104 (86–124)	1.9 (1.5–2.2)	11 (8.9–13)	10 989	64	62 (52–75)
Nigeria	1990	96	120 (1.3–500)	128 (1.3–526)	2.2 (0.023–9.1)	2.3 (<0.1–9.5)	20 122	21	16 (4.0–1 600)
	1995	108	150 (8.0–490)	139 (7.4–456)	16 (0.84–52)	15 (0.78–48)	13 423	12	8.9 (2.7–170)
	2000	123	210 (15–660)	172 (12–536)	46 (3.3–140)	38 (2.7–118)	25 821	21	12 (3.9–170)
	2005	140	240 (33–660)	175 (23–476)	64 (8.6–170)	46 (6.2–125)	63 990	46	26 (9.6–200)
	2010	160	210 (100–360)	133 (64–225)	53 (26–91)	33 (16–57)	84 121	53	40 (23–82)
	2011	164	190 (91–340)	118 (55–204)	49 (23–85)	30 (14–52)	86 778	53	45 (26–95)
	2012	169	180 (85–310)	108 (50–186)	46 (21–80)	27 (13–47)	92 818	55	51 (29–110)
Rwanda	1990	7	21 (19–23)	290 (259–323)	11 (9.5–12)	148 (132–165)	6 387	89	30 (27–34)
	1995	6	29 (26–32)	513 (458–571)	15 (13–16)	260 (232–290)	3 054	54	11 (9.4–12)
	2000	8	27 (24–30)	325 (290–362)	13 (12–15)	157 (140–175)	6 093	73	22 (20–25)
	2005	9	17 (15–19)	181 (162–202)	7.5 (6.7–8.3)	79 (71–88)	7 220	77	42 (38–47)
	2010	11	11 (10–13)	106 (94–118)	3.7 (3.3–4.1)	34 (31–38)	6 703	62	59 (53–66)
	2011	11	11 (9.4–12)	94 (84–105)	3.3 (3.0–3.7)	30 (26–33)	6 623	59	63 (57–71)
	2012	11	9.8 (8.8–11)	86 (77–96)	2.9 (2.6–3.2)	25 (22–28)	6 091	53	62 (56–69)
Sao Tome and Principe	1990	< 1	0.16 (0.098–0.230)	135 (83–199)	<0.01 (<0.01–<0.01)	2 (1.2–2.9)	17	14	11 (7.3–17)
	1995	< 1	0.16 (0.130–0.190)	124 (102–149)	<0.01 (<0.01–<0.01)	3.8 (3.1–4.6)			
	2000	< 1	0.16 (0.130–0.190)	114 (93–137)	<0.01 (<0.01–0.010)	6.2 (5.0–7.4)	97	70	61 (51–75)
	2005	< 1	0.16 (0.140–0.190)	105 (88–123)	0.015 (0.012–0.017)	9.6 (8.0–11)	136	88	84 (72–100)
	2010	< 1	0.17 (0.140–0.200)	96 (79–115)	0.018 (0.015–0.021)	9.9 (8.1–12)	121	68	71 (59–86)
	2011	< 1	0.17 (0.140–0.210)	94 (78–113)	0.018 (0.014–0.021)	9.6 (7.9–11)	136	74	79 (66–96)
	2012	< 1	0.17 (0.140–0.210)	93 (76–111)	0.017 (0.014–0.021)	9.2 (7.5–11)	115	61	66 (55–80)
Senegal	1990	8	10 (8.5–12)	138 (114–164)	0.17 (0.14–0.20)	2.2 (1.8–2.6)	4 977	66	48 (40–58)
	1995	9	13 (11–16)	153 (126–183)	0.4 (0.33–0.48)	4.6 (3.8–5.5)	7 561	87	57 (47–69)
	2000	10	15 (13–18)	155 (128–184)	0.8 (0.66–0.96)	8.1 (6.7–9.7)	8 508	86	56 (47–68)
	2005	11	16 (13–19)	142 (117–169)	1.2 (1.0–1.4)	11 (8.9–13)	9 765	87	61 (51–74)
	2010	13	18 (15–21)	137 (113–163)	1.5 (1.3–1.8)	12 (9.7–14)	11 061	85	63 (52–76)
	2011	13	18 (15–22)	136 (112–162)	1.6 (1.3–1.9)	12 (9.6–14)	11 022	83	61 (51–74)
	2012	14	19 (16–22)	137 (113–163)	1.7 (1.4–2.0)	12 (9.9–14)	12 265	89	65 (55–79)
Seychelles	1990	< 1	0.03 (0.019–0.044)	43 (27–64)			41	59	140 (92–220)
	1995	< 1	0.03 (0.025–0.036)	40 (33–48)			8	11	27 (22–33)
	2000	< 1	0.029 (0.024–0.035)	37 (30–44)			20	25	69 (57–84)
	2005	< 1	0.029 (0.024–0.035)	33 (27–40)			14	16	48 (40–59)
	2010	< 1	0.028 (0.023–0.033)	31 (25–37)	<0.01 (<0.01–<0.01)	1.8 (<0.1–8.0)	17	19	61 (51–74)
	2011	< 1	0.028 (0.023–0.033)	30 (25–36)	<0.01 (<0.01–0.011)	5.8 (1.6–12)	21	23	76 (64–92)
	2012	< 1	0.027 (0.023–0.033)	30 (24–35)	<0.01 (<0.01–<0.01)	2.7 (<0.1–10)	20	22	73 (61–88)
Sierra Leone	1990	4	8.4 (5.2–12)	207 (128–305)	0.011 (<0.01–0.016)	0.3 (0.17–0.40)	632	16	7.5 (5.1–12)
	1995	4	8.3 (6.4–11)	212 (162–269)	0.087 (0.067–0.11)	2.2 (1.7–2.8)	1 955	50	23 (19–31)
	2000	4	11 (8.1–14)	264 (196–341)	0.45 (0.33–0.58)	11 (8.0–14)	3 760	91	34 (27–46)
	2005	5	26 (21–31)	503 (410–605)	2.3 (1.9–2.7)	44 (36–53)	6 737	132	26 (22–32)
	2010	6	38 (31–45)	660 (540–791)	4.2 (3.4–5.0)	73 (60–87)	12 859	224	34 (28–41)
	2011	6	39 (32–47)	668 (542–807)	4.3 (3.5–5.2)	73 (59–88)	12 734	217	32 (27–40)
	2012	6	40 (32–49)	674 (540–821)	3.9 (3.2–4.8)	66 (53–81)	13 074	219	32 (27–40)
South Africa	1990	37	110 (76–150)	301 (206–413)	2.5 (1.7–3.4)	6.7 (4.6–9.2)	80 400	219	73 (53–110)
	1995	41	130 (110–160)	317 (259–381)	25 (21–30)	61 (50–73)	73 917	178	56 (47–69)
	2000	45	260 (210–310)	576 (471–691)	140 (110–170)	311 (254–374)	151 239	337	59 (49–72)
	2005	48	450 (360–540)	925 (756–1 110)	300 (250–360)	622 (508–746)	270 178	560	61 (50–74)
	2010	51	500 (420–600)	981 (809–1 170)	330 (270–390)	640 (528–763)	354 786	690	70 (59–85)
	2011	52	520 (430–610)	993 (819–1 180)	330 (270–390)	635 (524–756)	362 453	698	70 (59–85)
	2012	52	530 (430–630)	1 000 (827–1 190)	330 (270–390)	631 (521–752)	323 664	618	62 (52–75)
Swaziland	1990	< 1	2.3 (1.4–3.4)	267 (165–394)	0.38 (0.23–0.56)	44 (27–64)			
	1995	< 1	3.2 (2.7–3.9)	337 (275–405)	1.6 (1.3–1.9)	161 (132–194)	2 050	213	63 (53–77)
	2000	1	8.5 (7.0–10)	803 (657–964)	6.3 (5.2–7.6)	595 (486–714)	5 877	552	69 (57–84)
	2005	1	13 (10–15)	1 150 (938–1 380)	11 (8.7–13)	962 (787–1 150)	8 705	788	69 (57–84)
	2010	1	15 (13–18)	1 290 (1 060–1 530)	13 (11–15)	1 070 (882–1 270)	10 101	847	66 (55–80)
	2011	1	16 (13–19)	1 320 (1 090–1 570)	12 (10–15)	1 020 (844–1 220)	8 337	688	52 (44–63)
	2012	1	17 (14–20)	1 350 (1 110–1 610)	13 (11–15)	1 040 (856–1 240)	7 165	582	43 (36–52)
Togo	1990	4	1.8 (1.5–2.1)	47 (39–56)	0.18 (0.15–0.21)	4.7 (3.8–5.6)	1 324	35	74 (62–90)
	1995	4	2.5 (2.0–3.0)	58 (48–69)	0.44 (0.37–0.53)	10 (8.5–12)	1 520	35	61 (51–74)
	2000	5	3.5 (2.9–4.2)	72 (59–86)	0.89 (0.73–1.1)	18 (15–22)	1 409	29	40 (34–49)
	2005	6	4.2 (3.5–5.1)	77 (63–91)	1.2 (1.0–1.5)	22 (18–26)	2 541	46	60 (50–73)
	2010	6	4.6 (3.8–5.5)	73 (60–87)	1.2 (0.99–1.4)	19 (16–23)	2 791	44	61 (51–74)
	2011	6	4.7 (3.9–5.6)	73 (60–87)	1.2 (0.97–1.4)	18 (15–22)	2 888	45	61 (51–74)
	2012	7	4.9 (4.0–5.8)	73 (60–87)	1.2 (0.98–1.4)	18 (15–21)	2 843	43	59 (49–71)
Uganda	1990	18	110 (57–180)	624 (328–1 010)	79 (41–130)	449 (236–729)	14 740	84	13 (8.3–26)
	1995	21	110 (62–180)	542 (297–860)	81 (44–130)	390 (214–619)	25 316	122	23 (14–41)
	2000	24	100 (63–150)	427 (259–636)	68 (41–100)	280 (170–417)	30 372	125	29 (20–48)
	2005	29	87 (63–120)	304 (220–402)	50 (36–66)	173 (125–228)	41 040	143	47 (36–65)
	2010	34	71 (57–86)	209 (169–253)	38 (31–46)	113 (91–137)	42 885	126	60 (50–75)
	2011	35	68 (55–82)	193 (156–234)	36 (29–44)	102 (83–124)	46 306	132	68 (56–84)
	2012	36	65 (53–79)	179 (145–216)	35 (28–42)	95 (77–115)	44 663	123	69 (57–85)
United Republic of Tanzania	1990	25	58 (49–67)	226 (193–261)	14 (12–16)	56 (47–64)	22 249	87	39 (33–45)
	1995	30	68 (58–78)	226 (193–261)	31 (26–36)	103 (88–119)	39 847	133	59 (51–69)
	2000	34	80 (70–91)	236 (207–268)	41 (36–46)	121 (106–137)	54 442	160	68 (60–77)
	2005	39	83 (76–89)	213 (197–229)	40 (37–43)	104 (96–112)	61 022	157	74 (69–80)
	2010	45	80 (75–85)	177 (166–189)	33 (31–35)	72 (68–77)	61 098	136	77 (72–82)
	2011	46	78 (74–83)	169 (159–180)	31 (29–33)	68 (63–72)	59 357	128	76 (71–81)
	2012	48	79 (74–84)	165 (154–175)	32 (30–34)	68 (64–72)	62 178	130	79 (74–84)
Zambia	1990	8	56 (49–63)	710 (624–801)	35 (31–40)	449 (395–507)	16 863	215	30 (27–34)
	1995	9	70 (64–76)	788 (719–861)	49 (45–54)	559 (510–611)	35 958	407	52 (47–57)
	2000	10	72 (67–77)	713 (661–767)	52 (48–56)	513 (475–551)	49 806	493	69 (64–75)
	2005	11	65 (59–71)	566 (519–615)	47 (43–51)	409 (375–445)	49 576	432	76 (70–83)
	2010	13	61 (55–67)	462 (418–509)	39 (35–43)	292 (264–322)	44 154	334	72 (66–80)
	2011	14	61 (55–67)	444 (401–489)	38 (34–42)	277 (250–305)	43 583	320	72 (65–80)
	2012	14	60 (54–66)	427 (385–470)	35 (32–39)	251 (226–276)	40 726	289	68 (62–75)
Zimbabwe	1990	10	31 (17–50)	296 (159–476)	18 (9.5–29)	170 (91–273)	9 132	87	29 (18–55)
	1995	12	56 (39–77)	483 (335–658)	46 (32–62)	392 (272–535)	30 831	265	55 (40–79)
	2000	13	91 (72–110)	726 (573–897)	79 (62–97)	629 (496–777)	50 855	407	56 (45–71)
	2005	13	100 (81–130)	799 (634–984)	83 (66–100)	657 (521–809)	50 454	397	50 (40–63)
	2010	13	83 (64–100)	633 (489–795)	63 (48–79)	480 (371–603)	44 209	338	53 (43–69)
	2011	13	81 (62–100)	603 (466–757)	58 (45–73)	433 (335–543)	38 404	287	48 (38–62)
	2012	14	77 (60–97)	562 (434–706)	55 (42–69)	399 (308–501)	35 760	261	46 (37–60)

[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Algeria		1990	11 607									–
		1995	13 507	5 735	2 256	5 065		451		451		72
		2000	18 572	8 328	2 019	7 758		467	80	547		80
		2005	21 336	8 654	1 651	10 216	267	548	165	713		84
		2010	22 336	8 299	1 770	11 770	0	497	194	691	0	82
		2011	21 429	7 790	1 753	11 444	0	442	168	610	0	82
	• 44 57 •	2012	21 880	7 510	1 702	12 294	0	374	202	576	0	82
Angola		1990	10 271									–
		1995	5 143	3 804	1 631	266		134		134		70
		2000	16 062	9 053	5 367	1 102		540		540		63
		2005	37 175	20 410	12 467	2 569		1 729	1 142	2 871		62
		2010	44 655	21 146	17 285	3 780		2 444	5 332	7 776		55
		2011	47 240	21 703	18 380	4 399	0	2 758	1 686	4 444	0	54
	• 99 249 •	2012	51 819	21 124	23 056	4 776	0	2 863	1 607	4 470		48
Benin		1990	2 074	1 410	310	182		172	49	221		82
		1995	2 400	1 839	281	212		68		68		87
		2000	2 697	2 277	130	199		91	189	280		95
		2005	3 270	2 739	96	285		150	187	337		97
		2010	3 756	2 973	296	367	0	120	85	205	0	91
		2011	4 212	3 331	329	398	0	154	108	262	0	91
	• 41 39 •	2012	3 966	3 171	305	316	0	174	109	283	0	91
Botswana		1990	2 938									–
		1995	5 665	1 903	2 885	720		147		147		40
		2000	9 292	3 091	4 789	1 231		181	1 058	1 239		39
		2005	10 058	3 170	5 166	1 220		502	46	548		38
		2010	7 013	3 295	2 055	1 210	0	453	619	1 072	0	62
		2011	6 603	2 669	1 983	1 213	0	738	130	868	0	57
	• 212 307 •	2012	6 161	2 426	2 208	1 151	0	376	62	438	0	52
Burkina Faso		1990	1 497									–
		1995	2 572	1 028	195	195		45		45		84
		2000	2 331	1 545	196	502		88	90	178	0	89
		2005	3 478	2 290	367	571	90	160	167	327	0	86
		2010	4 800	3 041	736	729	77	217	335	552	0	81
		2011	5 286	3 450	692	742	175	227	257	484	0	83
	• 17 32 •	2012	5 210	3 583	662	617	154	194	195	389	0	84
Burundi		1990	4 575									–
		1995	3 326	1 121	908	1 116		181		181		55
		2000	6 421	3 159	1 489	1 568	0	205	20	225	0	68
		2005	6 585	3 262	1 160	2 089	0	74	42	116	0	74
		2010	7 611	4 590	963	1 826	8	224	108	332	0	83
		2011	6 742	4 060	799	1 649	5	229	86	315	0	84
	• 82 70 •	2012	6 921	4 075	746	1 887	3	210	95	305	0	85
Cameroon		1990	5 892									–
		1995	3 292	2 896	142	18		236		236		95
		2000	5 251	3 960	625	415		251		251		86
		2005	21 499	13 001	5 021	2 461	0	1 016	574	1 590	0	72
		2010	24 073	14 464	5 437	3 157	0	1 015	479	1 494	0	73
		2011	24 533	14 927	4 941	3 597	0	1 068	593	1 661	0	75
	• 49 114 •	2012	24 802	15 016	5 204	3 524	0	1 058	558	1 616	0	74
Cape Verde		1990	221									–
		1995	303	111	150	12		30		30		43
		2000										–
		2005	292	135	93	43	0	21	13	34	0	59
		2010	356	186	98	54		18	9	27		65
		2011	380	182	127	54	0	17	10	27	0	59
	• 63 85 •	2012	420	189	151	66	0	14	5	19	0	56
Central African Republic		1990	2 124									–
		1995	3 339	1 794	964	393		188		188		65
		2000										–
		2005	3 210	2 153	608	286	0	163	128	291	0	78
		2010	6 643	3 638	1 598	1 079	24	304	117	421	0	69
		2011	5 611	3 479	964	876	60	232	113	345	0	78
	• 73 179 •	2012	8 084	4 641	1 752	1 356		335	199	534		73
Chad		1990	2 591									–
		1995	3 186	2 002	518	463		203		203		79
		2000										–
		2005	6 311	2 516	2 419	1 055		321	194	515		51
		2010	9 452	3 833	3 746	1 217	193	463	245	708	0	51
		2011	10 505	4 434	4 211	1 033	249	578	269	847	0	51
	• 44 85 •	2012	10 585	3 849	4 809	1 113	180	634	215	849	0	44
Comoros		1990	140									–
		1995	123	103	10	7		7		7		91
		2000	120	87	14	15		4	1	5		86
		2005	111	79	14	16	0	2	1	3	0	85
		2010										–
		2011	117	62	13	28	5	9	2	11	0	83
	• 34 17 •	2012	120	71	24	23		2	2	4		75
Congo		1990	591									–
		1995	3 615	2 013	849	675		78		78		70
		2000	9 239	4 218	2 016	2 810		169	650	819		68
		2005	9 853	3 640	3 249	2 665		299	108	407		53
		2010	10 150	3 568	3 545	2 692		345	171	516		50
		2011	10 975	3 716	3 930	2 990	0	339	168	507	0	49
	• 25 261 •	2012	11 303	3 984	3 937	3 110	0	272	209	481	0	50
Côte d'Ivoire		1990	7 841									–
		1995	11 988	8 254	1 508	1 577		649		649		85
		2000	15 094	10 276	1 616	2 756	0	446	447	893	0	86
		2005	19 681	12 496	2 315	4 235	0	635	345	980	0	84
		2010	22 708	14 131	2 381	5 179	0	1 017	502	1 519	0	86
		2011	22 476	14 416	2 316	4 729	0	1 015	444	1 459	0	86
	• 65 120 •	2012	23 762	14 660	2 818	5 344	0	940	460	1 400	0	84
Democratic Republic of the Congo		1990	21 131									–
		1995	42 819	20 914	7 953	9 112		2 891		2 891		72
		2000	61 024	36 513	8 089	13 785		2 637		2 637		82
		2005	97 075	65 040	9 959	18 494		3 582	2 483	6 065		87
		2010	114 170	73 653	14 039	22 340	0	4 138	4 466	8 604	0	84
		2011	110 132	71 321	13 471	21 579		3 761	4 158	7 919		84
	• 61 166 •	2012	108 984	71 124	13 214	20 669		3 977	3 515	7 492		84
Equatorial Guinea		1990	260									–
		1995	306	219	45	41		1		1		83
		2000										–
		2005										–
		2010	820	579	98	109	0	34	33	67	0	86
		2011	883	611	118	131	0	23	30	53	0	84
	• 70 0 •	2012										–

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

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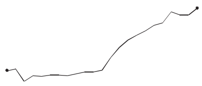
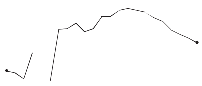
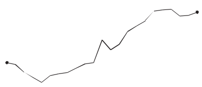
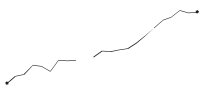
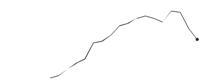
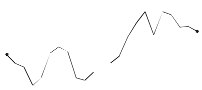
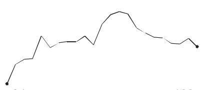
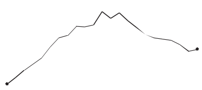
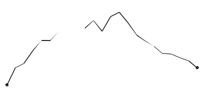
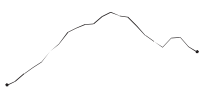
TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Eritrea		1990	3 699									–
		1995	21 453		18 205	3 248						–
		2000	6 652	590	5 332	683		47	20	67		10
		2005	3 585	687	1 764	1 001		97	27	124	36	28
		2010	2 870	832	1 115	836	0	87	121	208	0	43
		2011	3 049	835	1 163	888	60	103	44	147	0	42
	• 113 51 •	2012	3 143	779	1 154	1 093	0	117	111	228	0	40
Ethiopia		1990	88 634									–
		1995	26 034	9 040	8 888	7 763		343		343		50
		2000	91 101	30 510	30 565	28 907		1 119	1 658	2 777		50
		2005	124 262	38 525	39 816	43 675		2 246	873	3 119		49
		2010	154 694	46 634	54 979	50 417	0	2 664	2 234	4 898		46
		2011	156 539	49 594	55 497	49 305	0	2 143	2 478	4 621	0	47
	• 184 158 •	2012	145 323	47 236	49 413	46 854	0	1 820	2 269	4 089	0	49
Gabon		1990	917									–
		1995	1 115	486	517	68		44		44		48
		2000										–
		2005	2 512	1 042	1 071	241		158	99	257		49
		2010	3 790	1 560	1 366	379	0	168	390	558	317	53
		2011	4 404	1 740	1 959	384	0	321	512	833	0	47
	• 97 302 •	2012	4 929	1 745	2 353	414	0	175	486	661	242	43
Gambia		1990										–
		1995	1 023	778	171	68		6		6		82
		2000	1 553	919	515	99		20	33	53		64
		2005	2 031	1 127	749	78	0	77	89	166	0	60
		2010	1 989	1 344	462	143	0	40	41	81	0	74
		2011	2 302	1 375	673	199	4	51	31	82	0	67
	• 0 130 •	2012	2 333	1 429	643	169	0	92	54	146		69
Ghana		1990	6 407									–
		1995	8 636	2 638	1 225	109		159		159		68
		2000	10 933	7 316	2 500	615		502		502		75
		2005	12 124	7 505	3 068	1 019		532		532		71
		2010	14 607	7 656	5 068	1 400	0	483	538	1 021	0	60
		2011	15 389	7 616	5 875	1 471		427	451	878		56
	• 44 58 •	2012	14 753	7 097	5 979	1 301		376	454	830		54
Guinea		1990	1 988									–
		1995	3 523	2 263	527	620		55		55		81
		2000	5 440	3 920	430	938		152	294	446		90
		2005	6 863	5 479	524	629		231	227	458		91
		2010	11 038	7 041	1 472	2 077	86	362	286	648	0	83
		2011	11 359	6 934	1 446	2 284	273	422	247	669		83
	• 33 100 •	2012	11 407	6 653	1 510	2 434	321	489	234	723	0	82
Guinea-Bissau		1990	1 163									–
		1995	1 613	956	714	19		59		59		57
		2000	1 273	526	600	57		90		90		47
		2005	1 774	1 132	522	24	0	96	42	138	0	68
		2010	2 183	1 409	636	22	0	116	76	192	0	69
		2011	2 063	1 230	644	63	0	126	7	133	0	66
	• 114 117 •	2012	1 939	1 324	521	43	0	51	11	62	0	72
Kenya		1990	11 788	6 800								100
		1995	28 142	13 934	9 676	3 468		1 064		1 064		59
		2000	64 159	28 773	24 143	9 118		1 773	704	2 477		54
		2005	102 680	40 389	43 772	15 265		3 254	5 721	8 975		48
		2010	99 272	36 260	41 962	17 382	0	3 668	6 811	10 479	0	46
		2011	97 320	37 085	39 810	17 069	0	3 356	6 661	10 017	0	48
	• 50 215 •	2012	92 987	36 937	36 697	15 934	0	3 419	6 162	9 581	0	50
Lesotho		1990	2 525									–
		1995	5 181	1 361	2 685	653		147		147		34
		2000	9 746	3 041	2 838	2 520		385	1 096	1 481		52
		2005	10 802	4 280	4 063	2 020		439	602	1 041		51
		2010	11 674	3 600	5 331	2 222		521	1 464	1 985		40
		2011	11 561	3 666	5 296	2 095		504	1 224	1 728		41
	• 158 525 •	2012	10 776	3 298	5 142	1 877		459	1 195	1 654		39
Liberia		1990										–
		1995	1 393	1 154	119	120						91
		2000	1 500	1 021	285	187		7	25	32		78
		2005	3 432	2 167	575	657		33	24	57		79
		2010	6 597	3 750	1 385	1 363	0	99	71	170	0	73
		2011	7 906	4 261	1 967	1 612	0	66	59	125	0	68
	• 0 193 •	2012	8 093	4 342	1 946	1 749	0	56	39	95	0	69
Madagascar		1990	6 261									–
		1995	21 616	8 026	987	2 219		596		596		89
		2000										–
		2005	18 993	13 056	1 287	3 634	0	1 016	482	1 498	0	91
		2010	24 432	16 795	1 657	4 545	0	1 435	674	2 109	0	91
		2011	26 019	17 927	1 726	4 851		1 515	703	2 218		91
	• 54 116 •	2012	25 782	17 206	1 804	4 964	0	1 519	427	1 946	289	91
Malawi		1990	12 395	4 301	5 827	1 885		382		382		42
		1995	19 155	6 285	7 054	5 257		551		551		47
		2000	23 604	8 260	8 846	5 734		764	0	764		48
		2005	25 491	8 443	10 132	5 823		1 093	2 119	3 212		45
		2010	21 092	7 240	8 245	4 857	0	750	1 444	2 194		47
		2011	19 361	7 003	6 612	5 076		670	1 493	2 163		51
	• 131 128 •	2012	20 335	6 951	6 550	4 886	0	694	128	822	1 254	51
Mali		1990	2 933									–
		1995	3 087	1 866	609	459		153		153		75
		2000	4 216	2 527	797	653		239		239		76
		2005	4 704	3 530	482	492		200	180	380	0	88
		2010	5 291	3 686	481	926	0	198	157	355	0	88
		2011	5 428	3 777	491	984		176	145	321		88
	• 37 37 •	2012	5 446	3 724	487	1 081	0	154	156	310	0	88
Mauritania		1990	5 284									–
		1995	3 849	2 074	800	455		520		520		72
		2000	3 067	1 583	687	580		580	358	938		70
		2005	2 162	1 155	454	403	0	150	56	206	0	72
		2010	2 461	1 422	390	524	0	125	28	153		78
		2011	1 804	1 009	222	458	0	87	16	103	28	82
	• 261 69 •	2012	2 616	1 522	354	628	0	112	20	132	0	81
Mauritius		1990	119									–
		1995	131	113	8	12		2		2		93
		2000	160	115	14	23		8	4	12		89
		2005	125	110	4	8		3	2	5		96
		2010	122	105	5	6	0	6	1	7	0	95
		2011	114	100	3	8	0	3	2	5	0	97
	• 11 10 •	2012	128	118	3	5	0	2	2	4	0	98

[a] Rates are per 100 000 population.

[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Mozambique		1990	15 899									–
		1995	17 882	10 566	5 054	1 363		899		899		68
		2000	21 158	13 257	4 037	2 262		917	546	1 463		77
		2005	33 231	17 877	9 184	4 771		1 399	487	1 886		66
		2010	43 558	20 097	16 408	5 621	0	1 432	2 616	4 048	0	55
		2011	44 627	19 537	18 159	5 504	0	1 427	2 825	4 252	0	52
	• 117 189 •	2012	47 741	20 951	19 797	5 542	0	1 451	3 086	4 537	0	51
Namibia		1990	2 671									–
		1995	1 540	697	507	248		88		88		58
		2000	10 799	4 012	4 724	1 459		604	930	1 534		46
		2005	14 920	5 222	4 455	1 907	2 487	849	974	1 823		54
		2010	11 281	4 464	3 309	2 330		1 178	1 344	2 522		57
		2011	10 806	4 503	3 034	2 039	0	1 230	1 132	2 362	0	60
	• 189 443 •	2012	10 003	4 333	2 473	2 063		1 134	1 142	2 276		64
Niger		1990	5 200									–
		1995	1 980	1 492	116	372						93
		2000	4 701	3 045	699	702		255		255		81
		2005	7 873	5 050	1 193	1 227		403	351	754	0	81
		2010	10 130	6 283	1 730	1 492	173	452	215	667	0	78
		2011	10 510	6 604	1 856	1 489		376	204	580	185	78
	• 67 64 •	2012	10 989	6 848	1 989	1 689	116	347	218	565	0	77
Nigeria		1990	20 122									–
		1995	13 423	9 476	3 364	280		303		303		74
		2000	25 821	17 423	6 613	1 069		716	1 640	2 356		72
		2005	63 990	35 048	22 705	2 836	0	2 009	2 858	4 867	1 392	61
		2010	84 121	45 416	32 616	3 422	0	2 667	6 326	8 993	0	58
		2011	86 778	47 436	33 034	3 793	0	2 515	6 272	8 787	0	59
	• 21 55 •	2012	92 818	52 901	32 972	4 432		2 513	5 035	7 548		62
Rwanda		1990	6 387									–
		1995	3 054	1 840	676	338		200		200		73
		2000	6 093	3 681	845	1 289		278	96	374		81
		2005	7 220	4 166	859	1 727	97	371	460	831		83
		2010	6 703	3 785	1 072	1 577		269	362	631		78
		2011	6 623	3 811	1 017	1 300	242	253	161	414	0	79
	• 89 53 •	2012	6 091	3 571	858	1 247	203	212	117	329	0	81
Sao Tome and Principe		1990	17									–
		1995										–
		2000	97	30	56	7		4		4		35
		2005	136	49	75	1	0	11	16	27		40
		2010	121	47	63	10	0	1	1	2	0	43
		2011	136	53	49	28	0	6	10	16	0	52
	• 14 61 •	2012	115	59	37	16	0	3	12	15	0	61
Senegal		1990	4 977									–
		1995	7 561	5 421	1 073	504		563		563		83
		2000	8 508	5 823	1 370	800	0	515	541	1 056		81
		2005	9 765	6 722	1 557	921		565	355	920		81
		2010	11 061	7 688	1 470	1 404	0	499	530	1 029	0	84
		2011	11 022	7 765	1 389	1 315	0	553	566	1 119	0	85
	• 66 89 •	2012	12 265	8 448	1 755	1 524	0	538	554	1 092	0	83
Seychelles		1990	41									–
		1995	8	6	2	1		0		0		75
		2000	20	11	7	2		0		0		61
		2005	14	8	3	1	0	2	0	2		73
		2010	17	9	8	0	0	0	0	0	0	53
		2011	21	2	13	6	0	0	0	0	0	13
	• 59 22 •	2012	20	9	8	2	0	1	1	2	0	53
Sierra Leone		1990	632									–
		1995	1 955	1 454	339	121		41		41		81
		2000	3 760	2 472	821	400		67	374	441		75
		2005	6 737	4 370	1 679	551		137	193	330		72
		2010	12 859	6 898	4 919	831		211	336	547		58
		2011	12 734	7 435	4 358	775		166	209	375		63
	• 16 219 •	2012	13 074	8 031	4 241	570		232	280	512		65
South Africa		1990	80 400									–
		1995	73 917	23 112	74 399	10 636		179		179		24
		2000	151 239	75 967	16 392	17 486			56 202	56 202		82
		2005	270 178	125 460	76 680	39 739	0	28 299	32 289	60 588	0	62
		2010	354 786	132 107	151 772	52 095	0	18 812	41 768	60 580	0	47
		2011	362 453	129 770	148 266	47 285	0	18 394	27 521	45 915	18 738	47
	• 219 618 •	2012	323 664	119 898	134 631	42 467	0	26 668	25 918	52 586	0	47
Swaziland		1990										–
		1995	2 050	660	687	219		489		489		49
		2000	5 877	1 823	3 198	583		273	976	1 249		36
		2005	8 705	2 187	4 106	1 458		311	159	470	643	35
		2010	10 101	3 011	5 064	1 631		395	1 045	1 440		37
		2011	8 337	2 408	4 228	1 395	0	306	843	1 149	0	36
	• 0 582 •	2012	7 165	2 548	3 111	1 209	0	297	574	871	0	45
Togo		1990	1 324									–
		1995	1 520	887	304	236		93		93		74
		2000	1 409	984	91	287		47	86	133		92
		2005	2 541	1 798	170	484		85	94	179	4	91
		2010	2 791	2 096	164	397	0	134	106	240	0	93
		2011	2 888	2 087	205	475	0	121	92	213	0	91
	• 35 43 •	2012	2 843	2 112	168	444	0	119	69	188	0	93
Uganda		1990	14 740									–
		1995	25 316	13 631	5 912	2 070		955		955		70
		2000	30 372	17 246	9 003	2 618		1 505	0	1 505		66
		2005	41 040	20 559	15 040	3 780	0	1 661	769	2 430		58
		2010	42 885	23 456	13 567	4 571	0	1 291	2 661	3 952	0	63
		2011	46 306	25 614	14 389	5 001		1 302	2 712	4 014		64
	• 84 123 •	2012	44 663	24 916	13 270	5 143	0	1 334	2 548	3 882	0	65
United Republic of Tanzania		1990	22 249	11 553								100
		1995	39 847	19 955	12 362	6 195		1 335		1 335		62
		2000	54 442	24 049	17 624	10 997		1 772		1 772		58
		2005	61 022	25 264	20 810	13 094		1 854	3 178	5 032		55
		2010	61 098	24 769	21 184	13 715		1 430	2 355	3 785		54
		2011	59 357	24 115	20 438	13 725	0	1 079	1 791	2 870	0	54
	• 87 130 •	2012	62 178	25 138	21 393	14 595	0	1 052	1 714	2 766	0	54
Zambia		1990	16 863									–
		1995	35 958	10 038	3 268	656		243		243		75
		2000	49 806	12 927	25 222	10 202		1 455		1 455		34
		2005	49 576	14 857	24 327	8 587		1 805	3 691	5 496		38
		2010	44 154	12 639	20 412	9 255	0	1 848	4 462	6 310	0	38
		2011	43 583	12 046	20 004	9 908		1 625	5 011	6 636		38
	• 215 289 •	2012	40 726	12 645	17 050	9 174		1 857	4 551	6 408		43
Zimbabwe		1990	9 132									–
		1995	30 831	8 965	10 934	5 040		737		737		45
		2000	50 855	14 392	27 626	8 837						34
		2005	50 454	13 155	29 074	6 721	0	1 504	4 437	5 941		31
		2010	44 209	11 654	25 157	6 061	0	1 337	3 348	4 685	0	32
		2011	38 404	12 596	19 172	5 192	0	1 444	2 901	4 345	0	40
	• 87 261 •	2012	35 760	12 163	17 316	4 912	0	1 369	2 960	4 329	0	41

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT: CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Algeria		1995	5 735		–						
		2000	8 328	8 328	100	80	7	1	2	5	5
		2005	8 654	8 379	97	74	13	2	0	3	8
		2009	8 402	8 438	100	81	10	2	1	3	3
		2010	8 299	7 894	95	79	10	2	1	4	4
	• 0 92 •	2011	7 790	7 364	95	81	11	2	0	4	2
Angola		1995	3 804		–						
		2000	9 053	6 392	71	68		3	2	26	2
		2005	20 410	20 113	99	45	28	3	3	19	3
		2009	22 488	21 627	96	47	25	4	2	18	5
		2010	21 146	21 145	100	30	18	8	1	8	35
	• 0 55 •	2011	21 703	21 703	100	36	19	7	2	13	23
Benin		1995	1 839	1 839	100	50	21	6	1	17	5
		2000	2 277	2 277	100	57	20	6	2	11	3
		2005	2 739	2 766	101	74	13	7	2	3	1
		2009	2 960	2 963	100	82	9	5	2	1	0
		2010	2 973	2 987	100	84	7	5	2	1	1
	• 71 90 •	2011	3 331	3 324	100	84	6	6	3	1	0
Botswana		1995	1 903	2 060	108	13	54	5	1	12	15
		2000	3 091	3 991	129	22	55	6	0	7	10
		2005	3 170	3 335	105	37	33	7	1	8	15
		2009	3 144	3 492	111	57	22	5	3	4	9
		2010	3 295	3 314	101	50	32	5	2	3	8
	• 67 81 •	2011	2 669	3 107	116	36	46	6	2	3	9
Burkina Faso		1995	1 028	1 200	117	22	2	5	1	3	67
		2000	1 545	1 574	102	53	7	13	2	16	9
		2005	2 290	2 290	100	66	5	14	7	6	1
		2009	3 061	3 061	100	72	4	10	9	4	2
		2010	3 041	3 057	101	74	3	9	7	6	1
	• 25 78 •	2011	3 450	3 442	100	74	4	9	6	6	1
Burundi		1995	1 121	1 798	160	25	20	3	0	14	38
		2000	3 159	3 465	110	42	39	4	0	13	1
		2005	3 262	3 424	105	52	27	4	0	17	1
		2009	3 974	3 974	100	83	7	3	1	5	0
		2010	4 590	4 590	100	87	4	4	1	3	0
	• 45 92 •	2011	4 060	4 060	100	88	4	4	1	3	0
Cameroon		1995	2 896	2 740	95	45	8	7	1	35	4
		2000	3 960	3 164	80	67	10	7	2	13	1
		2005	13 001	13 169	101	66	7	6	1	14	5
		2009	14 635	14 428	99	65	13	6	1	10	5
		2010	14 464	14 464	100	64	14	6	1	10	5
	• 53 80 •	2011	14 927	14 927	100	67	13	6	1	9	4
Cape Verde		1995	111		–						
		2000		14	–	64	0	7	0	0	29
		2005	135	135	100	56	8	3	2	19	12
		2009	172		–						
		2010	186		–						
	• 0 77 •	2011	182	182	100	55	23	4	0	9	10
Central African Republic		1995	1 794	692	39	16	21	7	0	53	3
		2000		1 366	–	36	21	0	3	34	5
		2005	2 153	3 217	149	38	28	6	2	8	19
		2009	5 132	5 132	100	33	20	3	1	13	30
		2010	3 638	3 569	98	45	23	6	1	19	7
	• 37 68 •	2011	3 479	3 205	92	44	23	4	1	18	10
Chad		1995	2 002	529	26	17	30	6	1	43	3
		2000			–						
		2005	2 516		–						
		2009	3 820	3 820	100	55	22	4	2	15	3
		2010	3 833	3 780	99	39	28	4	2	21	5
	• 47 68 •	2011	4 434	4 430	100	45	23	4	1	19	8
Comoros		1995	103	113	110	90	0	4	0	6	0
		2000	87	85	98	91	2	4	4	0	0
		2005	79	70	89	91	0	3	4	0	1
		2009	76		–						
		2010		87	–	91	0	3	2	1	2
	• 90 25 •	2011	62	4	6	25		75			0
Congo		1995	2 013		–						
		2000	4 218	3 114	74	57	12	4	0	22	5
		2005	3 640	4 121	113	24	4	0	1	13	58
		2009	3 433	3 634	106	66	12	1	0	13	7
		2010	3 568	3 447	97	63	13	2	1	12	8
	• 0 71 •	2011	3 716	3 716	100	59	12	2	2	11	14
Côte d'Ivoire		1995	8 254	7 221	87	63	6	4	1	17	9
		2000	10 276	10 631	103	47	10	5	2	16	20
		2005	12 496	12 496	100	62	11	8	2	10	6
		2009	14 300	14 300	100	69	10	8	3	7	4
		2010	14 131	14 131	100	66	12	7	2	8	5
	• 68 78 •	2011	14 416	14 416	100	69	9	7	2	9	3
Democratic Republic of the Congo		1995	20 914	16 247	78	55	20	5	1	10	9
		2000	36 513	36 123	99	69	8	6	1	8	7
		2005	65 040	65 066	100	80	5	6	1	4	4
		2009	73 078	72 367	99	85	3	4	1	3	4
		2010	73 653	73 448	100	86	4	4	1	3	3
	• 74 87 •	2011	71 321	71 321	100	82	5	4	1	4	5
Equatorial Guinea		1995	219	219	100	89	0	3	0	8	0
		2000			–						
		2005			–						
		2009	490	490	100	47	19	3	1	16	14
		2010	579	590	102	50	20	5	1	17	7
	• 89 0 •	2011	611		–						
Eritrea		1995			–						
		2000	590	765	130	64	12	8	1	9	6
		2005	687	688	100	83	5	7	1	2	1
		2009	802	804	100	83	2	5	3	2	5
		2010	832	804	97	81	4	7	3	1	5
	• 0 87 •	2011	835	835	100	83	4	4	4	1	5
Ethiopia		1995	9 040	5 087	56	56	5	5	2	13	19
		2000	30 510	29 662	97	63	17	6	1	9	4
		2005	38 525	39 430	102	64	14	5	1	4	12
		2009	44 396	44 807	101	65	19	3	1	3	10
		2010	46 634	46 634	100	66	17	3	1	3	10
	• 61 90 •	2011	49 594	41 351	83	70	19	3	1	2	4
Gabon		1995	486	249	51	63	22	1	2	9	2
		2000			–						
		2005	1 042	1 165	112	35	12	10	1	42	1
		2009	1 244	1 163	93	37	18	1	1	25	18
		2010	1 560	1 671	107	34	29	2	3	26	6
	• 86 51 •	2011	1 740	1 654	95	26	25	2	1	36	11

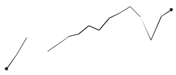
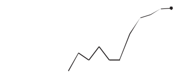
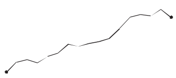
[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT: CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Gambia		1995	778	686	88	69	7	5	1	13	5
		2000	919		–						
		2005	1 127	1 127	100	81	6	7	1	3	2
		2009	1 313	1 296	99	88	1	6	1	2	1
		2010	1 344	1 344	100	86	2	5	1	3	3
	• 76 88 •	2011	1 375	1 375	100	86	2	6	2	2	2
Ghana		1995	2 638	361	14	41	13	11	2	11	22
		2000	7 316	7 316	100	45	5	6	3	14	27
		2005	7 505	7 584	101	68	5	9	2	11	5
		2009	8 255	8 255	100	79	8	7	1	3	3
		2010	7 656	7 656	100	76	10	7	1	3	3
	• 54 86 •	2011	7 616	7 623	100	75	11	8	1	3	2
Guinea		1995	2 263	2 263	100	62	17	6	2	9	5
		2000	3 920	3 920	100	59	9	7	1	15	9
		2005	5 479	5 811	106	65	7	6	2	10	10
		2009	5 377	5 597	104	72	6	5	2	7	8
		2010	7 041	7 250	103	76	4	4	2	6	9
	• 78 82 •	2011	6 934	5 152	74	76	6	4	2	7	5
Guinea-Bissau		1995	956	959	100	42	23	6	0	23	6
		2000	526		–						
		2005	1 132	1 167	103	51	18	12	1	11	7
		2009	1 310	1 498	114	51	17	6	1	21	5
		2010	1 409	1 271	90	54	18	6	0	14	7
	• 65 73 •	2011	1 230	1 308	106	60	14	6	0	13	7
Kenya		1995	13 934	6 470	46	60	14	9	1	9	7
		2000	28 773	28 376	99	66	14	5	0	9	6
		2005	40 389	40 436	100	71	11	5	0	8	5
		2009	37 402	37 402	100	78	8	4	1	6	4
		2010	36 260	36 260	100	81	6	3	1	5	4
	• 75 88 •	2011	37 085	36 717	99	83	5	3	1	4	3
Lesotho		1995	1 361	1 788	131	32	14	7	0	9	36
		2000	3 041		–						
		2005	4 280	5 542	129		73	8	1	4	14
		2009	3 976	4 070	102	59	11	11	2	5	12
		2010	3 600	3 852	107	58	10	10	2	8	12
	• 47 74 •	2011	3 666	3 666	100	63	11	11	2	6	7
Liberia		1995	1 154	1 595	138	79		5	5	12	0
		2000	1 021	924	90	71	9	2	6	10	3
		2005	2 167	2 167	100	60	16	3	0	12	8
		2009	3 796	3 796	100	57	26	5	1	9	3
		2010	3 750		–						
	• 79 86 •	2011	4 261	3 853	90	64	22	4	1	6	4
Madagascar		1995	8 026	9 101	113	47	8	6	2	16	20
		2000		10 506	–	61	9	7	1	17	5
		2005	13 056	15 298	117	67	7	6	1	13	5
		2009	15 729	15 709	100	78	3	4	1	9	5
		2010	16 795	16 789	100	78	4	4	1	9	4
	• 55 83 •	2011	17 927	17 602	98	79	4	4	1	8	4
Malawi		1995	6 285	6 293	100	65	6	19	1	0	10
		2000	8 260	8 296	100	70	3	19	1	4	3
		2005	8 443	8 443	100	72	2	15	1	3	7
		2009	7 623	7 624	100	87	2	7	1	2	1
		2010	7 240	7 240	100	86	2	7	1	2	2
	• 71 85 •	2011	7 003	7 012	100	81	4	7	2	2	4
Mali		1995	1 866	1 290	69	41	18	5	0	22	14
		2000	2 527		–						
		2005	3 530	3 530	100	69	6	11	4	7	3
		2009	5 163	4 454	86	66	12	10	4	7	2
		2010	3 686	3 778	102	76	0	8	3	9	4
	• 59 68 •	2011	3 777	3 777	100	55	13	7	3	7	15
Mauritania		1995	2 074		–						
		2000	1 583		–						
		2005	1 155	1 761	152	44	11	2	1	19	24
		2009	1 555	1 563	101	51	12	3	1	10	23
		2010	1 422	1 422	100	55	14	2	1	13	15
	• 0 73 •	2011	1 009	1 450	144	57	16	2	0	16	9
Mauritius		1995	113		–						
		2000	115	160	139	0	92	2	2	3	0
		2005	110	110	100	86		3		6	5
		2009	98	98	100	88	0	4	0	4	4
		2010	105	105	100	90	0	4	1	5	0
	• 0 90 •	2011	100	100	100	90	0	5	0	5	0
Mozambique		1995	10 566	10 566	100	34	5	3	1	9	48
		2000	13 257	13 296	100	73	2	10	1	11	3
		2005	17 877	17 877	100	78	1	12	1	5	2
		2009	19 579	19 579	100	84	1	9	1	3	2
		2010	20 097	20 097	100	83	2	8	1	4	1
	• 39 0 •	2011	19 537		–						
Namibia		1995	697		–						
		2000	4 012	4 012	100	41	15	6	2	15	21
		2005	5 222	5 222	100	59	16	7	2	10	7
		2009	4 608	4 702	102	74	11	5	4	4	2
		2010	4 464	4 538	102	74	11	5	4	3	2
	• 0 84 •	2011	4 503	4 502	100	74	10	5	5	5	0
Niger		1995	1 492		–						
		2000	3 045	3 193	105	42	22	8	4	12	11
		2005	5 050	5 050	100	49	25	5	2	14	5
		2009	6 347	6 313	99	66	13	7	2	7	5
		2010	6 283	6 266	100	69	13	7	2	6	3
	• 0 80 •	2011	6 604	6 604	100	66	15	5	3	9	3
Nigeria		1995	9 476	9 476	100	34	15	5	2	9	35
		2000	17 423	16 372	94	65	14	6	2	11	2
		2005	35 048	35 080	100	50	25	9	4	11	1
		2009	44 863	44 863	100	73	10	5	1	8	4
		2010	45 416	45 416	100	73	10	5	1	8	2
	• 49 85 •	2011	47 436	47 436	100	77	9	5	1	7	2
Rwanda		1995	1 840		–						
		2000	3 681	3 776	103	52	9	6	1	4	28
		2005	4 166	4 175	100	73	10	6	2	3	6
		2009	4 184	4 165	100	77	8	5	4	3	3
		2010	3 785	3 806	101	80	8	5	4	2	1
	• 0 89 •	2011	3 811	3 811	100	84	5	5	4	2	1
Sao Tome and Principe		1995			–						
		2000	30	97	323	52	27	9	5	7	0
		2005	49	49	100	98	0	2	0	0	0
		2009	52	50	96	98	0	0	2	0	0
		2010	47	45	96	20	58	9	0	13	0
	• 0 72 •	2011	53	53	100	45	26	4	19	6	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Senegal		1995	5 421	5 421	100	35	9	4	6	16	31
		2000	5 823	5 823	100	43	9	3	1	21	22
		2005	6 722	6 722	100	70	6	4	2	11	8
		2009	7 883	7 883	100	81	3	4	2	5	5
		2010	7 688	7 855	102	81	4	4	2	6	4
	• 44 85 •	2011	7 765	7 898	102	82	3	3	2	7	3
Seychelles		1995	6	9	150	89	0	11	0	0	0
		2000	11	11	100	82	0	0	0	9	9
		2005	8		–						
		2009	11	11	100	55	9	18	0	0	18
		2010	9	7	78	100	0	0	0	0	0
	• 89 67 •	2011	2	9	450	56	11	0	0	11	22
Sierra Leone		1995	1 454	1 315	90	55	15	5	7	16	2
		2000	2 472	2 296	93	70	7	6	2	13	2
		2005	4 370	4 370	100	77	8	6	1	6	2
		2009	6 092	6 083	100	68	10	6	1	11	4
		2010	6 898	6 897	100	77	9	4	1	6	3
	• 69 88 •	2011	7 435	7 351	99	79	9	3	1	6	2
South Africa		1995	23 112	28 209	122	40	18	4	4	15	19
		2000	75 967	86 276	114	54	9	6	1	13	17
		2005	125 460	134 782	107	58	13	7	2	10	10
		2009	139 468	139 458	100	67	6	7	2	7	12
		2010	132 107	134 250	102	73	6	6	2	7	6
	• 58 79 •	2011	129 770	132 867	102	74	5	6	2	6	7
Swaziland		1995	660		–						
		2000	1 823		–						
		2005	2 187	2 187	100	22	20	6	2	5	45
		2009	3 498	3 498	100	51	19	10	7	7	7
		2010	3 011	3 011	100	51	22	11	9	6	2
	• 0 73 •	2011	2 408	2 499	104	48	25	8	8	5	5
Togo		1995	887	856	97	42	18	9	3	17	11
		2000	984		–						
		2005	1 798	1 796	100	66	5	12	4	11	2
		2009	2 267	2 267	100	77	4	10	4	3	2
		2010	2 096	2 096	100	81	3	8	3	4	1
	• 60 85 •	2011	2 087	2 075	99	81	3	7	2	5	1
Uganda		1995	13 631	15 301	112	26	18	7	1	13	36
		2000	17 246	13 874	80	33	30	7	0	17	12
		2005	20 559	20 559	100	32	41	6	0	16	5
		2009	23 113	23 113	100	30	38	5	1	12	16
		2010	23 456	23 456	100	35	36	5	1	11	13
	• 44 77 •	2011	25 614	25 614	100	39	38	5	1	12	5
United Republic of Tanzania		1995	19 955	19 955	100	69	5	9	1	6	11
		2000	24 049	23 923	99	72	6	10	0	6	5
		2005	25 264	25 324	100	79	4	9	0	4	4
		2009	24 895	24 895	100	82	6	5	0	2	5
		2010	24 769	24 373	98	84	6	5	0	2	3
	• 73 88 •	2011	24 115	24 218	100	80	7	4	0	2	6
Zambia		1995	10 038	5 957	59	47	23	7	2	14	8
		2000	12 927	7 014	54	48	19	7	6	6	14
		2005	14 857	14 857	100	76	8	8	1	2	5
		2009	12 995	12 995	100	85	6	6	1	3	0
		2010	12 639	12 639	100	83	6	6	1	3	1
	• 70 88 •	2011	12 046	12 711	106	82	5	4	1	3	4
Zimbabwe		1995	8 965	9 702	108	32	21	10	0	10	26
		2000	14 392	14 392	100	61	8	12	0	7	13
		2005	13 155	12 860	98	59	9	12	2	7	12
		2009	10 195	10 195	100	70	9	8	1	7	6
		2010	11 654	11 654	100	72	10	8	1	5	5
	• 53 81 •	2011	12 596	12 596	100	73	8	8	1	4	6

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT: CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Algeria		1995	451		–						
		2000	547	512	94	61	16	5	4	5	10
		2005	713	713	100	48	24	2	1	6	19
		2009	612	553	90	72	12	4	2	5	5
		2010	691	598	87	69	14	4	2	5	6
	• 0 80 •	2011	610	588	96	65	15	3	4	11	3
Angola		1995	134		–						
		2000	540		–						
		2005	2 871	1 613	56	23	24	5	17	26	4
		2009	3 863	3 044	79	45	21	5	4	21	3
		2010	7 776	2 272	29	42	23	8	4	16	7
	• 0 0 •	2011	4 444	4 444	100		0	0	0	0	100
Benin		1995	68	139	204	48	19	9	4	19	1
		2000	280	282	101	61	21	5	1	11	0
		2005	337	341	101	60	21	10	3	6	1
		2009	271	270	100	70	11	11	6	1	1
		2010	205	203	99	76	9	6	6	1	1
	• 67 84 •	2011	262	262	100	80	4	8	5	1	1
Botswana		1995	147		–						
		2000	1 239	395	32	21	54	8	1	11	6
		2005	548	219	40	33	28	11	5	12	11
		2009	1 122	1 126	100	22	43	13	4	8	10
		2010	1 072	1 027	96	20	46	14	3	7	10
	• 0 70 •	2011	868	998	115	15	55	11	3	6	10
Burkina Faso		1995	45	26	58	65	12	8	12	0	4
		2000	178	166	93	57	4	13	5	15	7
		2005	327	272	83	71	4	6	10	6	4
		2009	608	509	84	70	5	9	8	5	3
		2010	552	475	86	72	4	9	8	6	1
	• 77 75 •	2011	484	481	99	70	4	10	8	6	1
Burundi		1995	181	265	146	25	21	6	2	28	18
		2000	225	92	41	50	13	15	3	17	1
		2005	116		–						
		2009	238	238	100	81	3	6	3	4	2
		2010	332	332	100	78	4	7	5	6	0
	• 46 85 •	2011	315	315	100	80	4	6	5	4	0
Cameroon		1995	236		–						
		2000	251	347	138	50	10	9	5	26	2
		2005	1 590	1 611	101	49	7	6	3	16	19
		2009	1 569	1 516	97	51	18	9	2	13	7
		2010	1 494	1 489	100	55	16	9	3	12	6
	• 0 70 •	2011	1 661	1 661	100	54	16	9	3	12	6
Cape Verde		1995	30		–						
		2000			–						
		2005	34	34	100	41	15	0	0	24	21
		2009	33		–						
		2010	27		–						
	• 0 37 •	2011	27	27	100	22	15	4	4	11	44
Central African Republic		1995	188		–						
		2000		353	–	33	16	1	4	39	8
		2005	291	291	100	53	30	9	0	8	1
		2009	629	629	100	19	12	5	2	8	53
		2010	421	284	67	35	24	7	4	25	6
	• 0 55 •	2011	345	275	80	33	21	11	4	20	11
Chad		1995	203	92	45	29	18	5	2	40	4
		2000			–						
		2005	515		–						
		2009	676	676	100	49	21	4	3	15	8
		2010	708	704	99	38	35	4	2	18	3
	• 48 60 •	2011	847	847	100	29	31	4	1	27	7
Comoros		1995	7	7	100	43	0	29	0	29	0
		2000	5	5	100	100	0	0	0	0	0
		2005	3	5	167	100	0	0	0	0	0
		2009	6		–						
		2010		5	–	80	0	0	20	0	0
	• 43 0 •	2011	11		–						
Congo		1995	78		–						
		2000	819	187	23	49	13	3	3	28	4
		2005	407	477	117	12	2	0	0	3	83
		2009	451	418	93	59	22	2	1	14	2
		2010	516	235	46	40	17	3	2	21	18
	• 0 51 •	2011	507	528	104	51	0	5	4	10	31
Côte d'Ivoire		1995	649		–						
		2000	893	507	57	45	10	8	9	21	7
		2005	980	980	100	43	14	8	7	13	15
		2009	1 436	1 436	100	50	14	13	11	9	3
		2010	1 519	1 519	100	51	14	12	8	11	3
	• 0 67 •	2011	1 459	1 459	100	56	11	10	8	12	3
Democratic Republic of the Congo		1995	2 891	1 202	42	56	16	8	2	12	6
		2000	2 637		–						
		2005	6 065	5 448	90	71	4	10	4	6	5
		2009	8 666	7 193	83	54	23	8	2	4	8
		2010	8 604	5 583	65	72	5	7	3	6	8
	• 72 74 •	2011	7 919	4 572	58	68	5	8	2	5	12
Equatorial Guinea		1995	1	6	600	83	0	0	17	0	0
		2000			–						
		2005			–						
		2009	44	44	100	36	14	14	2	16	18
		2010	67	41	61	32	15	22	0	27	5
	• 83 0 •	2011	53		–						
Eritrea		1995			–						
		2000	67		–						
		2005	124		–						
		2009	207	157	76	70	12	7	6	2	3
		2010	208	120	58	81	8	9	2	1	0
	• 0 69 •	2011	147	147	100	67	3	7	10	1	13
Ethiopia		1995	343	193	56	71	8	3	5	8	5
		2000	2 777	1 556	56	60	11	10	4	8	7
		2005	3 119	3 116	100	41	15	9	2	5	28
		2009	3 544	2 942	83	47	21	5	2	3	23
		2010	4 898	3 934	80	56	27	4	3	5	6
	• 79 78 •	2011	4 621	1 796	39	57	21	4	0	3	15
Gabon		1995	44		–						
		2000			–						
		2005	257	150	58	18	12	5	3	60	3
		2009	655	611	93	12	67	2	1	17	1
		2010	558	147	26	32	33	3	3	26	2
	• 0 40 •	2011	833	200	24	18	21	2	2	30	26

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

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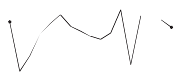
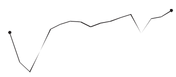
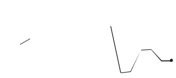
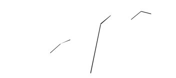
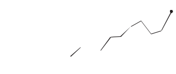
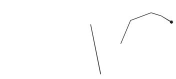
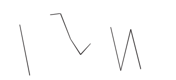
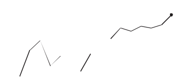
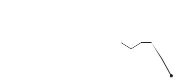
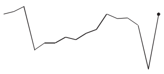
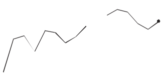
TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT: CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Gambia		1995	6	45	750	69	0	11	2	11	7
		2000	53		–						
		2005	166		–						
		2009	99	100	101	67	5	17	2	7	2
		2010	81	81	100	30	6	6	1	0	57
	• 69 78 •	2011	82	86	105	74	3	13	3	3	2
Ghana		1995	159	47	30	68	6	6	9	9	2
		2000	502		–						
		2005	532	540	102	40	8	6	3	11	32
		2009	860	717	83	50	26	10	2	3	10
		2010	1 021	1 021	100	38	39	12	2	2	7
	• 74 77 •	2011	878	878	100	40	38	12	3	4	5
Guinea		1995	55	112	204	44	23	3	9	13	8
		2000	446	299	67	63	8	5	3	8	13
		2005	458	458	100	45	16	10	7	13	11
		2009	589		–						
		2010	648	111	17	55	14	8	5	13	6
	• 67 64 •	2011	669	121	18	56	7	8	3	16	9
Guinea-Bissau		1995	59		–						
		2000	90		–						
		2005	138	146	106	44	34	8	0	8	7
		2009	76	89	117	30	34	2	0	29	4
		2010	192	140	73	23	31	10	0	27	9
	• 0 68 •	2011	133	47	35	47	21	13	2	9	9
Kenya		1995	1 064	879	83	61	11	9	1	10	8
		2000	2 477	1 964	79	65	11	2	8	10	4
		2005	8 975	3 794	42	68	9	10	1	7	5
		2009	10 711	4 859	45	70	8	8	4	7	4
		2010	10 479	4 333	41	73	6	6	3	8	4
	• 72 82 •	2011	10 017	7 235	72	77	5	4	4	7	3
Lesotho		1995	147		–						
		2000	1 481		–						
		2005	1 041	597	57		71	11	2	2	14
		2009	1 970	1 931	98	20	42	17	2	4	15
		2010	1 985	2 091	105	16	42	16	2	8	16
	• 0 58 •	2011	1 728	1 728	100	17	41	18	2	10	12
Liberia		1995			–						
		2000	32	41	128	39	22	12	7	20	0
		2005	57	57	100	75	9	2		9	5
		2009	123	123	100	70	15	8	4	2	0
		2010	170		–						
	• 0 82 •	2011	125	125	100	72	10	4	12	2	0
Madagascar		1995	596		–						
		2000			–						
		2005	1 498	1 825	122	65	7	7	2	12	6
		2009	2 089	2 073	99	62	11	7	2	8	10
		2010	2 109	1 800	85	71	3	8	2	9	8
	• 0 80 •	2011	2 218	1 843	83	75	4	7	1	8	4
Malawi		1995	551	492	89	65	4	22	2	1	6
		2000	764	797	104	61	5	23	1	6	3
		2005	3 212	1 093	34	74	1	19	1	3	3
		2009	2 470	788	32	83	2	9	2	2	1
		2010	2 194	750	34	77	1	10	3	1	9
	• 69 82 •	2011	2 163	670	31	79	3	10	1	3	5
Mali		1995	153		–						
		2000	239		–						
		2005	380	379	100	67	6	10	5	10	3
		2009	425	390	92	67	8	9	6	7	3
		2010	355	345	97	87	12	1	0	0	0
	• 0 69 •	2011	321	321	100	64	5	7	4	4	15
Mauritania		1995	520		–						
		2000	938		–						
		2005	206		–						
		2009	182	182	100	48	13	3	1	20	14
		2010	153	153	100	46	13	5	2	15	20
	• 0 53 •	2011	103	133	129	43	10	10	2	17	19
Mauritius		1995	2		–						
		2000	12	2	17	0	0	50	50	0	0
		2005	5	5	100	60	20			20	0
		2009	5	5	100	60	0	20	0	20	0
		2010	7	7	100	86	0	0	0	14	0
	• 0 80 •	2011	5	5	100	80	0	0	0	20	0
Mozambique		1995	899		–						
		2000	1 463	1 594	109	69	3	11	4	11	2
		2005	1 886	1 855	98	69	1	15	2	10	3
		2009	3 630		–						
		2010	4 048		–						
	• 0 0 •	2011	4 252		–						
Namibia		1995	88		–						
		2000	1 534	604	39	41	14	8	6	13	17
		2005	1 823	2 009	110	24	29	11	3	13	22
		2009	2 558	1 546	60	58	15	9	9	6	3
		2010	2 522	2 548	101	63	15	6	10	5	2
	• 0 80 •	2011	2 362	2 361	100	67	13	5	9	5	0
Niger		1995			–						
		2000	255		–						
		2005	754		–						
		2009	690	667	97	64	12	9	4	5	6
		2010	667	661	99	64	11	10	3	5	7
	• 0 76 •	2011	580	580	100	62	14	6	5	10	4
Nigeria		1995	303		–						
		2000	2 356	1 848	78	58	13	7	7	11	4
		2005	4 867	3 662	75	48	18	2	11	20	1
		2009	8 151	8 151	100	48	33	6	2	7	4
		2010	8 993	8 993	100	43	39	4	4	7	3
	• 0 82 •	2011	8 787	8 787	100	42	40	4	4	6	4
Rwanda		1995	200		–						
		2000	374	296	79	49	5	14	1	5	25
		2005	831	506	61	56	9	15	3	4	13
		2009	475	448	94	62	10	11	7	4	6
		2010	631	446	71	65	9	9	6	4	6
	• 0 80 •	2011	414	415	100	72	8	10	7	2	1
Sao Tome and Principe		1995			–						
		2000	4		–						
		2005	27	0	0						
		2009	3	3	100	33	33	0	33	0	0
		2010	2	12	600	0	50	8	17	8	17
	• 0 31 •	2011	16	16	100	0	31	6	38	25	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Senegal		1995	563	634	113	45	11	5	10	25	4
		2000	1 056	931	88	40	8	4	3	23	23
		2005	920	920	100	58	5	8	5	13	11
		2009	1 112	889	80	67	4	7	5	10	8
		2010	1 029	1 029	100	56	4	6	3	7	24
	• 56 68 •	2011	1 119	914	82	64	4	5	3	14	9
Seychelles		1995	0		–						
		2000	0		–						
		2005	2		–						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Sierra Leone		1995	41	69	168	72	14	3	4	4	1
		2000	441		–						
		2005	330	328	99	68	7	6	3	15	1
		2009	467	466	100	56	13	10	3	15	4
		2010	547	543	99	65	11	5	2	15	2
	• 87 70 •	2011	375	362	97	63	7	6	3	15	5
South Africa		1995	179		–						
		2000	56 202	24 847	44	43	8	8	3	19	19
		2005	60 588	64 923	107	29	29	11	2	16	13
		2009	65 916	34 122	52	53	8	10	3	12	15
		2010	60 580	60 580	100	31	4	5	2	7	52
	• 0 66 •	2011	45 915	31 168	68	59	7	9	3	12	10
Swaziland		1995	489		–						
		2000	1 249		–						
		2005	470	1 113	237	7	21	11	3	5	54
		2009	1 474	1 474	100	14	41	17	9	10	8
		2010	1 440	446	31	32	18	17	21	7	6
	• 0 59 •	2011	1 149	1 151	100	12	46	15	8	5	13
Togo		1995	93	93	100	16	17	5	4	19	38
		2000	133		–						
		2005	179	128	72	73	2	14	4	7	0
		2009	214	237	111	68	3	18	3	4	5
		2010	240	240	100	78	4	6	4	8	1
	• 33 78 •	2011	213	210	99	75	3	8	4	8	1
Uganda		1995	955		–						
		2000	1 505	1 209	80	34	30	13	0	13	10
		2005	2 430		–						
		2009	4 014	2 856	71	31	39	7	1	15	7
		2010	3 952	2 764	70	31	34	8	1	12	13
	• 0 71 •	2011	4 014	2 814	70	38	33	8	2	14	5
United Republic of Tanzania		1995	1 335	1 455	109	66	10	11	1	8	4
		2000	1 772	3 356	189	49	24	14	1	6	6
		2005	5 032	5 067	101	37	39	13	1	4	6
		2009	4 217	4 217	100	34	49	8	1	3	5
		2010	3 785	3 714	98	37	47	9	1	3	4
	• 76 82 •	2011	2 870	2 936	102	38	43	7	1	3	7
Zambia		1995	243		–						
		2000	1 455	894	61	52	15	11	4	5	12
		2005	5 496	5 496	100	24	60	9	1	3	4
		2009	2 485	5 444	219	33	53	9	1	4	0
		2010	6 310		–						
	• 0 0 •	2011	6 636		–						
Zimbabwe		1995	737		–						
		2000		1 063	–	51	14	17	1	8	9
		2005	5 941	4 667	79	13	46	16	0	13	11
		2009	4 685	1 203	26	72	8	11	0	5	4
		2010	4 685	1 629	35	63	11	13	3	5	5
	• 0 78 •	2011	4 345	1 772	41	63	15	11	4	4	3

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

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TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Algeria		2005			21 501					
		2010			22 530					
		2011			21 597					
	– –	2012			22 082					
Angola		2005			38 317					
		2010	4.9	2 434	49 987	1 620	67	43	43	
		2011	10	5 107	48 926	789	15	100	100	
	– 23 •	2012	23	12 022	53 426	1 149	9.6	100	100	1 100
Benin		2005	15	503	3 457	57	11			
		2010	98	3 774	3 841	592	16	97	57	
		2011	99	4 259	4 320	727	17	98	74	339
	• 15 98 •	2012	98	4 006	4 075	637	16			
Botswana		2005	23	2 291	10 104	1 829	80			18 762
		2010	81	6 147	7 632	4 018	65	79	43	738
		2011	97	6 545	6 733	4 129	63	62	53	
	• 23 95 •	2012	95	5 940	6 223	3 759	63	90	65	
Burkina Faso		2005	33	1 213	3 645	559	46	68	32	
		2010	93	4 761	5 135	839	18	98	60	
		2011	89	4 944	5 543	829	17	97	70	
	• 33 84 •	2012	84	4 567	5 405	671	15	96	75	
Burundi		2005			6 627					0
		2010	71	5 511	7 719	1 260	23	95	40	
		2011	71	4 817	6 828	1 036	22	95	48	0
	– 82 •	2012	82	5 734	7 016	1 076	19	94	55	
Cameroon		2005	0	0	22 073	0				0
		2010	78	19 117	24 552	8 314	43	81	51	
		2011	81	20 280	25 126	7 731	38	87	62	1 373
	• 0 82 •	2012	82	20 810	25 360	7 747	37	83	55	
Cape Verde		2005	98	298	305	14	4.7		100	
		2010			365					
		2011	90	352	390	47	13			
	• 98 89 •	2012	89	378	425	45	12	44	98	123
Central African Republic		2005			3 338					
		2010	39	2 638	6 760	862	33	0	62	
		2011	33	1 890	5 724	733	39	12	9.3	
	– 46 •	2012	46	3 839	8 283	1 483	39	28	20	
Chad		2005			6 505					
		2010	39	3 801	9 697	663	17	53	45	
		2011	38	4 124	10 774	959	23	39	43	
	– 44 •	2012	44	4 766	10 800	960	20		65	
Comoros		2005	100	112	112	2	1.8	100	100	
		2010		119		0	0			0
		2011	3.4	4	119	4	100	100	100	
	• 100 3 •	2012	3.3	4	122	4	100	100	100	2
Congo		2005			9 961					
		2010	40	4 106	10 321	757	18	2.9	2.9	
		2011	20	2 247	11 143	687	31	24	26	
	– 17 •	2012	17	1 979	11 512	653	33	20	23	
Côte d'Ivoire		2005	20	4 079	20 026	1 551	38	38	14	
		2010	73	16 991	23 210	4 112	24	80	27	
		2011	80	18 297	22 920	4 820	26	80	36	
	• 20 85 •	2012	85	20 663	24 222	5 482	27	75	44	
Democratic Republic of the Congo		2005	1.9	1 885	99 558	386	20	74	0.78	
		2010	24	28 997	118 636	5 273	18	24	9.3	
		2011	27	30 636	114 290	4 942	16	54	23	
	• 2 31 •	2012	31	35 097	112 499	5 748	16	61	40	
Equatorial Guinea		2005								
		2010	92	786	853	225	29	85	31	
		2011	100	911	913	234	26		21	
	– –	2012								
Eritrea		2005			3 612					
		2010			2 991					
		2011			3 093					0
	– 59 •	2012	59	1 913	3 254	164	8.6			
Ethiopia		2005	2.6	3 211	125 135	1 321	41	88	29	1 983
		2010	43	66 955	156 928	9 809	15	69	39	6 636
		2011	41	65 140	159 017	5 442	8.4	62	39	30 816
	• 3 65 •	2012	65	96 245	147 592	9 819	10	37	82	30 395
Gabon		2005	7.1	185	2 611	185	100	100		0
		2010	27	1 130	4 180	667	59	52	52	
		2011	46	2 252	4 916	578	26			
	• 7 100 •	2012	100	5 415	5 415	852	16		66	
Gambia		2005			2 120					
		2010	97	1 962	2 030	224	11	93	46	
		2011	74	1 726	2 333					
	– 78 •	2012	78	1 859	2 387	302	16	97	48	
Ghana		2005	7	844	12 124	340	40	100	37	
		2010	67	10 147	15 145	2 676	26	77	18	
		2011	79	12 587	15 840	2 907	23	72	28	
	• 7 78 •	2012	78	11 825	15 207	2 812	24	72	37	
Guinea		2005			7 090					
		2010	51	5 776	11 324	1 483	26	87	41	
		2011	56	6 548	11 606	1 670	26	72	49	
	– 65 •	2012	65	7 575	11 641	1 859	25	83	49	
Guinea-Bissau		2005	11	200	1 816	110	55	100	30	0
		2010	46	1 046	2 259	396	38			
		2011	50	1 037	2 070	431	42	0	0	
	• 11 68 •	2012	68	1 322	1 950	517	39	0	0	0
Kenya		2005	14	15 658	108 401	8 954	57	44	17	
		2010	91	96 930	106 083	40 069	41	100	48	
		2011	93	97 136	103 981	38 175	39	97	64	
	• 14 94 •	2012	94	92 890	99 149	35 837	39	98	74	
Lesotho		2005	1.4	156	11 404	127	81	79		
		2010	84	11 005	13 138	8 459	77	96	27	
		2011	89	11 413	12 785	8 519	75	95	68	
	• 1 88 •	2012	88	10 476	11 971	7 878	75	97	53	16 403
Liberia		2005	3.3	114	3 456	14	12	0		
		2010	53	3 533	6 668	283	8	8.5	0	
		2011	55	4 355	7 965	454	10	26	9.3	
	• 3 70 •	2012	70	5 661	8 132	772	14	90	15	
Madagascar		2005	9	1 759	19 475	16	0.91			
		2010	65	16 439	25 106	39	0.24		36	
		2011	58	15 532	26 722	40	0.26			
	• 9 54 •	2012	54	14 146	26 209	19	0.13		95	

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Malawi		2005	44	12 243	27 610	8 447	69	92	49	
		2010	88	19 855	22 536	12 476	63	94	46	
		2011	83	17 334	20 854	10 341	60	89	60	
	• 44 93 •	2012	93	19 009	20 463	11 296	59	88	81	20 542
Mali		2005			4 884					
		2010	42	2 303	5 448	416	18	75	52	0
		2011	35	1 963	5 573	404	21	72	69	
	– 28 •	2012	28	1 544	5 602	425	28	42	100	
Mauritania		2005	0.45	10	2 218	0	0			
		2010	24	608	2 489	90	15		61	0
		2011	0.66	12	1 820	12	100		100	
	• 0 –	2012			2 636					
Mauritius		2005	91	115	127	2	1.7	100	50	
		2010	95	117	123	8	6.8	100	75	
		2011	93	108	116	8	7.4	100	62	
	• 91 96 •	2012	96	125	130	10	8	100	90	
Mozambique		2005			33 718					
		2010	88	40 554	46 174	24 574	61	97	25	13 164
		2011	91	43 096	47 452	26 538	62	91	29	17 064
	– 94 •	2012	94	47 960	50 827	27 979	58	98	55	17 317
Namibia		2005	16	2 547	15 894	1 465	58			
		2010	76	9 534	12 625	5 227	55	93	44	13 989
		2011	84	10 042	11 938	4 990	50	98	54	14 428
	• 16 89 •	2012	89	9 927	11 145	4 688	47	99	72	11 906
Niger		2005			8 224	152		43	34	
		2010	48	4 925	10 345	405	8.2	37	0	
		2011	44	4 710	10 714	334	7.1	6.6	4.8	
	– 46 •	2012	46	5 166	11 207	431	8.3	31	16	
Nigeria		2005	10	6 897	66 848	1 241	18			
		2010	79	71 844	90 447	17 736	25	59	33	1 750
		2011	81	75 772	93 050	19 553	26	68	43	1 107
	• 10 84 •	2012	84	82 641	97 853	19 342	23	80	56	2 257
Rwanda		2005	65	5 003	7 680	2 276	45	15	13	
		2010	98	6 914	7 065	2 199	32	97	72	
		2011	97	6 560	6 784	1 855	28	97	75	
	• 65 99 •	2012	99	6 131	6 208	1 601	26	99		
Sao Tome and Principe		2005	100	152	152	5	3.3	0	0	
		2010	92	112	122	13	12	92	54	0
		2011	100	146	146	15	10	100	100	0
	• 100 99 •	2012	99	126	127	18	14	100	100	0
Senegal		2005			10 120					
		2010	69	8 018	11 591	776	9.7	85	37	
		2011	76	8 757	11 588	877	10	85	48	
	– 78 •	2012	78	10 048	12 819	882	8.8	90	64	426
Seychelles		2005			14	2		100	100	
		2010	100	17	17	1	5.9	100	100	0
		2011	100	21	21	4	19	75	100	
	– 100 •	2012	100	21	21	3	14	67	100	0
Sierra Leone		2005			6 930					
		2010	74	9 718	13 195	976	10	6.4	19	
		2011	78	10 159	12 943	902	8.9	25	28	
	– 87 •	2012	87	11 655	13 354	1 343	12	26	69	1 062
South Africa		2005	22	67 988	302 467	35 299	52	100	33	1 466
		2010	54	213 006	396 554	128 457	60	74	54	146 247
		2011	83	322 732	389 974	211 128	65	77	46	372 994
	• 22 84 •	2012	84	294 196	349 582	190 093	65	74	54	369 747
Swaziland		2005			8 864					
		2010	86	9 536	11 146	7 788	82	93	35	
		2011	92	8 419	9 180	6 480	77	95	51	
	– 95 •	2012	95	7 363	7 739	5 666	77	98	66	1 934
Togo		2005	0	0	2 635	0				0
		2010	77	2 242	2 897	632	28	72	49	
		2011	84	2 513	2 980	667	27	77	67	
	• 0 91 •	2012	91	2 657	2 912	625	24	87	76	
Uganda		2005	25	10 555	41 809	7 523	71	25	10	
		2010	81	36 742	45 546	19 836	54	90	24	
		2011	80	39 394	49 018	20 725	53	93	32	
	• 25 86 •	2012	86	40 581	47 211	20 376	50	94	49	
United Republic of Tanzania		2005	2.5	1 613	64 200	841	52	61	22	
		2010	90	56 849	63 453	21 662	38	92	35	
		2011	88	53 842	61 148	20 632	38	95	38	
	• 3 82 •	2012	82	52 499	63 892	20 269	39	96	54	
Zambia		2005	2	1 082	53 267	614	57		68	
		2010	84	40 704	48 616	26 571	65	75	48	
		2011	100	48 594	48 594	26 737	55	87	53	
	• 2 100 •	2012	100	45 269	45 277	24 309	54	93	60	
Zimbabwe		2005	0	0	54 891	0				
		2010	86	41 062	47 557	31 849	78	88	45	
		2011	90	37 029	41 305	27 562	74	94	60	0
	• 0 88 •	2012	88	34 212	38 720	23 957	70	26	18	

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES: ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES: NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	NEW PULMONARY CASES: % OF BACT+VE[b] TESTED FOR MDR-TB	PREVIOUSLY TREATED CASES: ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	PREVIOUSLY TREATED CASES: NUMBER OF NOTIFIED TESTED FOR MDR-TB	PREVIOUSLY TREATED CASES: % OF NOTIFIED TESTED FOR MDR-TB
Algeria	2005	74			809	9.1		164	23
	2010	56				–			–
	2011					–			–
	2012		180 (69–290)	130 (56–250)		–	52 (6.5–170)		–
Angola	2005					–			–
	2010	3				–			–
	2011	40			29	0.13			–
	2012	45	1 700 (780–2 500)	800 (44–1 500)		–	860 (330–1 400)	45	1.0
Benin	2005	28			31	1.1		107	32
	2010	15			103	3.5		6	2.9
	2011	20			0	0		152	58
	2012	25	54 (26–83)	17 (2.1–70)	26	0.78	37 (23–55)	110	39
Botswana	2005					–			–
	2010	106			488	11		286	27
	2011	46			151	4.5		90	10
	2012	53	140 (94–190)	120 (70–160)	349	14	29 (11–47)	149	34
Burkina Faso	2005	3				–		126	39
	2010	31			1	<0.1		117	21
	2011	42			1	<0.1		68	14
	2012	38	150 (71–240)	79 (4.4–150)	7	0.20	75 (29–120)	72	19
Burundi	2005					–			–
	2010	24			22	0.48		2	0.60
	2011	6			0	0		6	1.9
	2012	24	150 (27–280)	120 (0.48–240)	1	<0.1	31 (11–52)	23	7.5
Cameroon	2005					–			–
	2010	35			0	0		35	2.3
	2011	63				–			–
	2012	153	670 (140–1 200)	510 (2.0–1 000)	0	0	160 (57–270)	80	5.0
Cape Verde	2005					–			–
	2010	0				–			–
	2011	0			0	0		0	0
	2012	0	9.8 (4.0–16)	6.1 (0.34–12)	0	0	3.6 (1.4–5.9)	0	0
Central African Republic	2005					–			–
	2010	9			9	0.25		0	0
	2011	15			0	0		56	16
	2012	28	130 (36–220)	28 (0.72–160)		–	97 (37–190)		–
Chad	2005					–			–
	2010	3			0	0		0	0
	2011	0			0	0		0	0
	2012	0	320 (150–490)	160 (8.8–300)	0	0	160 (63–260)	0	0
Comoros	2005					–			–
	2010					–			–
	2011	0				–			–
	2012	0	2.5 (0.92–4.0)	1.7 (0.10–3.2)		–	0.77 (0.30–1.2)		–
Congo	2005					–			–
	2010					–			–
	2011					–			–
	2012		250 (43–450)	200 (0.79–400)		–	49 (17–81)		–
Côte d'Ivoire	2005	47			0	0		0	0
	2010	50			0	0		72	4.7
	2011	30			1	<0.1		29	2.0
	2012	221	580 (270–890)	440 (190–850)	0	0	140 (49–240)	365	26
Democratic Republic of the Congo	2005					–			–
	2010	87				–		100	1.2
	2011	121			22	<0.1		160	2.0
	2012	81	2 900 (670–5 100)	2 100 (8.4–4 200)	12	<0.1	760 (260–1 300)	95	1.3
Equatorial Guinea	2005					–			–
	2010	0			0	0		0	0
	2011	3				–			–
	2012		–	–		–	–		–
Eritrea	2005					–			–
	2010					–			–
	2011	11				–			–
	2012	0	79 (38–120)	35 (1.9–66)		–	44 (17–71)		–
Ethiopia	2005					–			–
	2010	140			42	<0.1		510	10
	2011	212			73	0.15		139	3.0
	2012	284	2 000 (1 200–2 900)	1 600 (830–2 700)	469	0.99	480 (230–870)	180	4.4
Gabon	2005					–			–
	2010	0				–			–
	2011					–			–
	2012	0	170 (57–280)	100 (0.41–200)		–	67 (23–110)		–
Gambia	2005					–			–
	2010	0				–			–
	2011	0				–			–
	2012	0	9.9 (0–29)	9.9 (0.25–54)	0	0	0 (0–26)	0	0
Ghana	2005	1			50	0.62		2	0.38
	2010	4				–		21	2.1
	2011	7			0	0		61	6.9
	2012	20	390 (170–620)	240 (13–440)	0	0	160 (61–260)	44	5.3
Guinea	2005	20			215	3.9		34	7.4
	2010	31			5	<0.1		26	4.0
	2011	78			8	0.12		26	3.9
	2012	69	250 (130–380)	47 (9.8–140)		–	200 (100–340)		–
Guinea-Bissau	2005					–			–
	2010					–			–
	2011	2				–			–
	2012	6	45 (15–75)	33 (1.8–63)		–	12 (4.6–19)		–
Kenya	2005	44			0	0		1829	20
	2010	112				–		706	6.7
	2011	166			92	0.25		1195	12
	2012	225	2 800 (840–4 800)	1 800 (7.4–3 700)	78	0.21	980 (340–1 600)	1183	12
Lesotho	2005					–			–
	2010	117				–			–
	2011	64				–			–
	2012	46	170 (36–300)	77 (16–220)	5	0.15	94 (20–260)	28	1.7
Liberia	2005					–			–
	2010	0			0	0		0	0
	2011					–			–
	2012	6	130 (32–230)	110 (6.3–210)		–	18 (7.0–29)		–
Madagascar	2005					–			–
	2010	3			60	0.36		24	1.1
	2011	9			9	<0.1		64	2.9
	2012	10	170 (32–310)	94 (26–240)	7	<0.1	76 (9.3–260)	63	3.2

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically positive cases.

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Malawi	2005	9				–		917	29
	2010	40			871	10		449	20
	2011	26			102	1.5		552	26
	2012	27	96 (45–150)	56 (18–130)	0	0	40 (27–57)	27	3.3
Mali	2005	2			0	0		0	0
	2010	12			0	0		12	3.4
	2011	10				–			–
	2012	12	140 (60–210)	76 (4.2–140)	23	0.62	60 (23–96)	39	13
Mauritania	2005	11			161	12		30	15
	2010	35				–			–
	2011	8			3	0.30		4	3.9
	2012	1	59 (26–92)	34 (1.9–64)	1	<0.1	25 (9.8–41)		–
Mauritius	2005	0			114	100		3	60
	2010	2			105	100		7	100
	2011	1			100	100		5	100
	2012	0	0 (0–0)	0 (0–3.6)	121	100	0 (0–2.4)	4	100
Mozambique	2005	115			113	0.63		305	16
	2010	165			80	0.39		251	6.2
	2011	283			206	1.1		443	10
	2012	266	2 000 (1 300–2 700)	1 400 (900–2 000)	205	0.98	540 (0–1 100)	243	5.4
Namibia	2005					–			–
	2010	214				–			–
	2011	192				–			–
	2012	210	630 (510–750)	260 (190–350)		–	370 (290–470)		–
Niger	2005					–			–
	2010	39			0	0		47	7.0
	2011	18			1	<0.1		21	3.6
	2012	35	270 (110–420)	160 (9.0–300)	0	0	110 (42–180)	35	6.2
Nigeria	2005					–			–
	2010	21			27	<0.1		19	0.21
	2011	95			12	<0.1		76	0.86
	2012	107	3 600 (2 700–4 500)	2 500 (1 800–3 400)	11	<0.1	1 100 (770–1 500)	94	1.2
Rwanda	2005	35			57	1.4		0	0
	2010	90			171	4.0		431	68
	2011	76				–			–
	2012	58	240 (170–310)	180 (120–270)		–	63 (51–76)		–
Sao Tome and Principe	2005					–			–
	2010	0				–			–
	2011	4			2	1.9		2	12
	2012	8	15 (11–19)	1.7 (0.10–3.3)	16	27	13 (7.1–15)	8	53
Senegal	2005					–			–
	2010	38			41	0.53		66	6.4
	2011	50			14	0.18		97	8.7
	2012	27	400 (170–620)	220 (70–500)	25	0.30	180 (76–340)	113	10
Seychelles	2005					–			–
	2010	0				–			–
	2011	0			0	0		1	–
	2012	0	0 (0–0)	0 (0–3.9)	14	82	0 (0–1.7)	2	100
Sierra Leone	2005					–			–
	2010					–			–
	2011	8				–			–
	2012		220 (0–460)	100 (2.7–570)		–	120 (26–280)		–
South Africa	2005	2000				–			–
	2010	7386				–			–
	2011	10085				–			–
	2012	15419	8 100 (6 900–9 400)	4 600 (3 700–5 800)		–	3 500 (2 800–4 300)		–
Swaziland	2005					–			–
	2010	326			148	2.9		505	35
	2011	332				–			–
	2012	280	730 (560–890)	430 (270–590)		–	290 (250–340)		–
Togo	2005					–			–
	2010	2				–			–
	2011	4			86	4.1		83	39
	2012	2	77 (35–120)	41 (2.3–78)	0	0	36 (14–58)	2	1.1
Uganda	2005	46				–			–
	2010	93			358	1.5		356	9.0
	2011	71			316	1.2		360	9.0
	2012	89	1 000 (660–1 300)	540 (230–860)	196	0.79	470 (260–750)	748	19
United Republic of Tanzania	2005	10			276	0.60		405	8.0
	2010	34			201	0.44		246	6.5
	2011	68			83	0.34		17	0.59
	2012	42	500 (13–1 000)	500 (140–1 300)	639	2.5	0 (0–160)	108	3.9
Zambia	2005					–			–
	2010					–			–
	2011					–			–
	2012	80	620 (290–940)	98 (12–350)		–	520 (260–900)		–
Zimbabwe	2005					–			–
	2010	17				–			–
	2011	118			0	0		0	0
	2012	149	930 (430–1 400)	570 (300–960)	360	3.0	360 (76–970)	258	6.0

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically positive cases.

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TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

	YEAR	MALE 0–14	MALE 15–24	MALE 25–34	MALE 35–44	MALE 45–54	MALE 55–64	MALE 65+	MALE UNKNOWN	FEMALE 0–14	FEMALE 15–24	FEMALE 25–34	FEMALE 35–44	FEMALE 45–54	FEMALE 55–64	FEMALE 65+	FEMALE UNKNOWN	MALE:FEMALE RATIO
Algeria	1995																	–
	2000	59	927	1 516	610	491	234	299		36	1 005	1 293	746	314	208	312		1.1
	2005	53	1 309	1 841	919	473	314	426		102	1 044	820	389	270	229	465		1.6
	2010	52	1 203	1 669	825	513	392	397		79	1 086	826	417	251	222	367		1.6
	2011	42	1 147	1 513	881	483	345	347		58	1 050	787	383	211	202	341		1.6
	2012	29	1 102	1 467	857	464	354	349	0	60	917	773	382	198	229	329	0	1.6
Angola	1995	386	724	562	346	224	155	14		371	707	443	264	248	130	18		1.1
	2000	186	999	1 003	912	482	312	194		247	1 142	1 091	844	417	200	120		1.0
	2005	520	2 549	2 797	1 918	1 255	665	461		704	2 926	2 682	1 797	1 138	581	417		0.99
	2010	448	2 900	3 584	2 415	1 424	691	355		558	2 763	2 594	1 688	958	482	286		1.3
	2011	501	3 000	3 792	2 386	1 395	680	455	0	708	2 731	2 563	1 683	1 006	457	346	0	1.3
	2012	390	2 804	3 627	2 529	1 427	732	424		592	2 501	2 540	1 617	1 028	529	384		1.3
Benin	1995	14	186	352	306	176	101	92		26	148	197	118	69	32	22		2.0
	2000	19	277	428	327	213	103	74		36	239	275	149	76	45	25		1.7
	2005	21	306	595	396	270	135	87		25	249	331	145	89	51	39		1.9
	2010	18	314	631	443	267	164	85	0	29	265	382	200	98	42	35	0	1.8
	2011	21	320	650	497	353	210	107	0	41	288	385	246	119	42	52	0	1.8
	2012	23	314	595	524	329	179	121	0	39	264	346	221	105	65	46	0	1.9
Botswana	1995																	–
	2000	25	185	605	488	267	135	96		37	335	469	262	98	57	36		1.4
	2005	27	260	563	506	272	135	97		45	321	491	253	97	55	48		1.4
	2010	45	256	590	477	239	137	107	0	68	338	509	301	119	56	53	0	1.3
	2011	36	220	464	354	206	110	94	0	65	286	421	211	105	48	49	0	1.3
	2012	40	207	394	333	190	79	75	0	63	267	402	193	109	43	31	0	1.2
Burkina Faso	1995	4	67	133	124	62	48	29		7	76	53	39	26	11	10		2.1
	2000	12	91	274	252	133	68	65		7	59	128	101	45	38	14		2.3
	2005	18	181	430	370	273	144	113		15	125	248	174	109	54	40		2.0
	2010	20	231	620	493	328	224	173	0	33	158	259	198	124	97	83	0	2.2
	2011	22	265	708	582	375	262	196	0	31	163	277	221	146	110	92	0	2.3
	2012	25	277	769	631	423	250	198	0	27	160	288	191	156	106	82	0	2.5
Burundi	1995	5	128	238	224	73	32	19		19	109	124	89	33	12	4		1.8
	2000																	–
	2005	34	352	591	525	372	111	55		46	298	399	288	122	36	33		1.7
	2010	56	481	773	651	570	270	157	0	78	390	421	332	225	99	87	0	1.8
	2011	37	484	743	620	504	235	98	0	56	345	374	263	180	81	40	0	2.0
	2012	45	447	801	667	461	233	103	0	74	338	367	283	162	64	30	0	2.1
Cameroon	1995	20	208	569	323	287	204	164		9	185	313	223	153	106	93		1.6
	2000	41	518	842	584	284	130	75		63	368	530	293	139	60	33		1.7
	2005	134	1 472	2 482	1 766	1 035	463	289		226	1 467	1 788	1 028	503	205	143		1.4
	2010	106	1 497	2 750	1 996	1 314	559	329		172	1 474	2 031	1 121	642	290	183		1.4
	2011	114	1 580	2 931	2 139	1 283	625	361		178	1 461	2 022	1 177	581	281	194		1.5
	2012	108	1 597	2 900	2 182	1 304	658	375		184	1 417	2 053	1 177	579	295	187		1.5
Cape Verde	1995																	–
	2000																	–
	2005	0	22	23	26	9	2	8		2	9	16	4	5	3	6		2.0
	2010																	–
	2011	0	17	43	35	31	3	3	0	4	14	15	4	6	3	4	0	2.6
	2012	0	29	36	34	24	8	2	0	0	19	13	9	8	3	4	0	2.4
Central African Republic	1995	38	162	356	206	120	40	18		39	233	350	145	57	21	9		1.1
	2000																	–
	2005	29	40	1 136	160	26	35	15		30	32	420	145	30	40	15		2.0
	2010	78	379	633	468	251	135	63	1	88	367	576	319	155	73	44	8	1.2
	2011	70	362	576	467	269	119	59	4	96	382	530	289	162	62	26	6	1.2
	2012	73	502	799	660	360	158	92		101	511	689	370	191	96	39		1.3
Chad	1995																	–
	2000																	–
	2005	25	194	535	409	229	123	82		28	148	298	211	148	59	27		1.7
	2010	76	382	850	666	379	173	99	0	59	274	413	263	158	79	44	0	2.0
	2011	92	469	951	764	418	184	121	0	84	296	438	298	166	109	44	0	2.1
	2012	68	405	842	634	376	210	88	0	51	273	403	227	135	91	46	0	2.1
Comoros	1995	0	18	13	9	7	8	4		1	13	9	8	6	5	2		1.3
	2000	0	18	7	14	9	3	4		1	9	6	12	1	2	1		1.7
	2005	0	12	9	6	4	2	4		2	10	7	4	8	3	8		0.88
	2010																	–
	2011	0	10	13	9	5	2	5	0	2	8	4	2	1	0	1	0	2.4
	2012		9	15	8	4	6	6		1	5	7	5	1	1	3		2.1
Congo	1995	16	265	409	221	73	44	15		17	296	353	167	61	38	11		1.1
	2000																	–
	2005																	–
	2010	41	435	672	424	203	77	55		49	409	510	296	152	70	56		1.2
	2011	58	453	705	462	222	80	76	0	72	408	463	332	200	88	97	0	1.2
	2012	46	563	716	519	276	113	72		63	438	482	349	171	68	108		1.4
Côte d'Ivoire	1995	41	989	2 092	1 344	759	283	130		99	810	813	497	273	105	19		2.2
	2000																	–
	2005	128	1 346	2 449	1 606	888	422	385		193	1 280	1 756	989	528	232	201		1.4
	2010	159	1 751	2 858	1 882	1 010	505	375		246	1 431	1 819	1 051	531	304	209		1.5
	2011	189	1 743	3 043	1 852	1 072	601	348	0	244	1 358	1 838	1 044	560	301	223	0	1.6
	2012	163	1 743	3 087	2 017	1 032	552	430		204	1 306	1 870	1 120	536	337	263		1.6
Democratic Republic of the Congo	1995	373	1 572	2 382	1 890	1 184	634	289		331	1 223	1 532	1 232	863	427	137		1.4
	2000	485	4 048	5 833	4 151	2 549	1 295	602		718	4 422	5 146	3 309	1 724	855	351		1.1
	2005	1 321	6 675	9 808	7 577	5 022	2 637	1 499		1 695	7 570	8 501	5 832	3 898	2 054	951		1.1
	2010	1 707	6 859	10 412	9 134	6 464	3 641	1 907		1 987	7 199	9 120	6 721	4 579	2 612	1 311		1.2
	2011	1 579	6 640	9 872	8 932	6 415	3 584	1 911		1 800	6 802	8 742	6 541	4 537	2 671	1 295		1.2
	2012	1 439	6 612	10 274	9 361	6 612	3 698	1 941		1 699	6 598	8 406	6 471	4 131	2 625	1 257		1.3
Equatorial Guinea	1995	8	15	45	37	15	11	7		2	18	28	20	4	7	1		1.7
	2000																	–
	2005																	–
	2010	10	71	80	59	35	16	10	0	13	80	57	45	26	9	6	0	1.2
	2011	11	77	90	89	59	22	12	0	15	76	81	46	21	9	3	0	1.4
	2012																	–
Eritrea	1995																	–
	2000	9	70	75	57	32	25	20		10	100	87	71	21	12	8		0.93
	2005	9	68	73	50	45	51	39		8	67	127	72	39	21	18		0.95
	2010	10	93	109	81	51	37	60	0	3	88	111	79	43	31	36	0	1.1
	2011	0																–
	2012	2	84	105	90	62	39	51	0	4	86	98	74	45	19	20	0	1.3
Ethiopia	1995	247	1 221	1 017	541	276	142	51		283	908	781	382	152	64	15		1.4
	2000	915	5 095	5 187	3 082	1 495	610	397		1 037	4 699	4 424	2 105	976	366	122		1.2
	2005	1 109	6 726	6 181	3 454	1 985	1 027	475		1 326	5 885	5 663	2 730	1 296	513	155		1.2
	2010	1 582	7 400	7 785	4 451	2 746	1 473	822		1 608	5 708	6 480	3 439	1 950	855	335		1.3
	2011	1 847	7 835	9 246	3 881	2 771	1 218	771		1 983	6 570	7 917	3 069	1 564	719	303		1.2
	2012																	–
Gabon	1995	3	45	74	80	54	30	15		9	47	54	28	25	19	3		1.6
	2000																	–
	2005	13	123	199	140	70	38	25		19	128	123	88	29	29	18		1.4
	2010	15	145	223	208	130	89	91	0	13	110	164	122	100	86	64	0	1.4
	2011	34	240	269	229	144	86	66	0	25	177	188	125	74	44	39	0	1.6
	2012	42	236	286	228	166	101	41	0	29	185	165	109	78	45	34	0	1.7
Gambia	1995	3	68	181	88	72	29	24		4	39	61	44	25	12	8		2.4
	2000																	–
	2005	13	133	292	206	62	53	44		2	84	87	64	38	22	27		2.5
	2010	9	194	314	184	141	68	39	0	6	104	121	71	35	40	18	0	2.4
	2011	14	183	271	181	136	87	56	0	16	103	112	88	63	32	33	0	2.1
	2012	7	210	331	191	107	80	54	0	16	123	106	89	41	32	42	0	2.2

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Ghana	1995	42	223	397	398	302	190	112		40	199	272	205	122	88	48		1.7
	2000	73	550	1 266	1 115	811	495	426		74	456	791	566	338	179	176		1.8
	2005	49	592	1 201	1 311	944	462	414		68	450	693	527	366	207	221		2.0
	2010	63	570	1 146	1 301	1 030	540	447		64	446	667	560	369	204	249		2.0
	2011	50	550	1 127	1 328	955	491	456		52	470	699	614	390	174	260		1.9
	2012	30	559	1 051	1 271	921	512	462		51	418	563	468	332	188	271		2.1
Guinea	1995	18	244	538	357	189	98	61		28	202	255	153	64	37	19		2.0
	2000	39	551	860	570	282	203	103		66	314	446	245	114	82	45		2.0
	2005	51	749	1 165	778	463	195	130		65	594	583	354	203	94	55		1.8
	2010	61	679	877	982	876	565	289		51	549	739	751	405	145	72		1.6
	2011	45	1 051	1 537	955	541	293	197		85	709	688	432	219	109	73		2.0
	2012	28	761	1 104	791	383	190	120	0	49	505	509	323	134	61	57	0	2.1
Guinea-Bissau	1995																	–
	2000	2	52	92	80	64	39	19		4	30	46	47	24	15	12		2.0
	2005	14	116	167	153	130	72	42		13	78	110	92	82	44	19		1.6
	2010	18	164	219	183	141	80	43	0	30	100	161	133	80	38	19	0	1.5
	2011	6	140	230	181	104	65	36	0	12	119	122	90	56	44	25	0	1.6
	2012	7	145	262	183	115	63	38	10	7	121	157	98	56	33	25	4	1.6
Kenya	1995	154	2 072	3 073	1 675	920	485	296		187	1 802	1 759	741	411	242	117		1.6
	2000	264	3 739	6 653	3 548	1 630	630	414		416	3 916	4 363	1 874	831	347	148		1.4
	2005	359	4 790	8 832	5 069	2 521	1 031	590		577	5 144	6 521	2 781	1 266	593	315		1.3
	2010	357	4 698	7 945	5 077	2 509	994	658		549	4 044	5 112	2 372	1 056	544	345		1.6
	2011	356	4 773	8 376	5 201	2 660	1 045	665	0	629	4 183	4 917	2 434	1 025	477	344	0	1.6
	2012	393	4 893	8 149	5 302	2 493	1 099	669		603	4 097	4 975	2 363	993	529	379		1.6
Lesotho	1995	9	108	214	256	189	96	88		14	106	125	71	49	17	19		2.4
	2000	8	165	458	517	395	198	76		11	222	336	195	83	36	29		2.0
	2005	32	395	695	397	148	82	37		19	226	721	616	494	297	121		0.72
	2010	16	222	607	497	364	244	133		27	283	597	329	169	64	48		1.4
	2011	19	179	584	493	329	245	121		23	311	572	307	185	84	58		1.3
	2012	15	204	580	427	295	196	114	0	30	309	571	296	143	71	47	0	1.2
Liberia	1995																	–
	2000	12	133	196	127	52	17	26		21	140	149	88	28	16	16		1.2
	2005	26	240	352	333	155	74	65		37	232	297	171	108	52	25		1.4
	2010	90	338	621	510	295	114	21	0	254	339	488	259	171	151	99	0	1.1
	2011	67	382	595	727	440	194	87	0	67	329	433	517	285	88	50	0	1.4
	2012	65	382	627	667	406	129	83	0	61	354	535	605	292	79	57	0	1.2
Madagascar	1995	79	791	1 289	1 173	630	423	242		100	799	1 108	744	340	230	78		1.4
	2000																	–
	2005	98	1 159	1 867	1 732	1 349	582	333		150	1 012	1 451	1 047	614	248	129		1.5
	2010	204	1 721	1 621	2 525	1 782	960	485	0	323	1 621	1 943	1 376	946	397	192	0	1.4
	2011	146	1 807	2 764	2 495	1 938	1 044	522	0	252	1 726	2 031	1 503	978	462	188	0	1.5
	2012	177	1 725	2 474	2 460	1 927	1 059	490	0	242	1 720	1 848	1 420	914	474	199	0	1.5
Malawi	1995	25	493	1 195	833	519	215	89		65	802	1 028	573	294	108	45		1.2
	2000	50	653	1 476	1 113	585	245	114		66	1 038	1 481	831	401	148	64		1.1
	2005	58	622	1 653	1 031	549	279	157		84	913	1 598	859	386	180	74		1.1
	2010	50	565	1 509	985	485	275	187	0	103	610	1 196	661	314	198	102	0	1.3
	2011	70	519	1 486	1 050	440	238	201		79	601	1 119	660	283	161	96		1.3
	2012	52	495	1 537	1 051	471	292	204	0	71	538	1 057	609	298	156	120	0	1.4
Mali	1995	27	72	357	294	181	138	102		31	132	184	128	107	61	52		1.7
	2000	23	206	430	396	297	235	144		14	174	232	152	106	75	43		2.2
	2005	26	350	628	539	365	263	193		33	208	348	245	152	101	72		2.0
	2010	94	381	707	526	354	227	207		31	265	337	247	144	96	70		2.1
	2011	25	370	772	515	352	267	230		42	255	393	223	147	118	68		2.0
	2012	25	405	731	547	377	257	211	0	34	253	344	239	137	89	77	0	2.2
Mauritania	1995																	–
	2000																	–
	2005																	–
	2010	17	192	295	206	137	99	76		14	90	104	82	52	29	29		2.6
	2011	36	165	185	131	106	58	55		28	68	72	47	36	19	20		2.5
	2012	22	204	302	195	139	114	114		25	112	81	88	73	46	28		2.4
Mauritius	1995	2	17	13	22	27	13	8		2	4	12	10	8	4	4		2.3
	2000	2	6	9	18	19	14	8		1	5	8	8	6	7	4		1.9
	2005		10	15	21	20	10	6			4	5	5	11	2	1		2.9
	2010	0	9	9	13	23	15	7	0	0	7	9	4	4	3	2	0	2.6
	2011	0	10	13	9	17	10	8	0	0	7	12	2	3	6	3	0	2.0
	2012	2	11	14	16	17	11	7	0	0	11	7	8	2	8	4	0	2.0
Mozambique	1995	187	1 136	1 475	1 338	1 022	664	320		226	994	1 314	1 016	551	234	89		1.4
	2000																	–
	2005																	–
	2010																	–
	2011																	–
	2012																	–
Namibia	1995	0	68	235	113	55	21	6		5	49	78	50	16	1	0		2.5
	2000	18	269	874	665	300	147	81		16	352	654	348	161	76	52		1.4
	2005	98	355	1 027	874	365	146	120		105	399	809	525	213	95	91		1.3
	2010	36	359	852	680	287	146	126		67	429	685	382	206	122	87		1.3
	2011	48	337	844	660	361	152	138		78	427	653	410	185	100	110		1.3
	2012	61	358	810	686	292	157	137		81	394	582	396	198	84	97		1.4
Niger	1995																	–
	2000	29	270	174	441	252	151	78		31	123	206	168	151	63	9		1.9
	2005	35	557	1 204	819	497	350	198		34	214	388	330	223	131	70		2.6
	2010	44	669	1 587	988	615	415	342		39	272	418	347	238	174	135		2.9
	2011	50	709	1 673	1 025	646	436	347	0	50	285	449	323	278	189	147	0	2.8
	2012	40	702	1 752	1 133	747	444	360	0	48	260	485	302	237	214	124	0	3.1
Nigeria	1995	450	845	921	937	557	611	515		404	842	795	770	724	654	451		1.0
	2000	157	2 173	3 164	1 836	1 091	566	463		239	2 934	2 434	1 110	676	344	231		1.2
	2005	325	3 824	6 758	4 544	2 863	1 464	950		482	3 996	4 884	2 448	1 350	745	415		1.4
	2010	521	4 457	9 186	6 218	3 804	1 974	1 363	0	595	4 182	6 117	3 431	1 846	1 040	682	0	1.5
	2011	529	4 549	9 520	6 550	4 230	2 248	1 443	0	578	4 198	6 168	3 574	2 014	1 112	724	0	1.6
	2012	538	5 026	10 382	7 684	4 589	2 449	1 686	0	649	4 652	6 762	4 084	2 243	1 290	867	0	1.6
Rwanda	1995																	–
	2000	155	466	974	824	393	129	56		105	396	473	309	109	52	14		2.1
	2005	45	494	713	592	408	142	71		73	483	442	262	157	60	29		1.6
	2010	48	430	741	526	325	202	126		48	399	448	261	128	65	38		1.7
	2011	42	423	795	500	376	210	124	0	50	358	398	235	146	87	67	0	1.8
	2012	22	375	768	519	341	214	123		40	327	393	208	116	66	59		2.0
Sao Tome and Principe	1995																	–
	2000	1	5	11	4	7	3	10		3	7	15	5	7	4	15		0.73
	2005	2	5	7	6	4	5	2		1	4	5	3	2	3	0		1.7
	2010	0	10	14	7	1	0	1	0	0	5	4	3	2	0	0	0	2.4
	2011	0	5	9	8	7	1	4	0	2	2	10	4	1	0	0	0	1.8
	2012	1	6	11	8	8	2	0	0	0	6	10	6	0	0	1	0	1.6
Senegal	1995	94	717	1 219	813	408	300	213		84	428	461	283	203	126	72		2.3
	2000	60	772	1 297	857	470	279	189		77	521	540	376	217	107	61		2.1
	2005	71	1 050	1 561	904	533	274	236		83	709	568	351	185	116	81		2.2
	2010	81	1 351	1 793	972	590	329	221	0	81	835	643	332	217	136	105	0	2.3
	2011	75	1 264	1 835	981	582	335	214	89	88	807	664	362	208	144	74	43	2.2
	2012	84	1 454	2 036	1 121	597	365	224	0	125	836	715	383	263	155	90	0	2.3
Seychelles	1995	0	2	0	1	1	2	1		0	0	1	0	0	0	1		3.5
	2000			2	4	1	1					1	0	1	1			2.7
	2005	0	2	1	2	1	0	0		0	0	1	1	0	0	0		3.0
	2010	0	0	0	6	0	0	1	0	0	2	0	0	0	0	0	0	3.5
	2011	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1.0
	2012	0	0	1	2	2	0	0	0	0	0	1	1	1	0	1	0	1.2

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Sierra Leone	1995	10	184	305	201	99	47	22		18	165	193	110	65	24	11		1.5
	2000	18	287	486	361	190	113	47		27	249	298	225	92	49	30		1.5
	2005	45	490	792	651	397	226	124		54	393	518	312	207	114	47		1.7
	2010	64	718	1 176	1 076	663	320	254		77	648	742	556	293	180	131		1.6
	2011	75	825	1 224	1 099	781	334	287	0	115	678	796	543	343	219	116	0	1.6
	2012	70	858	1 324	1 213	841	416	274		80	703	861	667	391	201	132		1.6
South Africa	1995																	–
	2000	116	723	1 999	2 135	1 146	435	212		122	1 283	1 716	933	423	167	80		1.4
	2005	2 035	10 422	20 576	19 465	11 143	4 124	1 705		2 561	13 632	19 343	11 338	5 416	2 352	1 348		1.2
	2010	1 496	9 925	20 855	19 842	12 386	5 155	2 211	0	1 933	13 023	20 205	12 910	6 873	3 165	2 128	0	1.2
	2011	1 472	9 772	20 487	19 360	12 111	5 220	2 164	0	1 932	12 751	19 250	12 807	6 955	3 266	2 223	0	1.2
	2012	1 132	9 074	19 894	18 510	11 331	5 054	2 085	0	1 545	11 547	17 452	11 430	5 939	2 846	2 059	0	1.3
Swaziland	1995	4	59	117	130	98	40	16		5	52	57	39	29	8	6		2.4
	2000	11	130	352	249	138	37	17		10	198	298	62	62	24	5		1.4
	2005	9	162	406	285	139	57	27		14	318	453	207	73	21	8		0.99
	2010	30	207	537	369	192	109	50	0	51	354	662	276	104	54	16	0	0.98
	2011	16	161	459	318	158	69	46		35	281	495	220	86	40	24		1.0
	2012	18	163	479	332	168	84	38	0	39	284	535	242	88	51	27	0	1.0
Togo	1995	7	95	151	123	82	64	49		9	80	96	45	38	23	15		1.9
	2000	4	101	168	144	109	48	39		13	107	124	50	36	24	15		1.7
	2005	11	177	320	283	125	79	69		23	157	236	146	67	41	32		1.5
	2010	21	150	350	358	217	116	80		39	163	285	148	78	62	29		1.6
	2011	15	169	340	350	234	123	85	0	11	167	277	146	89	50	38	0	1.7
	2012	9	171	338	341	237	121	87		17	165	287	154	109	48	28		1.6
Uganda	1995	370	1 193	2 491	1 797	1 115	602	323		402	1 376	1 845	1 104	635	312	113		1.4
	2000	283	1 511	3 497	2 479	1 279	607	395		400	1 649	2 782	1 510	671	316	163		1.3
	2005	257	1 598	4 075	3 209	1 576	725	539		371	1 811	3 099	1 800	818	389	257		1.4
	2010	268	2 055	4 735	4 133	2 214	905	613	16	401	1 964	2 923	1 691	924	365	248	1	1.8
	2011	295	2 075	5 044	4 613	2 466	994	604	423	400	2 092	2 853	1 809	973	409	313	252	1.8
	2012	272	2 174	5 029	4 493	2 479	1 015	633	21	364	2 194	2 912	1 733	864	419	281	33	1.8
United Republic of Tanzania	1995	183	2 108	4 091	2 916	1 754	1 007	640		201	1 904	2 532	1 324	735	380	179		1.8
	2000	200	2 357	4 836	3 430	2 022	1 202	834		257	2 106	3 426	1 738	868	494	269		1.6
	2005	190	2 062	4 939	4 025	2 310	1 279	1 054		271	1 852	3 521	1 892	968	547	354		1.7
	2010	232	1 975	4 493	4 141	2 427	1 309	1 161	0	248	1 689	2 988	2 013	1 044	578	471	0	1.7
	2011	190	1 975	4 405	4 073	2 402	1 211	1 127		221	1 660	2 896	2 140	944	490	381		1.8
	2012	208	2 086	4 707	4 397	2 435	1 293	1 114		282	1 651	2 906	2 108	1 022	507	422		1.8
Zambia	1995	91	659	1 668	1 124	487	231	130		129	1 125	1 779	717	257	117	63		1.0
	2000	349	2 175	2 610	3 045	435	261	174		150	932	1 118	1 305	186	112	75		2.3
	2005	135	1 240	3 166	2 160	917	358	321		168	1 507	2 463	1 433	569	235	185		1.3
	2010																	–
	2011	105	1 033	2 897	2 194	810	280	207		151	940	1 683	1 063	422	162	99		1.7
	2012	141	1 003	3 088	2 412	846	319	220		180	1 024	1 646	1 077	376	189	124		1.7
Zimbabwe	1995																	–
	2000																	–
	2005	210	837	2 264	1 855	762	295	656		269	1 136	2 242	1 255	578	193	603		1.1
	2010	150	710	2 208	1 682	761	350	252	0	173	974	2 185	1 283	490	265	171	0	1.1
	2011	152	784	2 467	2 071	780	377	278	0	174	1 084	2 161	1 386	448	274	160	0	1.2
	2012	120	783	2 421	2 086	796	360	271	0	173	939	2 053	1 286	483	231	161	0	1.3

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2012**

	LABORATORIES								FREE THROUGH NTP		RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS		
Algeria	0.6	0	3.8	0.3	0.1	1	In country	Yes	Yes (all suspects)	Yes	Yes	
Angola	0.6	–	0.5	0.5				Yes	Yes (all suspects)	Yes	No	1 870
Benin	0.8	9	0.5	0.5	0.5	1	In and out of country	Yes	Yes (if TB is confirmed)	Yes	Yes	
Botswana	2.6	21	2.5	2.5	2.5	5	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Burkina Faso	0.7	0	0.3	0.3	0.9	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Burundi	1.7	9	0.5	0	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Cameroon	1.1	4	0.9	0.5	0.5	1	In country	Yes	No	Yes	Yes	
Cape Verde	3.2	0	0	0	0	1	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Central African Republic	1.6	0	1.1	1.1	0	1	No	Yes	Yes (all suspects)	Yes	Yes	
Chad	0.6	0	0	0	0	0	No	Yes	Yes (all suspects)	Yes	Yes	815
Comoros		–						Yes	Yes (all suspects)	Yes	Yes	
Congo	0.8	3					No	Yes	Yes (if TB is confirmed)	Yes	Yes	
Côte d'Ivoire	0.6	0	0.5	0.5	0	0	No	Yes	Yes (all suspects)	Yes	Yes	
Democratic Republic of the Congo	2.3	0	0.3	0.2	<0.1	26	In and out of country	Yes	Yes (if TB is confirmed)	Yes	Yes	
Equatorial Guinea		–										
Eritrea	1.3	0	0	0	0	0	No	Yes	Yes (for smear-positive TB)	Yes	Yes	
Ethiopia	2.8	0	0.3	<0.1	0.3	7	No	Yes	Yes (all suspects)	Yes	Yes	
Gabon	0.9	0	3.1	3.1	0	0	No	Yes	No	Yes	Yes	0
Gambia	1.8	31	2.8	2.8	0	0	No	Yes	Yes (all suspects)	Yes	Yes	
Ghana	1.1	1	0.6	0.6	0.6	0	No	Yes	Yes (all suspects)	Yes	Yes	
Guinea	0.5	6	0.4	0.4	0	1	No	Yes	Yes (if TB is confirmed)	Yes	Yes	
Guinea-Bissau	1.3	0	3.0	0	0	1	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Kenya	4.2	8	0.2	0.2	0.2	15	In and out of country	Yes	Yes (all suspects)	Yes	Yes	199
Lesotho	0.9	17	2.4	2.4	2.4	5	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Liberia	3.9	0	0	0	0	0	Out of country	No	Yes (if TB is confirmed)	Yes	Yes	28
Madagascar	1.0	6	0.2	0.2	0.2	5	No	Yes	Yes (all suspects)	Yes	Yes	
Malawi	1.4	19	1.3	0.6	0.3	19	No	Yes	Yes (all suspects)	Yes	Yes	
Mali	0.4	0	1.0	0.3	0.3	0	No	Yes	Yes (all suspects)	Yes	Yes	
Mauritania	1.4	–	1.3	1.3			No	Yes	Yes (all suspects)	Yes	Yes	
Mauritius		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Mozambique	1.2	9	0.6	0.4	0	12	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Namibia	1.4	100	2.2	2.2	2.2	1	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Niger	1.1	1	0.3	0.3	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Nigeria	0.8	2	0.1	<0.1	0.1	32	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Rwanda	1.7	13	0.9	0.9	0.9	6		Yes	Yes (all suspects)	Yes	Yes	
Sao Tome and Principe	4.3	0	0	0	0	0	No	Yes	Yes (all suspects)	Yes	Yes	104
Senegal	0.8	0	1.1	0.7	0.7	3	In country	Yes	Yes (if TB is confirmed)	Yes	Yes	
Seychelles		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Sierra Leone	2.7	0	0	0	0	0	No	Yes	Yes (all suspects)	Yes	Yes	
South Africa	0.4	97	1.4	1.4	1.4	100	In country	Yes	Yes (all suspects)	Yes	Yes	
Swaziland	1.5	21	4.1	4.1	4.1	19		Yes	Yes (all suspects)	Yes	Yes	
Togo	1.7	0	0.8	0.8	0	1	No	Yes	Yes (if TB is confirmed)	Yes	Yes	
Uganda	3.2	8	0.6	0.6	0.6	25		Yes	Yes (all suspects)	Yes	Yes	
United Republic of Tanzania	2.0	17	0.4	0.1	0.3	13		Yes	Yes (all suspects)	Yes	Yes	
Zambia	1.5	1	1.1				In country	Yes	Yes (all suspects)	Yes	Yes	
Zimbabwe	1.3	1	0.7	0.7	0	17	No	Yes	Yes (all suspects)	Yes	Yes	

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[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

TABLE A4.10 **Measured percentage of TB cases with MDR-TB[a], most recent year available**

	New TB cases				Previously treated TB cases			
	Year	Source	Coverage	Percentage	Year	Source	Coverage	Percentage
Algeria	2002	Survey	National	1.4 (0.60–2.7)	2002	Survey	National	9.1 (1.1–29)
Angola								
Benin	2010	Survey	National	0.5 (<0.1–2.0)	2011	Surveillance	National	13 (8.2–20)
Botswana	2008	Survey	National	2.5 (1.5–3.5)	2008	Survey	National	6.6 (2.4–11)
Burkina Faso								
Burundi								
Cameroon								
Cape Verde								
Central African Republic	2009	Survey	Sub-national	0.44 (<0.1–2.5)	1998	Survey	Sub-national	18 (7.0–35)
Chad								
Comoros								
Congo								
Côte d'Ivoire	2006	Survey	National	2.5 (1.1–4.9)				
Democratic Republic of the Congo								
Equatorial Guinea								
Eritrea								
Ethiopia	2005	Survey	National	1.6 (0.86–2.8)	2005	Survey	National	12 (5.6–21)
Gabon								
Gambia	2000	Survey	National	0.48 (<0.1–2.6)	2000	Survey	National	0 (0–18)
Ghana								
Guinea	1998	Survey	Sub-national	0.56 (0.11–1.6)	1998	Survey	Sub-national	28 (14–47)
Guinea-Bissau								
Kenya								
Lesotho	1995	Survey	National	0.91 (0.19–2.6)	1995	Survey	National	5.7 (1.2–16)
Liberia								
Madagascar	2007	Survey	National	0.49 (0.13–1.3)	2007	Survey	National	3.9 (0.48–13)
Malawi	2011	Survey	National	0.42 (0.14–0.97)	2011	Survey	National	4.8 (3.2–6.9)
Mali								
Mauritania								
Mauritius	2012	Surveillance	National	0 (0–3.0)	2012	Surveillance	National	0 (0–60)
Mozambique	2007	Survey	National	3.5 (2.2–4.8)	2007	Survey	National	12 (0–25)
Namibia	2008	Survey	National	3.8 (2.7–5.1)	2008	Survey	National	16 (13–21)
Niger								
Nigeria	2010	Survey	National	2.9 (2.1–4.0)	2010	Survey	National	14 (10–19)
Rwanda	2005	Survey	National	3.9 (2.5–5.8)	2010	Surveillance	National	19 (15–23)
Sao Tome and Principe					2012	Surveillance	National	88 (47–100)
Senegal	2006	Survey	National	2.1 (0.69–4.9)	2006	Survey	National	17 (7.0–31)
Seychelles	2012	Surveillance	National	0 (0–23)	2012	Surveillance	National	0 (0–84)
Sierra Leone	1997	Survey	National	0.85 (<0.1–4.7)	1997	Survey	National	23 (5.0–54)
South Africa	2002	Survey	National	1.8 (1.4–2.3)	2002	Survey	National	6.7 (5.4–8.2)
Swaziland	2009	Survey	National	7.7 (4.8–11)	2009	Survey	National	34 (28–39)
Togo								
Uganda	2011	Survey	National	1.4 (0.60–2.2)	2011	Survey	National	12 (6.8–19)
United Republic of Tanzania	2007	Survey	National	1.1 (0.30–2.8)	2007	Survey	National	0 (0–5.9)
Zambia	2008	Survey	National	0.33 (<0.1–1.2)	2008	Survey	National	8.1 (4.1–14)
Zimbabwe	1995	Survey	National	1.9 (1.0–3.3)	1995	Survey	National	8.3 (1.8–22)

[a] Empty rows indicate an absence of high-quality survey or surveillance data. In the absence of high-quality national data, high-quality sub-national data are used.

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Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See **ANNEX 1** for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. The main updates implemented in this report are explained in Box 2.1 of Chapter 2. *Estimates published in previous global TB control reports should no longer be used*.

Data source

Data shown in this annex are taken from the WHO global TB database on 1 October 2013. Data shown in the main part of the report were taken from the database in July 2013. As a result, data in this annex may differ slightly from those in the main part of the report.

Data for all years can be downloaded from www.who.int/tb/data.

Country notes

Caribbean Islands

Data collection from Caribbean Islands that are not Member States of WHO was resumed in 2011 after a break of a few years. This includes Aruba, Curaçao, Puerto Rico and Sint Maarten, which are Associate Members of the Pan American Health Organization, plus the territories of Anguilla, Bermuda, Bonaire, Saint Eustatius and Saba, British Virgin Islands, Cayman Islands, Montserrat and Turks and Caicos Islands. Data are not currently independently collected from the US Virgin Islands

USA

In addition to the 51 reporting areas, the USA includes territories that report separately to WHO. The data for these territories are not included in the data reported by the USA. Definitions of case types and outcomes do not exactly match those used by WHO.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Anguilla	1990	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	60 (22–118)	<0.01 (<0.01–<0.01)	24 (15–35)
	1995	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	47 (23–81)	<0.01 (<0.01–<0.01)	23 (20–27)
	2000	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.011)	56 (24–102)	<0.01 (<0.01–<0.01)	23 (18–27)
	2005	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.012)	54 (23–99)	<0.01 (<0.01–<0.01)	22 (18–26)
	2010	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.012)	50 (22–89)	<0.01 (<0.01–<0.01)	21 (18–25)
	2011	< 1	0 (0–14)	0 (0–100 000)	<0.01 (<0.01–0.012)	50 (22–89)	<0.01 (<0.01–<0.01)	21 (17–25)
	2012	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.012)	49 (22–88)	<0.01 (<0.01–<0.01)	21 (17–25)
Antigua and Barbuda	1990	< 1	<0.01 (<0.01–<0.01)	3.9 (3.5–4.3)	<0.01 (<0.01–<0.01)	2.8 (0.83–6.0)	<0.01 (<0.01–<0.01)	1.9 (1.6–2.1)
	1995	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	4.8 (1.4–10)	0 (0–0)	0 (0–0)
	2000	< 1	<0.01 (<0.01–<0.01)	1.8 (1.5–2.2)	<0.01 (<0.01–0.012)	9.3 (4.6–16)	<0.01 (<0.01–<0.01)	5.9 (5.2–6.7)
	2005	< 1	<0.01 (<0.01–<0.01)	1.4 (1.3–1.4)	<0.01 (<0.01–0.018)	9.4 (2.2–22)	<0.01 (<0.01–<0.01)	8.4 (7.3–9.5)
	2010	< 1	<0.01 (<0.01–<0.01)	1.4 (1.2–1.5)	<0.01 (<0.01–0.016)	5.3 (0.24–18)	<0.01 (<0.01–<0.01)	9.2 (8.1–10)
	2011	< 1	<0.01 (<0.01–<0.01)	1.4 (1.2–1.5)	<0.01 (<0.01–0.015)	6.8 (1.1–18)	<0.01 (<0.01–<0.01)	7.8 (6.9–8.9)
	2012	< 1	<0.01 (<0.01–<0.01)	1.4 (1.2–1.5)	<0.01 (<0.01–<0.01)	4.8 (1.6–9.9)	<0.01 (<0.01–<0.01)	3.9 (3.4–4.4)
Argentina	1990	33	1.4 (1.3–1.4)	4.2 (4.1–4.2)	33 (12–64)	102 (38–198)	19 (13–28)	60 (39–85)
	1995	35	1.2 (1.1–1.2)	3.3 (3.3–3.4)	26 (12–46)	74 (33–131)	17 (14–21)	49 (40–59)
	2000	37	0.84 (0.810–0.870)	2.3 (2.2–2.3)	22 (9.5–39)	59 (26–107)	15 (12–18)	40 (33–49)
	2005	39	0.73 (0.700–0.760)	1.9 (1.8–2.0)	18 (7.8–34)	48 (20–87)	13 (11–15)	33 (27–40)
	2010	40	0.54 (0.520–0.570)	1.3 (1.3–1.4)	16 (7.1–29)	40 (18–71)	11 (9.1–13)	27 (23–32)
	2011	41	0.55 (0.520–0.570)	1.3 (1.3–1.4)	16 (6.8–28)	38 (17–68)	11 (8.9–13)	26 (22–31)
	2012	41	0.55 (0.530–0.580)	1.3 (1.3–1.4)	15 (6.5–27)	36 (16–65)	10 (8.6–12)	25 (21–30)
Aruba	1990	< 1	<0.01 (<0.01–<0.01)	0.78 (<0.1–2.5)	0.013 (<0.01–0.024)	20 (7.9–38)	<0.01 (<0.01–0.011)	16 (14–18)
	1995	< 1	<0.01 (<0.01–<0.01)	0.78 (<0.1–2.5)	0.016 (<0.01–0.031)	20 (7.9–38)	0.013 (0.011–0.014)	16 (14–18)
	2000	< 1	<0.01 (<0.01–<0.01)	0.78 (<0.1–2.5)	0.018 (<0.01–0.035)	20 (7.9–38)	0.014 (0.013–0.016)	16 (14–18)
	2005	< 1	<0.01 (<0.01–<0.01)	0.78 (<0.1–2.5)	0.02 (<0.01–0.038)	20 (7.9–38)	0.016 (0.014–0.018)	16 (14–18)
	2010	< 1	<0.01 (<0.01–<0.01)	0.78 (<0.1–2.5)	0.021 (<0.01–0.039)	20 (7.9–38)	0.016 (0.014–0.018)	16 (14–18)
	2011	< 1	<0.01 (<0.01–<0.01)	0.78 (<0.1–2.5)	0.021 (<0.01–0.039)	20 (7.9–38)	0.016 (0.014–0.018)	16 (14–18)
	2012	< 1	<0.01 (<0.01–<0.01)	0.78 (<0.1–2.5)	0.021 (<0.01–0.039)	20 (7.9–38)	0.016 (0.014–0.018)	16 (14–18)
Bahamas	1990	< 1	0.043 (0.043–0.043)	17 (17–17)	0.056 (0.024–0.100)	22 (9.5–39)	0.053 (0.046–0.060)	21 (18–23)
	1995	< 1	0.012 (0.012–0.012)	4.3 (4.3–4.3)	0.064 (0.027–0.120)	23 (9.7–41)	0.066 (0.057–0.074)	23 (21–26)
	2000	< 1	<0.01 (<0.01–<0.01)	2.2 (2.1–2.3)	0.1 (0.050–0.170)	34 (17–57)	0.094 (0.083–0.110)	32 (28–36)
	2005	< 1	<0.01 (<0.01–<0.01)	1.1 (1.1–1.1)	0.056 (0.025–0.100)	17 (7.6–30)	0.055 (0.048–0.062)	17 (15–19)
	2010	< 1	<0.01 (<0.01–<0.01)	0.51 (0.49–0.53)	0.037 (0.015–0.068)	10 (4.2–19)	0.036 (0.031–0.040)	9.9 (8.7–11)
	2011	< 1	<0.01 (<0.01–<0.01)	0.43 (0.42–0.45)	0.058 (0.028–0.098)	16 (7.6–27)	0.047 (0.041–0.053)	13 (11–15)
	2012	< 1	<0.01 (<0.01–<0.01)	0.37 (0.36–0.38)	0.04 (0.016–0.076)	11 (4.2–21)	0.037 (0.032–0.042)	9.9 (8.7–11)
Barbados	1990	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.014)	2.6 (0.93–5.2)	<0.01 (<0.01–<0.01)	2.2 (1.9–2.5)
	1995	< 1	<0.01 (<0.01–<0.01)	0.63 (0.62–0.64)	<0.01 (<0.01–<0.01)	1.5 (0.56–3.0)	<0.01 (<0.01–<0.01)	1.3 (1.1–1.5)
	2000	< 1	<0.01 (<0.01–<0.01)	0.71 (0.70–0.73)	<0.01 (<0.01–0.011)	2.1 (0.79–4.2)	<0.01 (<0.01–<0.01)	1.3 (1.1–1.5)
	2005	< 1	<0.01 (<0.01–<0.01)	0.62 (0.61–0.63)	0.016 (<0.01–0.027)	5.7 (2.7–9.9)	0.014 (0.012–0.016)	5.1 (4.4–5.7)
	2010	< 1	<0.01 (<0.01–<0.01)	0.69 (0.67–0.70)	<0.01 (<0.01–0.013)	2.8 (1.4–4.7)	<0.01 (<0.01–<0.01)	2.5 (2.2–2.8)
	2011	< 1	<0.01 (<0.01–<0.01)	0.69 (0.67–0.70)	<0.01 (<0.01–<0.01)	0.79 (0.30–1.5)	0 (0–0)	0 (0–0)
	2012	< 1	<0.01 (<0.01–<0.01)	0.69 (0.67–0.70)	<0.01 (<0.01–<0.01)	1.8 (0.77–3.1)	<0.01 (<0.01–<0.01)	1.6 (1.4–1.8)
Belize	1990	< 1	<0.01 (<0.01–<0.01)	2.5 (1.9–3.1)	0.1 (0.033–0.210)	55 (17–113)	0.075 (0.052–0.100)	40 (28–54)
	1995	< 1	0.014 (0.013–0.016)	7 (6.3–7.7)	0.1 (0.037–0.200)	49 (18–95)	0.083 (0.068–0.099)	40 (33–48)
	2000	< 1	<0.01 (<0.01–<0.01)	3.3 (3.2–3.3)	0.13 (0.047–0.240)	52 (20–101)	0.095 (0.078–0.110)	40 (33–48)
	2005	< 1	<0.01 (<0.01–<0.01)	2.2 (2.1–2.2)	0.13 (0.055–0.230)	48 (20–86)	0.11 (0.094–0.120)	40 (34–46)
	2010	< 1	0.013 (0.013–0.013)	4.3 (4.3–4.3)	0.16 (0.073–0.290)	53 (24–93)	0.12 (0.100–0.150)	40 (33–48)
	2011	< 1	0.014 (0.014–0.014)	4.3 (4.3–4.3)	0.17 (0.073–0.290)	52 (23–93)	0.13 (0.100–0.150)	40 (33–48)
	2012	< 1	0.014 (0.014–0.014)	4.3 (4.3–4.3)	0.17 (0.071–0.300)	51 (22–92)	0.13 (0.110–0.160)	40 (33–48)
Bermuda	1990	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	3.9 (1.2–8.3)	0 (0–0)	0 (0–0)
	1995	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.013)	13 (6.6–22)	<0.01 (<0.01–<0.01)	7.5 (6.6–8.5)
	2000	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	1.2 (0.35–2.5)	0 (0–0)	0 (0–0)
	2005	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.014)	13 (6.4–22)	<0.01 (<0.01–<0.01)	8.1 (7.1–9.1)
	2010	< 1	<0.01 (<0.01–<0.01)	0.18 (0.18–0.18)	<0.01 (<0.01–<0.01)	3.8 (0.97–8.6)	<0.01 (<0.01–<0.01)	1.8 (1.6–2.0)
	2011	< 1	<0.01 (<0.01–<0.01)	0.18 (0.18–0.18)	<0.01 (<0.01–<0.01)	3 (0.78–6.7)	<0.01 (<0.01–<0.01)	1.8 (1.5–2.0)
	2012	< 1	<0.01 (<0.01–<0.01)	0.18 (0.18–0.18)	<0.01 (<0.01–0.012)	11 (5.3–19)	<0.01 (<0.01–<0.01)	5.3 (4.6–6.0)
Bolivia (Plurinational State of)	1990	7	2.7 (0.710–6.0)	40 (10–89)	28 (11–55)	419 (156–810)	17 (11–24)	251 (166–354)
	1995	8	2.5 (1.2–4.4)	33 (15–58)	27 (14–44)	352 (180–580)	16 (14–19)	215 (185–248)
	2000	8	2.4 (1.0–4.3)	28 (12–51)	25 (12–43)	299 (145–506)	16 (13–19)	184 (151–221)
	2005	9	2.3 (0.950–4.1)	24 (10–44)	24 (12–41)	258 (126–436)	15 (12–18)	158 (129–190)
	2010	10	2.2 (0.940–4.0)	22 (9.3–39)	23 (11–39)	227 (113–381)	14 (11–16)	135 (111–161)
	2011	10	2.2 (0.930–4.0)	21 (9.1–38)	23 (11–38)	221 (110–370)	14 (11–16)	131 (108–156)
	2012	10	2.2 (0.930–3.9)	21 (8.8–37)	23 (11–38)	215 (107–360)	13 (11–16)	127 (105–151)
Bonaire, Saint Eustatius and Saba	2010	< 1	0 (0–0)	0 (0–0)			0 (0–0)	0 (0–0)
	2011	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	8.1 (3.2–15)	<0.01 (<0.01–<0.01)	6.3 (5.5–7.2)
	2012	< 1	0 (0–0)	0 (0–0)			0 (0–0)	0 (0–0)
Brazil	1990	150	10 (7.8–13)	7 (5.2–9.0)	210 (73–420)	140 (49–278)	130 (79–180)	84 (53–121)
	1995	162	8.6 (6.8–11)	5.3 (4.2–6.6)	170 (76–290)	103 (47–180)	120 (94–140)	71 (58–85)
	2000	175	7.7 (6.3–9.2)	4.4 (3.6–5.3)	150 (65–260)	84 (37–149)	110 (86–130)	60 (49–72)
	2005	186	5.8 (5.2–6.5)	3.1 (2.8–3.5)	120 (52–220)	66 (28–119)	95 (80–110)	51 (43–60)
	2010	195	5.4 (5.0–5.8)	2.7 (2.5–3.0)	110 (47–210)	58 (24–106)	91 (75–110)	46 (38–55)
	2011	197	5.1 (4.8–5.4)	2.6 (2.4–2.8)	120 (54–220)	62 (27–112)	95 (78–110)	48 (40–57)
	2012	199	4.9 (4.6–5.2)	2.5 (2.3–2.6)	120 (51–210)	59 (25–107)	92 (76–110)	46 (38–55)
British Virgin Islands	1990	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	23 (9.3–43)	<0.01 (<0.01–<0.01)	17 (15–20)
	1995	< 1	<0.01 (<0.01–<0.01)	5.5 (5.5–5.5)	<0.01 (<0.01–<0.01)	23 (9.5–43)	<0.01 (<0.01–<0.01)	17 (15–20)
	2000	< 1	<0.01 (<0.01–<0.01)	5.3 (5.1–5.5)	<0.01 (<0.01–<0.01)	8.4 (2.5–18)	<0.01 (<0.01–<0.01)	5.6 (4.9–6.3)
	2005	< 1	<0.01 (<0.01–<0.01)	4.6 (4.4–4.7)	<0.01 (<0.01–<0.01)	2.7 (0.82–5.8)	0 (0–0)	0 (0–0)
	2010	< 1	<0.01 (<0.01–<0.01)	4.1 (4.0–4.3)	<0.01 (<0.01–<0.01)	9.2 (4.3–16)	<0.01 (<0.01–<0.01)	4.2 (3.7–4.8)
	2011	< 1	<0.01 (<0.01–<0.01)	4.1 (4.0–4.3)	<0.01 (<0.01–<0.01)	0.97 (0.29–2.0)	0 (0–0)	0 (0–0)
	2012	< 1	<0.01 (<0.01–<0.01)	4.1 (4.0–4.3)	<0.01 (<0.01–<0.01)	1 (0.30–2.1)	0 (0–0)	0 (0–0)
Canada	1990	28	0.12 (0.110–0.120)	0.42 (0.41–0.44)	3 (1.3–5.6)	11 (4.6–20)	2.3 (2.0–2.6)	8.3 (7.3–9.4)
	1995	29	0.12 (0.120–0.120)	0.4 (0.40–0.40)	3 (1.3–5.4)	10 (4.3–18)	2.3 (2.0–2.6)	7.7 (6.8–8.7)
	2000	31	0.082 (0.081–0.082)	0.27 (0.26–0.27)	2.6 (1.1–4.8)	8.5 (3.5–16)	2 (1.7–2.2)	6.5 (5.7–7.3)
	2005	32	0.086 (0.086–0.086)	0.27 (0.27–0.27)	2.4 (1.0–4.3)	7.3 (3.1–13)	1.8 (1.6–2.0)	5.5 (4.8–6.3)
	2010	34	0.074 (0.074–0.074)	0.22 (0.22–0.22)	2 (0.770–3.7)	5.7 (2.2–11)	1.6 (1.4–1.8)	4.6 (4.0–5.2)
	2011	34	0.071 (0.070–0.071)	0.21 (0.20–0.21)	2.2 (0.950–3.9)	6.3 (2.7–11)	1.6 (1.4–1.9)	4.8 (4.2–5.4)
	2012	35	0.067 (0.067–0.068)	0.19 (0.19–0.19)	2.1 (0.900–3.8)	6.1 (2.6–11)	1.6 (1.4–1.8)	4.6 (4.0–5.2)
Cayman Islands	1990	< 1	<0.01 (<0.01–<0.01)	4 (4.0–4.1)	<0.01 (<0.01–<0.01)	12 (3.5–25)	<0.01 (<0.01–<0.01)	9.2 (8.1–10)
	1995	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	10 (4.4–18)	<0.01 (<0.01–<0.01)	7.3 (6.4–8.2)
	2000	< 1	0 (0–0)	0 (0–0)	0.012 (<0.01–0.020)	28 (14–48)	<0.01 (<0.01–<0.01)	14 (12–16)
	2005	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	2.2 (1.1–3.7)	<0.01 (<0.01–<0.01)	1.2 (1.1–1.4)
	2010	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.016)	15 (5.5–28)	<0.01 (<0.01–<0.01)	8.3 (7.3–9.4)
	2011	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.010)	8 (2.2–18)	<0.01 (<0.01–<0.01)	4.1 (3.6–4.6)
	2012	< 1	0 (0–0)	0 (0–0)	0.011 (<0.01–0.019)	18 (8.2–33)	<0.01 (<0.01–<0.01)	12 (11–14)
Chile	1990	13	0.76 (0.710–0.820)	5.8 (5.3–6.2)	10 (4.4–18)	76 (34–136)	7.1 (6.2–8.0)	54 (47–61)
	1995	14	0.5 (0.460–0.540)	3.5 (3.2–3.7)	6.4 (2.6–12)	44 (18–82)	4.8 (4.2–5.4)	33 (29–37)
	2000	15	0.3 (0.290–0.310)	1.9 (1.8–2.0)	4.6 (1.9–8.6)	30 (12–55)	3.5 (3.0–3.9)	22 (20–25)
	2005	16	0.24 (0.240–0.240)	1.5 (1.4–1.5)	4 (1.8–7.1)	25 (11–44)	2.9 (2.5–3.3)	18 (15–20)
	2010	17	0.23 (0.220–0.230)	1.3 (1.3–1.4)	3.7 (1.5–6.7)	21 (8.9–39)	2.7 (2.4–3.1)	16 (14–18)
	2011	17	0.22 (0.220–0.230)	1.3 (1.3–1.3)	3.8 (1.6–6.9)	22 (9.5–40)	2.8 (2.5–3.2)	16 (14–18)
	2012	17	0.21 (0.210–0.220)	1.2 (1.2–1.2)	3.6 (1.4–6.7)	21 (8.3–38)	2.8 (2.4–3.1)	16 (14–18)
Colombia	1990	33	1.7 (1.4–2.0)	5 (4.2–5.9)	28 (10–55)	85 (31–165)	18 (12–25)	54 (36–75)
	1995	37	2 (1.8–2.2)	5.3 (4.8–5.9)	30 (15–51)	83 (41–140)	18 (14–21)	48 (39–58)
	2000	40	1.3 (1.2–1.4)	3.2 (3.0–3.4)	27 (13–46)	68 (33–116)	17 (14–21)	43 (35–52)
	2005	43	1 (1.0–1.0)	2.4 (2.3–2.4)	25 (12–43)	58 (28–100)	17 (14–20)	38 (31–46)
	2010	46	0.9 (0.890–0.910)	1.9 (1.9–2.0)	24 (11–41)	51 (24–87)	16 (13–19)	34 (28–41)
	2011	47	0.84 (0.830–0.850)	1.8 (1.8–1.8)	23 (11–40)	49 (23–85)	16 (13–19)	34 (28–40)
	2012	48	0.77 (0.760–0.790)	1.6 (1.6–1.6)	23 (11–39)	48 (22–83)	16 (13–19)	33 (27–39)

[a] Rates are per 100 000 population.

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TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Costa Rica	1990	3	0.078 (0.072–0.083)	2.5 (2.3–2.7)	3.6 (1.7–6.3)	118 (54–205)	1.5 (1.3–1.7)	48 (42–54)
	1995	3	0.11 (0.100–0.110)	3.1 (3.0–3.2)	3 (1.5–5.0)	87 (44–143)	1.5 (1.3–1.7)	43 (37–48)
	2000	4	0.07 (0.067–0.072)	1.8 (1.7–1.8)	2.5 (1.3–4.0)	63 (33–101)	1.4 (1.2–1.5)	35 (31–39)
	2005	4	0.06 (0.058–0.061)	1.4 (1.3–1.4)	1.7 (0.920–2.8)	40 (21–65)	1 (0.880–1.1)	23 (20–26)
	2010	5	0.043 (0.038–0.047)	0.92 (0.82–1.0)	0.93 (0.460–1.6)	20 (9.8–33)	0.65 (0.570–0.740)	14 (12–16)
	2011	5	0.04 (0.036–0.045)	0.85 (0.76–0.95)	0.78 (0.360–1.4)	16 (7.6–29)	0.59 (0.510–0.660)	12 (11–14)
	2012	5	0.038 (0.034–0.043)	0.8 (0.70–0.89)	0.6 (0.220–1.2)	12 (4.7–24)	0.51 (0.440–0.580)	11 (9.3–12)
Cuba	1990	11	0.062 (0.059–0.065)	0.58 (0.55–0.62)	6.4 (2.4–12)	60 (23–115)	2.6 (1.6–3.9)	25 (15–37)
	1995	11	0.096 (0.095–0.098)	0.88 (0.87–0.89)	3.5 (1.7–5.9)	32 (15–54)	2 (1.7–2.5)	19 (15–23)
	2000	11	0.046 (0.045–0.047)	0.41 (0.40–0.42)	2.2 (0.940–3.9)	19 (8.4–35)	1.4 (1.1–1.8)	13 (10–16)
	2005	11	0.033 (0.033–0.034)	0.3 (0.30–0.30)	1.6 (0.730–2.8)	14 (6.4–25)	1 (0.850–1.3)	9.2 (7.5–11)
	2010	11	0.039 (0.039–0.040)	0.35 (0.35–0.35)	1.6 (0.730–2.8)	14 (6.4–25)	1 (0.840–1.3)	9.3 (7.4–11)
	2011	11	0.038 (0.038–0.038)	0.33 (0.33–0.34)	1.6 (0.700–2.8)	14 (6.2–25)	1 (0.830–1.3)	9.3 (7.4–11)
	2012	11	0.038 (0.038–0.038)	0.33 (0.33–0.34)	1.6 (0.670–2.8)	14 (5.9–25)	1 (0.840–1.3)	9.3 (7.4–11)
Curaçao	2010	< 1	<0.01 (<0.01–<0.01)	0.19 (<0.1–0.63)	<0.01 (<0.01–0.014)	5 (2.0–9.4)	<0.01 (<0.01–<0.01)	3.9 (3.4–4.4)
	2011	< 1	<0.01 (0–<0.01)	<0.1 (0–0.19)	<0.01 (<0.01–<0.01)	0.97 (0.38–1.8)	<0.01 (<0.01–<0.01)	0.76 (0.67–0.86)
	2012	< 1	<0.01 (0–<0.01)	<0.1 (0–0.18)	<0.01 (<0.01–<0.01)	0.95 (0.37–1.8)	<0.01 (<0.01–<0.01)	0.74 (0.65–0.84)
Dominica	1990	< 1	<0.01 (<0.01–<0.01)	7.6 (7.3–7.9)	0.012 (<0.01–0.031)	17 (2.7–43)	0.01 (<0.01–0.015)	15 (9.3–21)
	1995	< 1	<0.01 (<0.01–<0.01)	2.4 (2.2–2.5)	0.014 (<0.01–0.026)	19 (7.3–36)	0.01 (<0.01–0.012)	14 (12–17)
	2000	< 1	<0.01 (<0.01–<0.01)	3.4 (3.1–3.7)	0.02 (<0.01–0.034)	28 (13–49)	<0.01 (<0.01–0.012)	14 (11–17)
	2005	< 1	<0.01 (<0.01–<0.01)	1.3 (1.3–1.3)	0.012 (<0.01–0.024)	17 (6.3–34)	<0.01 (<0.01–0.011)	13 (11–16)
	2010	< 1	<0.01 (<0.01–<0.01)	3.2 (3.2–3.3)	0.013 (<0.01–0.024)	19 (7.9–34)	<0.01 (<0.01–0.011)	13 (11–16)
	2011	< 1	<0.01 (<0.01–<0.01)	2.1 (2.1–2.1)	0.016 (<0.01–0.033)	23 (7.2–46)	<0.01 (<0.01–0.011)	13 (11–16)
	2012	< 1	<0.01 (<0.01–<0.01)	2 (2.0–2.0)	0.018 (<0.01–0.030)	25 (12–42)	<0.01 (<0.01–0.011)	13 (11–15)
Dominican Republic	1990	7	1 (0.550–1.6)	14 (7.6–22)	25 (9.4–47)	339 (130–646)	11 (6.6–16)	148 (91–218)
	1995	8	1 (0.510–1.7)	13 (6.4–21)	17 (8.6–29)	215 (108–360)	9.7 (7.9–12)	121 (99–146)
	2000	9	0.76 (0.400–1.2)	8.7 (4.6–14)	14 (6.8–23)	159 (78–268)	8.6 (7.1–10)	100 (82–120)
	2005	9	0.59 (0.380–0.850)	6.3 (4.0–9.1)	12 (6.0–21)	131 (65–220)	7.7 (6.3–9.2)	82 (67–98)
	2010	10	0.53 (0.390–0.680)	5.3 (3.9–6.8)	11 (5.3–18)	107 (53–181)	6.7 (5.6–8.0)	67 (55–80)
	2011	10	0.49 (0.380–0.620)	4.9 (3.8–6.1)	10 (5.1–18)	103 (50–173)	6.6 (5.4–7.8)	65 (53–77)
	2012	10	0.46 (0.380–0.550)	4.4 (3.7–5.3)	10 (4.9–17)	98 (48–165)	6.4 (5.3–7.6)	62 (51–74)
Ecuador	1990	10	2 (1.4–2.6)	19 (14–26)	34 (13–66)	340 (127–655)	18 (11–26)	174 (108–257)
	1995	11	2 (1.4–2.7)	17 (12–24)	27 (14–46)	242 (121–403)	15 (13–19)	136 (111–164)
	2000	13	1.8 (1.3–2.3)	14 (10–19)	23 (12–39)	187 (93–313)	13 (11–16)	107 (87–128)
	2005	14	1.1 (0.910–1.2)	7.7 (6.6–9.0)	20 (10–34)	148 (74–248)	11 (9.4–14)	83 (68–100)
	2010	15	0.69 (0.610–0.790)	4.6 (4.0–5.2)	17 (8.5–28)	113 (57–187)	9.7 (8.0–12)	65 (54–77)
	2011	15	0.53 (0.460–0.610)	3.5 (3.0–4.0)	16 (8.1–27)	106 (53–176)	9.4 (7.8–11)	62 (51–74)
	2012	15	0.41 (0.350–0.480)	2.7 (2.3–3.1)	15 (7.6–25)	98 (49–163)	9.1 (7.5–11)	59 (48–70)
El Salvador	1990	5	0.26 (0.150–0.390)	4.8 (2.8–7.4)	5.1 (1.7–10)	95 (32–191)	3.4 (2.3–4.7)	63 (43–88)
	1995	6	0.22 (0.150–0.300)	3.8 (2.6–5.2)	3.1 (1.2–6.1)	55 (21–105)	2.6 (2.3–2.9)	45 (39–50)
	2000	6	0.17 (0.120–0.210)	2.8 (2.1–3.6)	3.3 (1.6–5.7)	56 (27–96)	2.2 (1.8–2.6)	37 (30–44)
	2005	6	0.11 (0.087–0.140)	1.8 (1.4–2.3)	3.7 (1.8–6.2)	60 (29–103)	2.4 (1.9–2.9)	39 (32–47)
	2010	6	0.076 (0.056–0.100)	1.2 (0.90–1.6)	2.1 (0.740–4.0)	33 (12–65)	1.8 (1.5–2.0)	28 (24–33)
	2011	6	0.071 (0.051–0.094)	1.1 (0.81–1.5)	2.1 (0.760–4.2)	34 (12–67)	1.7 (1.4–1.9)	27 (23–31)
	2012	6	0.065 (0.046–0.088)	1 (0.73–1.4)	2.2 (0.770–4.3)	34 (12–68)	1.6 (1.4–1.8)	25 (22–29)
Grenada	1990	< 1	0 (0–0)	0 (0–0)	0.01 (<0.01–0.020)	11 (3.9–21)	<0.01 (<0.01–<0.01)	4.6 (2.9–6.8)
	1995	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.014)	8.2 (4.1–14)	<0.01 (<0.01–<0.01)	4.5 (3.8–5.2)
	2000	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.015)	8.6 (4.1–15)	<0.01 (<0.01–<0.01)	4.4 (3.6–5.2)
	2005	< 1	<0.01 (<0.01–<0.01)	1.6 (1.6–1.6)	<0.01 (<0.01–0.014)	8.1 (3.9–14)	<0.01 (<0.01–<0.01)	4.2 (3.5–5.1)
	2010	< 1	<0.01 (<0.01–<0.01)	0.76 (0.75–0.76)	<0.01 (<0.01–0.013)	5.5 (1.3–13)	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)
	2011	< 1	<0.01 (<0.01–<0.01)	0.99 (0.95–1.0)	<0.01 (<0.01–0.015)	7.1 (2.2–15)	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)
	2012	< 1	<0.01 (<0.01–<0.01)	0.99 (0.95–1.0)	<0.01 (<0.01–0.015)	6.8 (2.1–14)	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)
Guatemala	1990	9	0.86 (0.800–0.930)	9.7 (9.0–10)	13 (4.8–24)	142 (53–274)	6.6 (4.1–9.7)	74 (47–109)
	1995	10	0.63 (0.570–0.700)	6.3 (5.7–7.1)	14 (6.8–23)	139 (69–233)	7.1 (5.8–8.5)	71 (58–85)
	2000	11	0.57 (0.510–0.640)	5.1 (4.6–5.7)	14 (7.1–24)	129 (63–217)	7.6 (6.2–9.1)	68 (55–81)
	2005	13	0.41 (0.370–0.460)	3.3 (2.9–3.6)	15 (7.4–25)	119 (59–200)	8.2 (6.7–9.9)	65 (53–78)
	2010	14	0.34 (0.310–0.370)	2.3 (2.1–2.6)	16 (7.9–27)	112 (55–189)	8.8 (7.3–11)	62 (51–73)
	2011	15	0.32 (0.290–0.350)	2.2 (2.0–2.4)	16 (8.0–28)	111 (55–188)	9 (7.4–11)	61 (50–73)
	2012	15	0.31 (0.280–0.340)	2.1 (1.9–2.2)	17 (8.2–28)	110 (54–187)	9.1 (7.5–11)	60 (50–72)
Guyana	1990	< 1	0.054 (0.036–0.075)	7.5 (5.0–10)	1.4 (0.520–2.7)	193 (72–372)	0.65 (0.400–0.960)	89 (55–132)
	1995	< 1	0.067 (0.049–0.087)	9.1 (6.7–12)	1.1 (0.550–1.9)	153 (75–258)	0.65 (0.530–0.780)	89 (73–107)
	2000	< 1	0.099 (0.061–0.150)	13 (8.2–20)	1 (0.490–1.8)	139 (66–239)	0.78 (0.630–0.930)	104 (85–125)
	2005	< 1	0.12 (0.110–0.140)	16 (14–19)	1.1 (0.470–1.9)	139 (62–248)	0.88 (0.720–1.1)	115 (94–138)
	2010	< 1	0.12 (0.098–0.130)	15 (12–17)	1 (0.430–1.9)	132 (55–241)	0.87 (0.720–1.0)	111 (91–132)
	2011	< 1	0.12 (0.099–0.140)	15 (12–17)	1 (0.430–1.9)	131 (54–241)	0.87 (0.720–1.0)	110 (91–131)
	2012	< 1	0.12 (0.099–0.140)	15 (12–17)	1 (0.430–1.9)	131 (54–242)	0.87 (0.710–1.0)	109 (90–130)
Haiti	1990	7	2.5 (0.450–6.4)	36 (6.3–90)	27 (8.2–56)	376 (115–787)	18 (11–26)	247 (153–365)
	1995	8	3 (1.1–6.0)	39 (14–77)	30 (14–51)	378 (180–648)	19 (16–23)	247 (202–297)
	2000	9	3.4 (1.2–6.7)	40 (14–78)	34 (17–58)	400 (193–681)	23 (19–28)	271 (221–325)
	2005	9	3.4 (1.2–6.6)	37 (13–71)	36 (17–61)	388 (187–659)	25 (21–30)	272 (222–326)
	2010	10	2.9 (1.1–5.4)	29 (11–55)	32 (15–55)	326 (156–556)	23 (19–27)	230 (190–275)
	2011	10	2.7 (1.1–5.1)	27 (11–51)	31 (15–53)	309 (148–528)	22 (18–27)	222 (183–265)
	2012	10	2.6 (1.0–4.9)	25 (10–48)	30 (14–52)	296 (140–509)	22 (18–26)	213 (176–254)
Honduras	1990	5	0.31 (0.096–0.650)	6.4 (2.0–13)	8.7 (3.0–18)	178 (60–358)	5.6 (3.6–7.9)	113 (73–162)
	1995	6	0.35 (0.110–0.730)	6.2 (1.9–13)	9.5 (3.0–19)	169 (54–348)	6.4 (4.1–9.2)	115 (74–164)
	2000	6	0.31 (0.060–0.760)	5 (0.96–12)	11 (3.4–22)	169 (54–347)	7.1 (4.6–10)	114 (74–163)
	2005	7	0.26 (0.025–0.780)	3.8 (0.36–11)	7.7 (2.5–16)	112 (36–228)	5 (3.2–7.2)	73 (47–104)
	2010	8	0.24 (<0.01–0.840)	3.1 (0.12–11)	6.4 (2.2–13)	84 (29–170)	4.1 (2.7–5.9)	54 (35–77)
	2011	8	0.24 (<0.01–0.850)	3 (<0.1–11)	6.5 (2.2–13)	84 (28–169)	4.2 (2.7–6.0)	54 (35–77)
	2012	8	0.23 (<0.01–0.850)	2.9 (<0.1–11)	6.5 (2.1–13)	82 (27–168)	4.3 (2.8–6.1)	54 (35–77)
Jamaica	1990	2	0.021 (0.016–0.026)	0.87 (0.68–1.1)	0.23 (0.081–0.440)	9.5 (3.4–19)	0.15 (0.110–0.210)	6.5 (4.7–8.8)
	1995	2	0.025 (0.020–0.031)	1 (0.81–1.2)	0.22 (0.100–0.380)	8.9 (4.1–15)	0.16 (0.130–0.190)	6.5 (5.4–7.9)
	2000	3	0.016 (0.013–0.020)	0.63 (0.51–0.77)	0.21 (0.095–0.370)	8.1 (3.7–14)	0.17 (0.140–0.200)	6.5 (5.4–7.9)
	2005	3	0.011 (<0.01–0.013)	0.4 (0.32–0.48)	0.23 (0.110–0.400)	8.7 (4.1–15)	0.18 (0.140–0.210)	6.5 (5.4–7.9)
	2010	3	<0.01 (<0.01–<0.01)	0.26 (0.21–0.31)	0.26 (0.130–0.430)	9.4 (4.6–16)	0.18 (0.150–0.210)	6.6 (5.4–7.8)
	2011	3	<0.01 (<0.01–<0.01)	0.24 (0.20–0.28)	0.26 (0.130–0.440)	9.4 (4.6–16)	0.18 (0.150–0.220)	6.6 (5.4–7.8)
	2012	3	<0.01 (<0.01–<0.01)	0.22 (0.18–0.26)	0.26 (0.130–0.440)	9.5 (4.7–16)	0.18 (0.150–0.220)	6.6 (5.4–7.8)
Mexico	1990	86	6.7 (6.4–7.0)	7.8 (7.5–8.1)	130 (61–210)	145 (71–246)	57 (49–66)	67 (57–77)
	1995	95	5.3 (4.9–5.7)	5.5 (5.2–5.9)	85 (43–140)	89 (46–146)	44 (38–51)	46 (40–53)
	2000	104	3.5 (3.3–3.6)	3.3 (3.2–3.5)	53 (27–87)	51 (26–84)	32 (27–37)	31 (26–36)
	2005	111	2.7 (2.6–2.9)	2.5 (2.4–2.6)	38 (19–63)	34 (17–57)	25 (21–28)	22 (19–26)
	2010	118	2.6 (2.5–2.7)	2.2 (2.1–2.3)	40 (19–67)	34 (16–57)	26 (23–30)	22 (19–26)
	2011	119	2.2 (2.1–2.4)	1.9 (1.8–2.0)	41 (20–69)	34 (16–58)	27 (23–31)	23 (19–26)
	2012	121	2.2 (2.1–2.3)	1.8 (1.7–1.9)	40 (19–69)	33 (16–57)	27 (23–32)	23 (19–26)
Montserrat	1990	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	20 (10–33)	<0.01 (<0.01–<0.01)	11 (9.4–12)
	1995	< 1	<0.01 (<0.01–<0.01)	11 (10–11)	<0.01 (<0.01–<0.01)	8.2 (2.5–17)	<0.01 (<0.01–<0.01)	4.1 (3.6–4.7)
	2000	< 1	<0.01 (<0.01–<0.01)	21 (21–22)	<0.01 (<0.01–<0.01)	11 (3.3–23)	0 (0–0)	0 (0–0)
	2005	< 1	<0.01 (<0.01–<0.01)	22 (21–22)	<0.01 (<0.01–<0.01)	42 (21–69)	<0.01 (<0.01–<0.01)	24 (21–27)
	2010	< 1	<0.01 (<0.01–<0.01)	21 (21–22)	<0.01 (<0.01–<0.01)	9.9 (2.9–21)	0 (0–0)	0 (0–0)
	2011	< 1	<0.01 (<0.01–<0.01)	24 (24–25)	<0.01 (<0.01–<0.01)	4.7 (1.4–10)	0 (0–0)	0 (0–0)
	2012	< 1	<0.01 (<0.01–<0.01)	24 (24–25)			0 (0–0)	0 (0–0)
Netherlands Antilles	1990	< 1	<0.01 (<0.01–<0.01)	0.59 (0.56–0.62)	0.013 (<0.01–0.024)	6.7 (2.5–13)	<0.01 (<0.01–0.011)	5.3 (4.6–6.0)
	1995	< 1	<0.01 (<0.01–<0.01)	0.57 (0.54–0.60)	0.014 (<0.01–0.025)	7.2 (3.1–13)	0.01 (<0.01–0.012)	5.3 (4.6–6.0)
	2000	< 1	<0.01 (<0.01–<0.01)	0.59 (0.58–0.61)	<0.01 (<0.01–0.019)	5 (1.5–11)	<0.01 (<0.01–<0.01)	3.2 (2.8–3.7)
	2005	< 1	<0.01 (<0.01–<0.01)	0.59 (0.57–0.61)	0.01 (<0.01–0.021)	5.6 (1.7–12)	<0.01 (<0.01–<0.01)	4.7 (4.1–5.3)
Nicaragua	1990	4	0.45 (0.260–0.680)	11 (6.4–16)	7.6 (2.8–15)	183 (68–354)	4.5 (2.9–6.3)	108 (71–152)
	1995	5	0.41 (0.260–0.600)	8.9 (5.6–13)	6.4 (3.0–11)	137 (65–236)	4 (3.2–4.8)	85 (70–102)
	2000	5	0.33 (0.230–0.440)	6.4 (4.5–8.7)	5.5 (2.6–9.5)	108 (51–186)	3.4 (2.8–4.1)	68 (55–81)
	2005	5	0.3 (0.220–0.380)	5.4 (4.1–6.9)	4.6 (2.2–8.0)	85 (39–146)	2.9 (2.4–3.5)	53 (44–64)
	2010	6	0.26 (0.200–0.330)	4.5 (3.5–5.6)	2.9 (1.0–5.9)	50 (17–101)	2.5 (2.1–2.8)	42 (36–49)
	2011	6	0.19 (0.150–0.240)	3.3 (2.6–4.1)	3.1 (1.1–6.3)	53 (18–106)	2.4 (2.0–2.7)	40 (35–46)
	2012	6	0.19 (0.150–0.230)	3.1 (2.4–3.8)	3.3 (1.1–6.7)	55 (19–112)	2.3 (2.0–2.7)	38 (33–44)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Panama	1990	2	0.2 (0.130–0.290)	8.1 (5.2–12)	1.9 (0.740–3.6)	77 (30–146)	1.2 (0.810–1.6)	47 (33–65)
	1995	3	0.2 (0.160–0.250)	7.4 (5.8–9.2)	1.6 (0.600–3.0)	57 (22–110)	1.3 (1.1–1.6)	47 (39–57)
	2000	3	0.2 (0.180–0.230)	6.6 (5.9–7.4)	1.6 (0.600–3.0)	52 (20–99)	1.4 (1.2–1.7)	47 (39–56)
	2005	3	0.22 (0.210–0.230)	6.6 (6.3–6.9)	1.8 (0.670–3.4)	53 (20–101)	1.6 (1.3–1.9)	47 (39–57)
	2010	4	0.19 (0.190–0.200)	5.2 (5.1–5.4)	2.2 (0.920–3.9)	59 (25–107)	1.8 (1.5–2.0)	48 (42–54)
	2011	4	0.19 (0.190–0.190)	5.1 (5.0–5.2)	2.3 (1.0–4.0)	61 (28–108)	1.8 (1.6–2.0)	48 (42–54)
	2012	4	0.19 (0.180–0.190)	4.9 (4.8–5.0)	2.4 (1.2–4.2)	64 (30–110)	1.8 (1.6–2.0)	48 (42–54)
Paraguay	1990	4	0.2 (0.150–0.250)	4.6 (3.5–5.9)	4.2 (2.0–7.0)	98 (48–165)	2.8 (2.6–3.0)	66 (61–72)
	1995	5	0.23 (0.170–0.290)	4.8 (3.6–6.1)	3.7 (1.9–6.2)	78 (39–129)	2.5 (2.3–2.7)	52 (48–56)
	2000	5	0.23 (0.160–0.310)	4.3 (3.1–5.8)	3.8 (1.9–6.4)	72 (36–120)	2.6 (2.4–2.8)	49 (45–53)
	2005	6	0.28 (0.220–0.350)	4.7 (3.7–5.9)	4.1 (2.1–7.0)	70 (35–118)	2.9 (2.7–3.1)	49 (45–53)
	2010	6	0.19 (0.160–0.230)	3 (2.5–3.6)	4.2 (2.0–7.1)	65 (32–110)	3 (2.7–3.2)	46 (42–50)
	2011	7	0.2 (0.160–0.230)	3 (2.5–3.6)	4.2 (2.1–7.1)	64 (32–108)	3 (2.8–3.2)	45 (42–49)
	2012	7	0.2 (0.160–0.240)	3 (2.5–3.6)	4.2 (2.1–7.1)	63 (31–106)	3 (2.8–3.2)	45 (41–48)
Peru	1990	22	7.5 (2.5–15)	34 (11–70)	120 (42–240)	554 (191–1 100)	69 (43–100)	317 (196–468)
	1995	24	6.2 (3.3–9.9)	26 (14–41)	85 (37–150)	355 (156–634)	58 (47–70)	242 (198–290)
	2000	26	3.7 (2.3–5.4)	14 (8.9–21)	70 (30–130)	268 (116–481)	48 (39–57)	184 (151–221)
	2005	28	2.7 (2.1–3.4)	9.7 (7.4–12)	54 (23–99)	195 (82–357)	39 (33–46)	140 (118–164)
	2010	29	1.8 (1.3–2.3)	6.1 (4.6–7.8)	37 (12–77)	127 (40–263)	31 (27–35)	106 (93–120)
	2011	30	1.7 (1.2–2.1)	5.6 (4.1–7.2)	37 (12–74)	124 (42–248)	30 (26–34)	101 (88–114)
	2012	30	1.5 (1.1–2.0)	5.1 (3.8–6.7)	36 (12–73)	121 (41–243)	29 (25–32)	95 (83–108)
Puerto Rico	1990	4	0.069 (0.069–0.070)	2 (2.0–2.0)	0.22 (0.064–0.460)	6.1 (1.8–13)	0.18 (0.160–0.210)	5.2 (4.6–5.9)
	1995	4	0.081 (0.080–0.081)	2.2 (2.2–2.2)	0.4 (0.170–0.740)	11 (4.5–20)	0.3 (0.260–0.340)	8.2 (7.2–9.2)
	2000	4	0.017 (0.017–0.017)	0.45 (0.45–0.45)	0.27 (0.110–0.490)	7 (2.9–13)	0.2 (0.180–0.230)	5.3 (4.6–6.0)
	2005	4	0.017 (0.017–0.017)	0.45 (0.45–0.46)	0.15 (0.066–0.270)	4 (1.7–7.1)	0.13 (0.110–0.150)	3.5 (3.0–3.9)
	2010	4	0.01 (0.010–0.010)	0.28 (0.27–0.28)	0.12 (0.055–0.210)	3.2 (1.5–5.6)	0.092 (0.081–0.100)	2.5 (2.2–2.8)
	2011	4	<0.01 (<0.01–<0.01)	0.25 (0.25–0.25)	0.07 (0.026–0.140)	1.9 (0.69–3.7)	0.058 (0.050–0.065)	1.6 (1.4–1.8)
	2012	4	<0.01 (<0.01–<0.01)	0.23 (0.23–0.23)	0.11 (0.053–0.200)	3 (1.4–5.3)	0.082 (0.072–0.092)	2.2 (1.9–2.5)
Saint Kitts and Nevis	1990	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	0.56 (0.17–1.2)	0 (0–0)	0 (0–0)
	1995	< 1	<0.01 (<0.01–<0.01)	2.1 (2.1–2.2)	<0.01 (<0.01–0.014)	17 (6.2–32)	<0.01 (<0.01–<0.01)	13 (12–15)
	2000	< 1	<0.01 (<0.01–<0.01)	2.4 (2.3–2.5)	<0.01 (<0.01–<0.01)	7.3 (2.2–15)	0 (0–0)	0 (0–0)
	2005	< 1	<0.01 (<0.01–<0.01)	2.2 (2.1–2.3)	<0.01 (<0.01–<0.01)	3.7 (1.1–7.9)	0 (0–0)	0 (0–0)
	2010	< 1	<0.01 (<0.01–<0.01)	2.5 (2.3–2.6)	<0.01 (<0.01–<0.01)	5.6 (1.6–12)	<0.01 (<0.01–<0.01)	4.4 (3.8–5.0)
	2011	< 1	<0.01 (<0.01–<0.01)	2.5 (2.3–2.6)	<0.01 (<0.01–<0.01)	5.1 (1.3–12)	<0.01 (<0.01–<0.01)	2.2 (1.9–2.5)
	2012	< 1	<0.01 (<0.01–<0.01)	2.5 (2.3–2.6)	<0.01 (<0.01–<0.01)	5.1 (1.7–10)	<0.01 (<0.01–<0.01)	4.3 (3.8–4.9)
Saint Lucia	1990	< 1	<0.01 (<0.01–<0.01)	4 (3.8–4.2)	0.027 (<0.01–0.051)	19 (7.2–37)	0.021 (0.019–0.024)	15 (13–17)
	1995	< 1	0.012 (<0.01–0.016)	8.3 (6.3–11)	0.035 (0.014–0.065)	24 (9.6–44)	0.027 (0.023–0.030)	18 (16–21)
	2000	< 1	<0.01 (<0.01–<0.01)	0.81 (0.71–0.92)	0.024 (<0.01–0.044)	15 (5.9–28)	0.018 (0.016–0.021)	12 (10–13)
	2005	< 1	<0.01 (<0.01–<0.01)	3.5 (3.3–3.6)	0.023 (<0.01–0.044)	14 (5.4–26)	0.018 (0.016–0.020)	11 (9.5–12)
	2010	< 1	<0.01 (<0.01–<0.01)	1.4 (1.3–1.5)	0.015 (<0.01–0.033)	8.6 (2.5–18)	0.012 (0.011–0.014)	6.9 (6.1–7.8)
	2011	< 1	<0.01 (<0.01–<0.01)	1.3 (1.2–1.4)	0.011 (<0.01–0.022)	6.1 (2.0–13)	<0.01 (<0.01–0.010)	5.1 (4.5–5.8)
	2012	< 1	<0.01 (<0.01–<0.01)	1.2 (1.1–1.4)	<0.01 (<0.01–0.018)	4.8 (1.5–9.9)	<0.01 (<0.01–<0.01)	3.3 (2.9–3.7)
Saint Vincent and the Grenadines	1990	< 1	<0.01 (<0.01–<0.01)	1 (0.95–1.1)	0.071 (0.025–0.140)	66 (24–129)	0.029 (0.018–0.043)	27 (17–40)
	1995	< 1	<0.01 (<0.01–<0.01)	3.7 (3.6–3.8)	0.061 (0.028–0.110)	57 (26–99)	0.029 (0.023–0.035)	27 (22–32)
	2000	< 1	<0.01 (<0.01–<0.01)	3.3 (3.0–3.6)	0.055 (0.026–0.094)	51 (24–87)	0.028 (0.023–0.033)	26 (21–31)
	2005	< 1	<0.01 (<0.01–<0.01)	0.86 (0.86–0.87)	0.049 (0.020–0.092)	45 (18–84)	0.027 (0.022–0.033)	25 (20–30)
	2010	< 1	<0.01 (<0.01–<0.01)	4.8 (4.7–4.8)	0.035 (0.011–0.071)	32 (10–65)	0.027 (0.022–0.032)	24 (20–29)
	2011	< 1	<0.01 (<0.01–<0.01)	2.6 (2.5–2.6)	0.031 (0.010–0.064)	29 (9.1–59)	0.026 (0.022–0.032)	24 (20–29)
	2012	< 1	<0.01 (<0.01–<0.01)	2.6 (2.5–2.6)	0.027 (<0.01–0.061)	24 (5.6–56)	0.026 (0.022–0.031)	24 (20–29)
Sint Maarten (Dutch part)	2010	< 1	<0.01 (0–<0.01)	0.4 (0–2.0)	<0.01 (<0.01–0.011)	11 (3.0–25)	<0.01 (<0.01–<0.01)	8.1 (7.1–9.2)
	2011	< 1	<0.01 (0–<0.01)	0.26 (0–1.4)	<0.01 (<0.01–<0.01)	7.4 (1.6–17)	<0.01 (<0.01–<0.01)	5.3 (4.6–6.0)
	2012	< 1	<0.01 (0–<0.01)	0.13 (<0.1–0.43)	<0.01 (<0.01–<0.01)	3.3 (1.3–6.3)	<0.01 (<0.01–<0.01)	2.6 (2.3–2.9)
Suriname	1990	< 1	0.027 (0.019–0.037)	6.7 (4.6–9.2)	0.53 (0.200–1.0)	129 (50–245)	0.26 (0.170–0.360)	63 (41–90)
	1995	< 1	0.016 (<0.01–0.027)	3.6 (1.7–6.2)	0.69 (0.230–1.4)	157 (52–320)	0.4 (0.260–0.570)	92 (59–131)
	2000	< 1	<0.01 (<0.01–<0.01)	1.2 (0.98–1.5)	0.6 (0.180–1.3)	128 (38–273)	0.4 (0.260–0.580)	86 (56–124)
	2005	< 1	<0.01 (<0.01–<0.01)	1.7 (1.5–1.9)	0.47 (0.150–0.980)	94 (30–195)	0.31 (0.200–0.450)	63 (41–90)
	2010	< 1	0.014 (0.012–0.015)	2.6 (2.3–2.9)	0.35 (0.120–0.700)	66 (22–133)	0.24 (0.160–0.340)	46 (31–65)
	2011	< 1	0.014 (0.012–0.015)	2.6 (2.3–2.9)	0.33 (0.130–0.620)	62 (24–117)	0.23 (0.170–0.310)	44 (32–58)
	2012	< 1	0.014 (0.012–0.016)	2.6 (2.3–2.9)	0.31 (0.120–0.590)	58 (22–110)	0.22 (0.160–0.290)	41 (30–55)
Trinidad and Tobago	1990	1	0.032 (0.031–0.033)	2.6 (2.5–2.7)	0.21 (0.099–0.350)	17 (8.1–29)	0.14 (0.120–0.160)	11 (9.9–13)
	1995	1	0.034 (0.033–0.034)	2.7 (2.7–2.7)	0.23 (0.090–0.440)	19 (7.2–35)	0.19 (0.170–0.220)	15 (13–17)
	2000	1	0.025 (0.024–0.025)	1.9 (1.9–2.0)	0.29 (0.140–0.490)	23 (11–39)	0.23 (0.200–0.260)	18 (16–20)
	2005	1	0.018 (0.018–0.018)	1.4 (1.4–1.4)	0.2 (0.073–0.390)	15 (5.7–30)	0.19 (0.170–0.220)	15 (13–17)
	2010	1	0.028 (0.028–0.028)	2.1 (2.1–2.1)	0.26 (0.096–0.500)	20 (7.2–38)	0.25 (0.220–0.290)	19 (17–21)
	2011	1	0.028 (0.028–0.028)	2.1 (2.1–2.1)	0.26 (0.096–0.520)	20 (7.2–39)	0.26 (0.230–0.290)	19 (17–22)
	2012	1	0.028 (0.028–0.028)	2.1 (2.1–2.1)	0.37 (0.170–0.650)	28 (13–48)	0.32 (0.280–0.360)	24 (21–27)
Turks and Caicos Islands	1990	< 1	0 (0–0)	0 (0–0)			0 (0–0)	0 (0–0)
	1995	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.015)	47 (14–100)	<0.01 (<0.01–<0.01)	36 (32–41)
	2000	< 1	<0.01 (<0.01–<0.01)	6.1 (5.7–6.6)	0.016 (<0.01–0.029)	86 (37–156)	0.012 (0.010–0.014)	63 (55–72)
	2005	< 1	<0.01 (<0.01–<0.01)	3.9 (3.9–4.0)	0.013 (<0.01–0.021)	47 (24–79)	<0.01 (<0.01–<0.01)	29 (26–33)
	2010	< 1	<0.01 (<0.01–<0.01)	3.5 (3.4–3.7)	<0.01 (<0.01–0.015)	24 (7.5–50)	<0.01 (<0.01–<0.01)	22 (20–25)
	2011	< 1	<0.01 (<0.01–<0.01)	3.5 (3.4–3.7)	0.015 (<0.01–0.026)	47 (21–82)	0.01 (<0.01–0.012)	33 (29–37)
	2012	< 1	<0.01 (<0.01–<0.01)	3.5 (3.4–3.7)	0.01 (<0.01–0.022)	32 (9.1–68)	<0.01 (<0.01–0.010)	28 (25–32)
United States of America	1990	255	2.6 (2.5–2.6)	1 (0.99–1.0)	38 (15–71)	15 (5.9–28)	30 (26–33)	12 (10–13)
	1995	268	1.4 (1.4–1.4)	0.51 (0.50–0.52)	35 (15–62)	13 (5.7–23)	26 (23–30)	9.8 (8.5–11)
	2000	285	0.81 (0.790–0.820)	0.28 (0.28–0.29)	24 (10–45)	8.6 (3.6–16)	19 (16–21)	6.6 (5.8–7.5)
	2005	298	0.64 (0.640–0.650)	0.22 (0.21–0.22)	21 (9.3–38)	7.2 (3.1–13)	16 (14–18)	5.4 (4.8–6.1)
	2010	312	0.61 (0.590–0.630)	0.2 (0.19–0.20)	17 (7.1–30)	5.3 (2.3–9.6)	13 (11–15)	4.1 (3.6–4.7)
	2011	315	0.47 (0.440–0.500)	0.15 (0.14–0.16)	16 (6.7–28)	5 (2.1–9.0)	12 (11–14)	3.8 (3.4–4.3)
	2012	318	0.44 (0.390–0.480)	0.14 (0.12–0.15)	15 (6.5–27)	4.7 (2.0–8.4)	11 (10–13)	3.6 (3.2–4.1)
Uruguay	1990	3	0.085 (0.078–0.092)	2.7 (2.5–3.0)	1.5 (0.690–2.6)	48 (22–83)	1 (0.890–1.2)	33 (29–37)
	1995	3	0.076 (0.073–0.078)	2.3 (2.3–2.4)	0.91 (0.340–1.8)	28 (11–54)	0.72 (0.630–0.810)	22 (20–25)
	2000	3	0.069 (0.066–0.072)	2.1 (2.0–2.2)	0.96 (0.410–1.7)	29 (12–53)	0.74 (0.650–0.840)	22 (20–25)
	2005	3	0.067 (0.064–0.070)	2 (1.9–2.1)	0.89 (0.390–1.6)	27 (12–48)	0.72 (0.630–0.810)	22 (19–24)
	2010	3	0.054 (0.051–0.057)	1.6 (1.5–1.7)	0.96 (0.400–1.8)	29 (12–53)	0.8 (0.700–0.910)	24 (21–27)
	2011	3	0.053 (0.050–0.056)	1.6 (1.5–1.6)	1.2 (0.560–2.1)	36 (17–62)	0.94 (0.820–1.1)	28 (24–31)
	2012	3	0.051 (0.048–0.054)	1.5 (1.4–1.6)	1.1 (0.490–2.1)	34 (14–61)	0.93 (0.810–1.1)	27 (24–31)
US Virgin Islands	1990	< 1	<0.01 (<0.01–<0.01)	3 (3.0–3.1)	<0.01 (<0.01–0.011)	5.6 (2.1–11)	<0.01 (<0.01–<0.01)	4.5 (3.9–5.0)
	1995	< 1	<0.01 (<0.01–<0.01)	2.4 (2.4–2.4)	<0.01 (<0.01–0.016)	7.3 (2.2–15)	<0.01 (<0.01–<0.01)	4.3 (3.8–4.9)
	2000	< 1	<0.01 (<0.01–<0.01)	2.8 (2.8–2.8)	0.011 (<0.01–0.020)	9.9 (3.8–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
	2005	< 1	<0.01 (<0.01–<0.01)	0.94 (0.94–0.95)	0.011 (<0.01–0.020)	9.9 (3.9–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
	2010	< 1	<0.01 (<0.01–<0.01)	0.96 (0.94–0.97)	0.011 (<0.01–0.020)	9.9 (3.9–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
	2011	< 1	<0.01 (<0.01–<0.01)	0.96 (0.94–0.97)	0.011 (<0.01–0.020)	9.9 (3.8–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
	2012	< 1	<0.01 (<0.01–<0.01)	0.96 (0.94–0.97)	0.011 (<0.01–0.020)	9.9 (3.9–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
Venezuela (Bolivarian Republic of)	1990	20	0.85 (0.830–0.870)	4.3 (4.2–4.4)	11 (3.9–20)	53 (20–103)	7 (4.9–9.4)	35 (25–47)
	1995	22	0.81 (0.790–0.830)	3.7 (3.6–3.8)	12 (5.4–20)	53 (25–92)	7.7 (6.3–9.2)	35 (28–42)
	2000	24	0.67 (0.650–0.690)	2.7 (2.7–2.8)	12 (5.5–21)	50 (22–88)	8.4 (6.8–10)	34 (28–41)
	2005	27	0.63 (0.630–0.630)	2.4 (2.3–2.4)	13 (6.2–23)	50 (23–87)	9 (7.4–11)	34 (28–41)
	2010	29	0.71 (0.410–1.1)	2.4 (1.4–3.8)	15 (7.3–25)	52 (25–87)	9.7 (8.0–12)	33 (27–40)
	2011	30	0.72 (0.410–1.1)	2.4 (1.4–3.8)	15 (7.3–25)	50 (25–85)	9.8 (8.1–12)	33 (27–40)
	2012	30	0.73 (0.420–1.1)	2.4 (1.4–3.8)	15 (7.6–26)	52 (25–87)	9.9 (8.2–12)	33 (27–39)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Anguilla	1990	< 1	<0.01 (<0.01–<0.01)	24 (15–35)			0	0	0
	1995	< 1	<0.01 (<0.01–<0.01)	23 (20–27)			2	20	88 (75–100)
	2000	< 1	<0.01 (<0.01–<0.01)	23 (18–27)					
	2005	< 1	<0.01 (<0.01–<0.01)	22 (18–26)					
	2010	< 1	<0.01 (<0.01–<0.01)	21 (18–25)			1	7.3	34 (29–41)
	2011	< 1	<0.01 (<0.01–<0.01)	21 (17–25)			0	0	0
	2012	< 1	<0.01 (<0.01–<0.01)	21 (17–25)			0	0	0
Antigua and Barbuda	1990	< 1	<0.01 (<0.01–<0.01)	1.9 (1.6–2.1)			1	1.6	87 (77–99)
	1995	< 1	0 (0–0)	0 (0–0)			0	0	
	2000	< 1	<0.01 (<0.01–<0.01)	5.9 (5.2–6.7)			4	5.2	87 (77–99)
	2005	< 1	<0.01 (<0.01–<0.01)	8.4 (7.3–9.5)	<0.01 (<0.01–<0.01)	4.2 (1.6–7.9)	6	7.3	87 (77–99)
	2010	< 1	<0.01 (<0.01–<0.01)	9.2 (8.1–10)	<0.01 (<0.01–<0.01)	7.7 (4.9–11)	7	8	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	7.8 (6.9–8.9)	<0.01 (<0.01–<0.01)	4.9 (2.6–7.9)	6	6.8	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	3.9 (3.4–4.4)	<0.01 (<0.01–<0.01)	1.5 (0.50–3.0)	3	3.4	87 (77–99)
Argentina	1990	33	19 (13–28)	60 (39–85)	0.16 (0.11–0.23)	0.5 (0.33–0.71)	12 309	38	63 (44–97)
	1995	35	17 (14–21)	49 (40–59)	0.27 (0.22–0.32)	0.8 (0.62–0.91)	13 450	39	79 (65–96)
	2000	37	15 (12–18)	40 (33–49)	0.29 (0.24–0.35)	0.8 (0.64–0.95)	11 767	32	79 (66–96)
	2005	39	13 (11–15)	33 (27–40)	0.28 (0.23–0.34)	0.7 (0.59–0.87)	10 576	27	82 (68–100)
	2010	40	11 (9.1–13)	27 (23–32)	0.27 (0.23–0.32)	0.7 (0.56–0.80)	7 336	18	67 (56–80)
	2011	41	11 (8.9–13)	26 (22–31)	0.27 (0.23–0.32)	0.7 (0.55–0.80)	9 733	24	91 (76–110)
	2012	41	10 (8.6–12)	25 (21–30)	0.27 (0.22–0.32)	0.7 (0.55–0.78)	8 758	21	84 (71–100)
Aruba	1990	< 1	<0.01 (<0.01–0.011)	16 (14–18)					
	1995	< 1	0.013 (0.011–0.014)	16 (14–18)					
	2000	< 1	0.014 (0.013–0.016)	16 (14–18)					
	2005	< 1	0.016 (0.014–0.018)	16 (14–18)					
	2010	< 1	0.016 (0.014–0.018)	16 (14–18)			6	5.9	37 (33–43)
	2011	< 1	0.016 (0.014–0.018)	16 (14–18)			8	7.8	50 (44–57)
	2012	< 1	0.016 (0.014–0.018)	16 (14–18)			28	27	170 (150–200)
Bahamas	1990	< 1	0.053 (0.046–0.060)	21 (18–23)	0.019 (0.017–0.021)	7.4 (6.5–8.3)	46	18	87 (77–99)
	1995	< 1	0.066 (0.057–0.074)	23 (21–26)	0.029 (0.026–0.033)	10 (9.1–12)	57	20	87 (77–99)
	2000	< 1	0.094 (0.083–0.110)	32 (28–36)	0.041 (0.036–0.047)	14 (12–16)	82	28	87 (77–99)
	2005	< 1	0.055 (0.048–0.062)	17 (15–19)	0.022 (0.020–0.025)	6.8 (5.9–7.7)	48	15	87 (77–99)
	2010	< 1	0.036 (0.031–0.040)	9.9 (8.7–11)	0.013 (0.012–0.015)	3.7 (3.2–4.2)	31	8.6	87 (77–99)
	2011	< 1	0.047 (0.041–0.053)	13 (11–15)	0.012 (0.011–0.014)	3.3 (2.9–3.7)	41	11	87 (77–99)
	2012	< 1	0.037 (0.032–0.042)	9.9 (8.7–11)	<0.01 (<0.01–<0.01)	2.3 (2.0–2.6)	32	8.6	87 (77–99)
Barbados	1990	< 1	<0.01 (<0.01–<0.01)	2.2 (1.9–2.5)	<0.01 (<0.01–<0.01)	0.1 (0.12–0.15)	5	1.9	87 (77–99)
	1995	< 1	<0.01 (<0.01–<0.01)	1.3 (1.1–1.5)	<0.01 (<0.01–<0.01)	0.2 (0.14–0.18)	3	1.1	87 (77–99)
	2000	< 1	<0.01 (<0.01–<0.01)	1.3 (1.1–1.5)	<0.01 (<0.01–<0.01)	0.3 (0.24–0.31)	3	1.1	87 (77–99)
	2005	< 1	0.014 (0.012–0.016)	5.1 (4.4–5.7)	<0.01 (<0.01–<0.01)	1.6 (1.4–1.8)			
	2010	< 1	<0.01 (<0.01–<0.01)	2.5 (2.2–2.8)	<0.01 (<0.01–<0.01)	1 (0.83–1.1)	6	2.1	87 (77–99)
	2011	< 1	0 (0–0)	0 (0–0)			0	0	
	2012	< 1	<0.01 (<0.01–<0.01)	1.6 (1.4–1.8)	<0.01 (<0.01–<0.01)	0.5 (0.47–0.60)	4	1.4	87 (77–99)
Belize	1990	< 1	0.075 (0.052–0.100)	40 (28–54)	<0.01 (<0.01–<0.01)	2.8 (1.9–3.8)	57	30	76 (56–110)
	1995	< 1	0.083 (0.068–0.099)	40 (33–48)	0.011 (<0.01–0.013)	5.3 (4.3–6.4)	95	46	110 (96–140)
	2000	< 1	0.095 (0.078–0.110)	40 (33–48)	0.018 (0.015–0.022)	7.5 (6.2–9.1)	106	44	110 (93–140)
	2005	< 1	0.11 (0.094–0.120)	40 (34–46)	0.022 (0.019–0.026)	8.2 (7.1–9.4)	102	38	94 (82–110)
	2010	< 1	0.12 (0.100–0.150)	40 (33–48)	0.025 (0.021–0.030)	8.2 (6.7–9.8)	145	47	120 (98–140)
	2011	< 1	0.13 (0.100–0.150)	40 (33–48)	0.026 (0.021–0.031)	8.1 (6.6–9.7)	74	23	59 (49–72)
	2012	< 1	0.13 (0.110–0.160)	40 (33–48)	0.026 (0.021–0.032)	8.1 (6.6–9.7)	84	26	65 (54–79)
Bermuda	1990	< 1	0 (0–0)	0 (0–0)			0	0	
	1995	< 1	<0.01 (<0.01–<0.01)	7.5 (6.6–8.5)			4	6.5	87 (77–99)
	2000	< 1	0 (0–0)	0 (0–0)			0	0	
	2005	< 1	<0.01 (<0.01–<0.01)	8.1 (7.1–9.1)					
	2010	< 1	<0.01 (<0.01–<0.01)	1.8 (1.6–2.0)			1	1.5	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	1.8 (1.5–2.0)			1	1.5	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	5.3 (4.6–6.0)			3	4.6	87 (77–99)
Bolivia (Plurinational State of)	1990	7	17 (11–24)	251 (166–354)	0.86 (0.57–1.2)	13 (8.4–18)	11 166	164	65 (46–99)
	1995	8	16 (14–19)	215 (185–248)	0.94 (0.80–1.1)	12 (11–14)	14 422	189	88 (76–100)
	2000	8	16 (13–19)	184 (151–221)	0.86 (0.71–1.0)	10 (8.3–12)	10 127	119	65 (54–79)
	2005	9	15 (12–18)	158 (129–190)	0.77 (0.63–0.92)	8.2 (6.7–9.8)	9 748	104	66 (55–81)
	2010	10	14 (11–16)	135 (111–161)	0.52 (0.43–0.62)	5.1 (4.2–6.1)	8 363	82	61 (51–74)
	2011	10	14 (11–16)	131 (108–156)	0.48 (0.40–0.57)	4.7 (3.8–5.5)	8 521	83	63 (53–76)
	2012	10	13 (11–16)	127 (105–151)	0.43 (0.36–0.52)	4.1 (3.4–4.9)	8 257	79	62 (52–75)
Bonaire, Saint Eustatius and Saba	2010	< 1	0 (0–0)	0 (0–0)			0	0	
	2011	< 1	<0.01 (<0.01–<0.01)	6.3 (5.5–7.2)			1	5.5	87 (77–99)
	2012	< 1	0 (0–0)	0 (0–0)			0	0	
Brazil	1990	150	130 (79–180)	84 (53–121)	5.5 (3.5–8.0)	3.7 (2.3–5.3)	74 570	50	60 (41–94)
	1995	162	120 (94–140)	71 (58–85)	12 (9.9–15)	7.5 (6.1–9.0)	91 013	56	79 (66–97)
	2000	175	110 (86–130)	60 (49–72)	12 (9.8–14)	6.9 (5.6–8.3)	77 899	45	74 (62–91)
	2005	186	95 (80–110)	51 (43–60)	15 (12–18)	8 (6.7–9.4)	80 675	43	85 (72–100)
	2010	195	91 (75–110)	46 (38–55)	17 (14–20)	8.5 (7.1–10)	74 395	38	82 (69–99)
	2011	197	95 (78–110)	48 (40–57)	17 (14–20)	8.6 (7.1–10)	77 647	39	82 (69–99)
	2012	199	92 (76–110)	46 (38–55)	16 (13–19)	8 (6.6–9.5)	75 122	38	82 (69–99)
British Virgin Islands	1990	< 1	<0.01 (<0.01–<0.01)	17 (15–20)					
	1995	< 1	<0.01 (<0.01–<0.01)	17 (15–20)					
	2000	< 1	<0.01 (<0.01–<0.01)	5.6 (4.9–6.3)			1	4.8	87 (77–99)
	2005	< 1	0 (0–0)	0 (0–0)			0	0	
	2010	< 1	<0.01 (<0.01–<0.01)	4.2 (3.7–4.8)			1	3.7	87 (77–99)
	2011	< 1	0 (0–0)	0 (0–0)			0	0	
	2012	< 1	0 (0–0)	0 (0–0)			0	0	
Canada	1990	28	2.3 (2.0–2.6)	8.3 (7.3–9.4)	0.11 (0.095–0.12)	0.4 (0.34–0.44)	1 997	7.2	87 (77–99)
	1995	29	2.3 (2.0–2.6)	7.7 (6.8–8.7)	0.17 (0.15–0.20)	0.6 (0.52–0.67)	1 965	6.7	87 (77–99)
	2000	31	2 (1.7–2.2)	6.5 (5.7–7.3)	0.098 (0.086–0.11)	0.3 (0.28–0.36)	1 723	5.6	87 (77–99)
	2005	32	1.8 (1.6–2.0)	5.5 (4.8–6.3)	0.11 (0.094–0.12)	0.3 (0.29–0.38)	1 552	4.8	87 (77–99)
	2010	34	1.6 (1.4–1.8)	4.6 (4.0–5.2)	0.11 (0.095–0.12)	0.3 (0.28–0.36)	1 361	4	87 (77–99)
	2011	34	1.6 (1.4–1.9)	4.8 (4.2–5.4)	0.11 (0.098–0.13)	0.3 (0.28–0.37)	1 430	4.1	87 (77–99)
	2012	35	1.6 (1.4–1.8)	4.6 (4.0–5.2)	0.11 (0.096–0.12)	0.3 (0.28–0.36)	1 653	4.7	100 (91–120)
Cayman Islands	1990	< 1	<0.01 (<0.01–<0.01)	9.2 (8.1–10)			2	8	87 (77–99)
	1995	< 1	<0.01 (<0.01–<0.01)	7.3 (6.4–8.2)			2	6.3	87 (77–99)
	2000	< 1	<0.01 (<0.01–<0.01)	14 (12–16)			5	12	87 (77–99)
	2005	< 1	<0.01 (<0.01–<0.01)	1.2 (1.1–1.4)					
	2010	< 1	<0.01 (<0.01–<0.01)	8.3 (7.3–9.4)			4	7.2	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	4.1 (3.6–4.6)			2	3.5	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	12 (11–14)			6	10	87 (77–99)
Chile	1990	13	7.1 (6.2–8.0)	54 (47–61)	0.021 (0.019–0.024)	0.2 (0.14–0.18)	6 151	47	87 (77–99)
	1995	14	4.8 (4.2–5.4)	33 (29–37)	0.043 (0.038–0.049)	0.3 (0.26–0.34)	4 150	29	87 (77–99)
	2000	15	3.5 (3.0–3.9)	22 (20–25)	0.072 (0.063–0.081)	0.5 (0.41–0.53)	3 021	20	87 (77–99)
	2005	16	2.9 (2.5–3.3)	18 (15–20)	0.084 (0.074–0.095)	0.5 (0.45–0.58)	2 505	15	87 (77–99)
	2010	17	2.7 (2.4–3.1)	16 (14–18)	0.086 (0.076–0.098)	0.5 (0.44–0.57)	2 376	14	87 (77–99)
	2011	17	2.8 (2.5–3.2)	16 (14–18)	0.088 (0.077–0.099)	0.5 (0.44–0.57)	2 450	14	87 (77–99)
	2012	17	2.8 (2.4–3.1)	16 (14–18)	0.084 (0.074–0.095)	0.5 (0.42–0.54)	2 394	14	87 (77–99)
Colombia	1990	33	18 (12–25)	54 (36–75)	0.36 (0.24–0.50)	1.1 (0.73–1.5)	12 447	37	70 (50–100)
	1995	37	18 (14–21)	48 (39–58)	1.2 (0.95–1.4)	3.2 (2.6–3.8)	9 912	27	56 (47–69)
	2000	40	17 (14–21)	43 (35–52)	1.7 (1.4–2.0)	4.3 (3.5–5.1)	11 630	29	68 (56–83)
	2005	43	17 (14–20)	38 (31–46)	1.8 (1.4–2.1)	4.1 (3.3–4.9)	10 360	24	62 (52–76)
	2010	46	16 (13–19)	34 (28–41)	1.8 (1.5–2.1)	3.8 (3.1–4.6)	11 420	25	71 (60–86)
	2011	47	16 (13–19)	34 (28–40)	1.7 (1.4–2.0)	3.5 (2.9–4.2)	11 884	25	75 (63–91)
	2012	48	16 (13–19)	33 (27–39)	1.6 (1.3–1.9)	3.3 (2.7–4.0)	11 424	24	73 (61–88)

[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Costa Rica	1990	3	1.5 (1.3–1.7)	48 (42–54)	0.031 (0.027–0.035)	1 (0.87–1.1)	230	7.5	16 (14–18)
	1995	3	1.5 (1.3–1.7)	43 (37–48)	0.066 (0.058–0.075)	1.9 (1.7–2.2)	586	17	40 (35–45)
	2000	4	1.4 (1.2–1.5)	35 (31–39)	0.092 (0.080–0.10)	2.3 (2.0–2.7)	585	15	43 (38–49)
	2005	4	1 (0.880–1.1)	23 (20–26)	0.074 (0.065–0.084)	1.7 (1.5–1.9)	534	12	53 (47–61)
	2010	5	0.65 (0.570–0.740)	14 (12–16)	0.074 (0.065–0.084)	1.6 (1.4–1.8)	492	11	75 (67–86)
	2011	5	0.59 (0.510–0.660)	12 (11–14)	0.071 (0.062–0.080)	1.5 (1.3–1.7)	514	11	88 (78–100)
	2012	5	0.51 (0.440–0.580)	11 (9.3–12)	0.064 (0.056–0.072)	1.3 (1.2–1.5)	475	9.9	93 (82–110)
Cuba	1990	11	2.6 (1.6–3.9)	25 (15–37)	0.023 (0.014–0.034)	0.2 (0.13–0.32)	546	5.2	21 (14–34)
	1995	11	2 (1.7–2.5)	19 (15–23)	0.028 (0.023–0.034)	0.3 (0.21–0.31)	1 553	14	76 (63–94)
	2000	11	1.4 (1.1–1.8)	13 (10–16)	0.033 (0.026–0.040)	0.3 (0.23–0.36)	1 183	11	82 (67–100)
	2005	11	1 (0.850–1.3)	9.2 (7.5–11)	0.023 (0.019–0.028)	0.2 (0.16–0.24)	772	6.8	74 (61–91)
	2010	11	1 (0.840–1.3)	9.3 (7.4–11)	0.035 (0.028–0.043)	0.3 (0.25–0.38)	827	7.3	79 (65–99)
	2011	11	1 (0.830–1.3)	9.3 (7.4–11)	0.037 (0.030–0.045)	0.3 (0.26–0.40)	805	7.1	77 (63–97)
	2012	11	1 (0.840–1.3)	9.3 (7.4–11)	0.037 (0.030–0.046)	0.3 (0.26–0.41)	734	6.5	70 (57–88)
Curaçao	2010	< 1	<0.01 (<0.01–<0.01)	3.9 (3.4–4.4)			5	3.4	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	0.76 (0.67–0.86)			1	0.66	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	0.74 (0.65–0.84)			1	0.64	87 (77–99)
Dominica	1990	< 1	0.01 (<0.01–0.015)	15 (9.3–21)			6	8.5	57 (40–91)
	1995	< 1	0.01 (<0.01–0.012)	14 (12–17)			8	11	78 (66–95)
	2000	< 1	<0.01 (<0.01–0.012)	14 (11–17)					
	2005	< 1	<0.01 (<0.01–0.011)	13 (11–16)					
	2010	< 1	<0.01 (<0.01–0.011)	13 (11–16)			8	11	86 (72–100)
	2011	< 1	<0.01 (<0.01–0.011)	13 (11–16)			2	2.8	22 (18–26)
	2012	< 1	<0.01 (<0.01–0.011)	13 (11–15)			7	9.8	75 (63–92)
Dominican Republic	1990	7	11 (6.6–16)	148 (91–218)	0.25 (0.15–0.37)	3.5 (2.1–5.1)	2 597	36	24 (16–39)
	1995	8	9.7 (7.9–12)	121 (99–146)	0.81 (0.66–0.98)	10 (8.3–12)	4 053	51	42 (35–51)
	2000	9	8.6 (7.1–10)	100 (82–120)	1.1 (0.90–1.3)	13 (10–15)	5 291	61	61 (51–75)
	2005	9	7.7 (6.3–9.2)	82 (67–98)	0.98 (0.80–1.2)	11 (8.6–13)	5 003	54	65 (54–80)
	2010	10	6.7 (5.6–8.0)	67 (55–80)	0.64 (0.53–0.76)	6.4 (5.2–7.6)	3 964	40	59 (49–71)
	2011	10	6.6 (5.4–7.8)	65 (53–77)	0.59 (0.49–0.71)	5.8 (4.8–7.0)	4 309	42	66 (55–80)
	2012	10	6.4 (5.3–7.6)	62 (51–74)	0.54 (0.44–0.64)	5.2 (4.3–6.3)	4 262	41	67 (56–81)
Ecuador	1990	10	18 (11–26)	174 (108–257)	0.71 (0.44–1.0)	7 (4.3–10)	8 243	81	47 (32–76)
	1995	11	15 (13–19)	136 (111–164)	0.96 (0.78–1.2)	8.5 (6.9–10)	7 893	70	51 (43–63)
	2000	13	13 (11–16)	107 (87–128)	1.2 (0.96–1.4)	9.4 (7.7–11)	6 908	55	52 (43–63)
	2005	14	11 (9.4–14)	83 (68–100)	1.2 (0.99–1.5)	8.8 (7.2–11)	4 416	32	38 (32–47)
	2010	15	9.7 (8.0–12)	65 (54–77)	0.97 (0.80–1.2)	6.5 (5.3–7.7)	4 832	32	50 (42–60)
	2011	15	9.4 (7.8–11)	62 (51–74)	0.92 (0.76–1.1)	6 (5.0–7.2)	5 106	33	54 (45–66)
	2012	15	9.1 (7.5–11)	59 (48–70)	0.84 (0.70–1.0)	5.4 (4.5–6.5)	5 456	35	60 (50–73)
El Salvador	1990	5	3.4 (2.3–4.7)	63 (43–88)	0.082 (0.055–0.11)	1.5 (1.0–2.1)	2 367	44	70 (50–100)
	1995	6	2.6 (2.3–2.9)	45 (39–50)	0.16 (0.14–0.18)	2.7 (2.4–3.1)	2 422	42	95 (84–110)
	2000	6	2.2 (1.8–2.6)	37 (30–44)	0.23 (0.19–0.28)	3.9 (3.2–4.7)	1 485	25	68 (56–83)
	2005	6	2.4 (1.9–2.9)	39 (32–47)	0.27 (0.22–0.32)	4.4 (3.6–5.2)	1 794	30	75 (63–92)
	2010	6	1.8 (1.5–2.0)	28 (24–33)	0.19 (0.16–0.21)	3 (2.5–3.4)	1 700	27	96 (83–110)
	2011	6	1.7 (1.4–1.9)	27 (23–31)	0.18 (0.15–0.20)	2.8 (2.4–3.2)	1 896	30	110 (98–130)
	2012	6	1.6 (1.4–1.8)	25 (22–29)	0.2 (0.17–0.23)	3.2 (2.7–3.7)	2 053	33	130 (110–150)
Grenada	1990	< 1	<0.01 (<0.01–<0.01)	4.6 (2.9–6.8)			0	0	0
	1995	< 1	<0.01 (<0.01–<0.01)	4.5 (3.8–5.2)			4	4	89 (77–100)
	2000	< 1	<0.01 (<0.01–<0.01)	4.4 (3.6–5.2)			0	0	0
	2005	< 1	<0.01 (<0.01–<0.01)	4.2 (3.5–5.1)					
	2010	< 1	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)	<0.01 (<0.01–<0.01)	1 (<0.1–3.2)	4	3.8	93 (78–110)
	2011	< 1	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)			2	1.9	46 (39–56)
	2012	< 1	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)	<0.01 (0–<0.01)	0.5 (0–3.0)	1	0.95	23 (19–28)
Guatemala	1990	9	6.6 (4.1–9.7)	74 (47–109)	0.14 (0.086–0.20)	1.5 (0.97–2.3)	3 813	43	58 (39–92)
	1995	10	7.1 (5.8–8.5)	71 (58–85)	0.38 (0.31–0.46)	3.8 (3.1–4.6)	3 119	31	44 (37–54)
	2000	11	7.6 (6.2–9.1)	68 (55–81)	0.78 (0.63–0.93)	6.9 (5.7–8.3)	2 913	26	38 (32–47)
	2005	13	8.2 (6.7–9.9)	65 (53–78)	0.99 (0.81–1.2)	7.8 (6.4–9.4)	3 803	30	46 (39–57)
	2010	14	8.8 (7.3–11)	62 (51–73)	1.3 (1.1–1.5)	9 (7.4–11)	3 322	23	38 (32–46)
	2011	15	9 (7.4–11)	61 (50–73)	1.4 (1.1–1.7)	9.5 (7.8–11)	3 040	21	34 (28–41)
	2012	15	9.1 (7.5–11)	60 (50–72)	1.5 (1.2–1.8)	10 (8.2–12)	3 442	23	38 (32–46)
Guyana	1990	< 1	0.65 (0.400–0.960)	89 (55–132)	0.05 (0.031–0.074)	6.9 (4.3–10)	168	23	26 (18–42)
	1995	< 1	0.65 (0.530–0.780)	89 (73–107)	0.12 (0.098–0.14)	16 (13–20)	296	41	45 (38–56)
	2000	< 1	0.78 (0.630–0.930)	104 (85–125)	0.24 (0.20–0.29)	33 (27–39)	422	57	54 (45–67)
	2005	< 1	0.88 (0.720–1.1)	115 (94–138)	0.27 (0.22–0.33)	36 (29–43)	639	84	73 (61–89)
	2010	< 1	0.87 (0.720–1.0)	111 (91–132)	0.22 (0.18–0.27)	28 (23–34)	712	91	82 (68–99)
	2011	< 1	0.87 (0.720–1.0)	110 (91–131)	0.22 (0.18–0.26)	27 (22–33)	710	90	82 (68–99)
	2012	< 1	0.87 (0.710–1.0)	109 (90–130)	0.2 (0.16–0.23)	25 (20–29)	748	94	86 (72–100)
Haiti	1990	7	18 (11–26)	247 (153–365)	3.2 (2.0–4.8)	45 (28–67)			
	1995	8	19 (16–23)	247 (202–297)	5.6 (4.6–6.8)	72 (59–87)	6 212	79	32 (27–39)
	2000	9	23 (19–28)	271 (221–325)	6.8 (5.6–8.2)	79 (65–95)	10 420	121	45 (37–55)
	2005	9	25 (21–30)	272 (222–326)	6.5 (5.3–7.9)	71 (58–85)	14 311	155	57 (47–70)
	2010	10	23 (19–27)	230 (190–275)	4.6 (3.8–5.5)	47 (39–56)	14 222	144	62 (52–76)
	2011	10	22 (18–27)	222 (183–265)	4.5 (3.7–5.4)	45 (37–54)	14 315	143	64 (54–78)
	2012	10	22 (18–26)	213 (176–254)	4.3 (3.5–5.1)	42 (35–50)	16 568	163	76 (64–93)
Honduras	1990	5	5.6 (3.6–7.9)	113 (73–162)	0.24 (0.16–0.35)	4.9 (3.2–7.1)	3 647	74	66 (46–100)
	1995	6	6.4 (4.1–9.2)	115 (74–164)	0.77 (0.49–1.1)	14 (8.7–20)	4 984	89	78 (54–120)
	2000	6	7.1 (4.6–10)	114 (74–163)	0.84 (0.52–1.2)	14 (8.4–20)	6 406	103	90 (63–140)
	2005	7	5 (3.2–7.2)	73 (47–104)	0.37 (0.23–0.54)	5.4 (3.3–7.9)	3 333	48	66 (46–100)
	2010	8	4.1 (2.7–5.9)	54 (35–77)	0.19 (0.12–0.28)	2.5 (1.5–3.7)	2 876	38	70 (49–110)
	2011	8	4.2 (2.7–6.0)	54 (35–77)	0.18 (0.11–0.26)	2.3 (1.4–3.4)	3 233	42	77 (54–120)
	2012	8	4.3 (2.8–6.1)	54 (35–77)	0.17 (0.10–0.25)	2.1 (1.3–3.2)	3 014	38	70 (49–110)
Jamaica	1990	2	0.15 (0.110–0.210)	6.5 (4.7–8.8)	0.01 (<0.01–0.013)	0.4 (0.30–0.57)	123	5.2	79 (59–110)
	1995	2	0.16 (0.130–0.190)	6.5 (5.4–7.9)	0.033 (0.027–0.040)	1.4 (1.1–1.6)	109	4.4	68 (56–83)
	2000	3	0.17 (0.140–0.200)	6.5 (5.4–7.9)	0.052 (0.042–0.062)	2 (1.6–2.4)	127	4.9	75 (63–92)
	2005	3	0.18 (0.140–0.210)	6.5 (5.4–7.9)	0.053 (0.043–0.064)	2 (1.6–2.4)	90	3.4	51 (43–63)
	2010	3	0.18 (0.150–0.210)	6.6 (5.4–7.8)	0.042 (0.034–0.050)	1.5 (1.3–1.8)	130	4.7	72 (61–88)
	2011	3	0.18 (0.150–0.220)	6.6 (5.4–7.8)	0.041 (0.034–0.049)	1.5 (1.2–1.8)	105	3.8	58 (49–70)
	2012	3	0.18 (0.150–0.220)	6.6 (5.4–7.8)	0.04 (0.033–0.048)	1.5 (1.2–1.7)	91	3.3	50 (42–61)
Mexico	1990	86	57 (49–66)	67 (57–77)	2.6 (2.2–3.0)	3 (2.6–3.5)	14 437	17	25 (22–29)
	1995	95	44 (38–51)	46 (40–53)	2.6 (2.2–3.0)	2.7 (2.3–3.1)	11 329	12	26 (22–30)
	2000	104	32 (27–37)	31 (26–36)	2 (1.7–2.3)	1.9 (1.6–2.2)	18 434	18	58 (50–67)
	2005	111	25 (21–28)	22 (19–26)	1.5 (1.3–1.7)	1.3 (1.1–1.5)	18 524	17	75 (66–87)
	2010	118	26 (23–30)	22 (19–26)	1.5 (1.3–1.7)	1.3 (1.1–1.5)	20 155	17	77 (66–89)
	2011	119	27 (23–31)	23 (19–26)	1.6 (1.3–1.8)	1.3 (1.1–1.5)	19 857	17	73 (63–86)
	2012	121	27 (23–32)	23 (19–26)	1.6 (1.4–1.8)	1.3 (1.1–1.5)	20 470	17	75 (64–87)
Montserrat	1990	< 1	<0.01 (<0.01–<0.01)	11 (9.4–12)			1	9.3	87 (77–99)
	1995	< 1	<0.01 (<0.01–<0.01)	4.1 (3.6–4.7)					
	2000	< 1	0 (0–0)	0 (0–0)			0	0	
	2005	< 1	<0.01 (<0.01–<0.01)	24 (21–27)			1	21	87 (77–99)
	2010	< 1	0 (0–0)	0 (0–0)			0	0	
	2011	< 1	0 (0–0)	0 (0–0)			0	0	
	2012	< 1	0 (0–0)	0 (0–0)			0	0	
Netherlands Antilles	1990	< 1	<0.01 (<0.01–0.011)	5.3 (4.6–6.0)					
	1995	< 1	0.01 (<0.01–0.012)	5.3 (4.6–6.0)					
	2000	< 1	<0.01 (<0.01–<0.01)	3.2 (2.8–3.7)			5	2.8	87 (77–99)
	2005	< 1	<0.01 (<0.01–<0.01)	4.7 (4.1–5.3)					
Nicaragua	1990	4	4.5 (2.9–6.3)	108 (71–152)	0.015 (<0.01–0.025)	0.4 (0.18–0.61)	2 944	71	66 (47–100)
	1995	5	4 (3.2–4.8)	85 (70–102)	0.02 (0.011–0.031)	0.4 (0.24–0.66)	2 842	61	72 (60–88)
	2000	5	3.4 (2.8–4.1)	68 (55–81)	0.027 (0.015–0.041)	0.5 (0.30–0.81)	2 402	47	70 (58–85)
	2005	5	2.9 (2.4–3.5)	53 (44–64)	0.034 (0.020–0.053)	0.6 (0.36–0.97)	1 907	35	65 (54–80)
	2010	6	2.5 (2.1–2.8)	42 (36–49)	0.042 (0.025–0.062)	0.7 (0.43–1.1)	2 448	42	100 (86–120)
	2011	6	2.4 (2.0–2.7)	40 (35–46)	0.044 (0.027–0.066)	0.8 (0.45–1.1)	2 693	46	110 (98–130)
	2012	6	2.3 (2.0–2.7)	38 (33–44)	0.047 (0.028–0.070)	0.8 (0.47–1.2)	2 790	47	120 (110–140)

[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

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TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Panama	1990	2	1.2 (0.810–1.6)	47 (33–65)	0.072 (0.050–0.099)	2.9 (2.0–4.0)	846	34	72 (52–100)
	1995	3	1.3 (1.1–1.6)	47 (39–57)	0.21 (0.17–0.25)	7.5 (6.1–9.0)	1 300	47	99 (83–120)
	2000	3	1.4 (1.2–1.7)	47 (39–56)	0.29 (0.24–0.34)	9.5 (7.9–11)	1 169	38	81 (68–97)
	2005	3	1.6 (1.3–1.9)	47 (39–57)	0.3 (0.24–0.36)	8.8 (7.2–11)	1 637	49	100 (85–130)
	2010	4	1.8 (1.5–2.0)	48 (42–54)	0.25 (0.22–0.28)	6.7 (5.9–7.6)	1 496	41	85 (76–97)
	2011	4	1.8 (1.6–2.0)	48 (42–54)	0.24 (0.21–0.27)	6.5 (5.7–7.3)	1 571	42	88 (78–100)
	2012	4	1.8 (1.6–2.0)	48 (42–54)	0.23 (0.20–0.26)	6.1 (5.3–6.8)	1 520	40	84 (75–95)
Paraguay	1990	4	2.8 (2.6–3.0)	66 (61–72)	0.05 (0.046–0.055)	1.2 (1.1–1.3)	2 167	51	77 (71–84)
	1995	5	2.5 (2.3–2.7)	52 (48–56)	0.1 (0.093–0.11)	2.1 (1.9–2.3)	1 745	36	70 (65–75)
	2000	5	2.6 (2.4–2.8)	49 (45–53)	0.15 (0.13–0.16)	2.7 (2.5–2.9)	1 950	36	74 (69–81)
	2005	6	2.9 (2.7–3.1)	49 (45–53)	0.2 (0.18–0.21)	3.3 (3.1–3.6)	2 075	35	71 (66–77)
	2010	6	3 (2.7–3.2)	46 (42–50)	0.2 (0.19–0.22)	3.2 (2.9–3.4)	2 352	36	79 (73–86)
	2011	7	3 (2.8–3.2)	45 (42–49)	0.22 (0.20–0.24)	3.4 (3.1–3.6)	2 372	36	79 (73–86)
	2012	7	3 (2.8–3.2)	45 (41–48)	0.24 (0.22–0.26)	3.5 (3.3–3.8)	2 416	36	81 (75–88)
Peru	1990	22	69 (43–100)	317 (196–468)	0.58 (0.36–0.86)	2.7 (1.6–3.9)	37 905	174	55 (37–89)
	1995	24	58 (47–70)	242 (198–290)	1.2 (0.98–1.4)	5 (4.1–6.0)	45 310	189	78 (65–96)
	2000	26	48 (39–57)	184 (151–221)	1.3 (1.0–1.5)	4.9 (4.0–5.8)	38 661	149	81 (67–98)
	2005	28	39 (33–46)	140 (118–164)	0.89 (0.75–1.0)	3.2 (2.7–3.8)	33 747	122	87 (74–100)
	2010	29	31 (27–35)	106 (93–120)	0.53 (0.46–0.60)	1.8 (1.6–2.0)	31 073	106	100 (88–110)
	2011	30	30 (26–34)	101 (88–114)	0.5 (0.44–0.57)	1.7 (1.5–1.9)	31 241	105	100 (93–120)
	2012	30	29 (25–32)	95 (83–108)	0.49 (0.43–0.55)	1.6 (1.4–1.8)	29 760	99	100 (92–120)
Puerto Rico	1990	4	0.18 (0.160–0.210)	5.2 (4.6–5.9)			159	4.5	87 (77–99)
	1995	4	0.3 (0.260–0.340)	8.2 (7.2–9.2)			262	7.1	87 (77–99)
	2000	4	0.2 (0.180–0.230)	5.3 (4.6–6.0)			174	4.6	87 (77–99)
	2005	4	0.13 (0.110–0.150)	3.5 (3.0–3.9)	0.039 (0.027–0.054)	1 (0.72–1.4)	113	3	87 (77–99)
	2010	4	0.092 (0.081–0.100)	2.5 (2.2–2.8)	0.017 (<0.01–0.027)	0.5 (0.25–0.72)	80	2.2	87 (77–99)
	2011	4	0.058 (0.050–0.065)	1.6 (1.4–1.8)	0.012 (<0.01–0.020)	0.3 (0.15–0.53)	50	1.4	87 (77–99)
	2012	4	0.082 (0.072–0.092)	2.2 (1.9–2.5)	0.013 (<0.01–0.024)	0.4 (0.14–0.65)	71	1.9	87 (77–99)
Saint Kitts and Nevis	1990	< 1	0 (0–0)	0 (0–0)			0	0	
	1995	< 1	<0.01 (<0.01–<0.01)	13 (12–15)			5	12	87 (77–99)
	2000	< 1	0 (0–0)	0 (0–0)			0	0	
	2005	< 1	0 (0–0)	0 (0–0)			0	0	
	2010	< 1	<0.01 (<0.01–<0.01)	4.4 (3.8–5.0)			2	3.8	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	2.2 (1.9–2.5)			1	1.9	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	4.3 (3.8–4.9)			2	3.7	87 (77–99)
Saint Lucia	1990	< 1	0.021 (0.019–0.024)	15 (13–17)			13	9.4	61 (54–70)
	1995	< 1	0.027 (0.023–0.030)	18 (16–21)			11	7.5	41 (36–47)
	2000	< 1	0.018 (0.016–0.021)	12 (10–13)			9	5.7	49 (43–56)
	2005	< 1	0.018 (0.016–0.020)	11 (9.5–12)			14	8.5	78 (69–89)
	2010	< 1	0.012 (0.011–0.014)	6.9 (6.1–7.8)			9	5.1	73 (65–84)
	2011	< 1	<0.01 (<0.01–0.010)	5.1 (4.5–5.8)	<0.01 (<0.01–<0.01)	0.7 (<0.1–2.7)	7	3.9	76 (67–87)
	2012	< 1	<0.01 (<0.01–<0.01)	3.3 (2.9–3.7)	<0.01 (<0.01–<0.01)	0.4 (0–1.7)	11	6.1	180 (160–210)
Saint Vincent and the Grenadines	1990	< 1	0.029 (0.018–0.043)	27 (17–40)			2	1.9	6.8 (4.6–11)
	1995	< 1	0.029 (0.023–0.035)	27 (22–32)			13	12	45 (38–55)
	2000	< 1	0.028 (0.023–0.033)	26 (21–31)			16	15	57 (48–70)
	2005	< 1	0.027 (0.022–0.033)	25 (20–30)	<0.01 (<0.01–0.015)	3.6 (<0.1–13)	7	6.4	26 (21–31)
	2010	< 1	0.027 (0.022–0.032)	24 (20–29)	<0.01 (<0.01–0.017)	7.3 (2.0–16)	15	14	56 (47–68)
	2011	< 1	0.026 (0.022–0.032)	24 (20–29)	<0.01 (<0.01–0.016)	7.6 (2.9–14)	17	16	64 (54–78)
	2012	< 1	0.026 (0.022–0.031)	24 (20–29)	<0.01 (<0.01–0.017)	8.7 (3.9–15)	30	27	110 (96–140)
Sint Maarten (Dutch part)	2010	< 1	<0.01 (<0.01–<0.01)	8.1 (7.1–9.2)			3	7.1	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	5.3 (4.6–6.0)			2	4.6	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	2.6 (2.3–2.9)			1	2.3	87 (77–99)
Suriname	1990	< 1	0.26 (0.170–0.360)	63 (41–90)	0.023 (0.015–0.033)	5.7 (3.7–8.2)	82	20	32 (22–50)
	1995	< 1	0.4 (0.260–0.570)	92 (59–131)	0.12 (0.077–0.17)	28 (18–39)			
	2000	< 1	0.4 (0.260–0.580)	86 (56–124)	0.16 (0.10–0.22)	34 (22–48)	89	19	22 (15–34)
	2005	< 1	0.31 (0.200–0.450)	63 (41–90)	0.1 (0.066–0.15)	21 (13–29)	117	23	37 (26–58)
	2010	< 1	0.24 (0.160–0.340)	46 (31–65)	0.06 (0.040–0.085)	12 (7.7–16)	194	37	79 (57–120)
	2011	< 1	0.23 (0.170–0.310)	44 (32–58)	0.053 (0.038–0.071)	10 (7.2–13)	125	24	54 (41–74)
	2012	< 1	0.22 (0.160–0.290)	41 (30–55)	0.047 (0.033–0.062)	8.7 (6.2–12)	128	24	58 (44–80)
Trinidad and Tobago	1990	1	0.14 (0.120–0.160)	11 (9.9–13)	<0.01 (<0.01–<0.01)	0.2 (0.16–0.21)	120	9.8	87 (77–99)
	1995	1	0.19 (0.170–0.220)	15 (13–17)	0.018 (0.016–0.021)	1.5 (1.3–1.7)	166	13	87 (77–99)
	2000	1	0.23 (0.200–0.260)	18 (16–20)	0.049 (0.043–0.055)	3.9 (3.4–4.4)	198	16	87 (77–99)
	2005	1	0.19 (0.170–0.220)	15 (13–17)	0.048 (0.042–0.054)	3.7 (3.2–4.2)	166	13	87 (77–99)
	2010	1	0.25 (0.220–0.290)	19 (17–21)	0.07 (0.061–0.079)	5.2 (4.6–5.9)	219	16	87 (77–99)
	2011	1	0.26 (0.230–0.290)	19 (17–22)	0.069 (0.060–0.078)	5.1 (4.5–5.8)	224	17	87 (77–99)
	2012	1	0.32 (0.280–0.360)	24 (21–27)	0.083 (0.073–0.094)	6.2 (5.5–7.0)	274	20	87 (77–99)
Turks and Caicos Islands	1990	< 1	0 (0–0)	0 (0–0)			0	0	
	1995	< 1	<0.01 (<0.01–<0.01)	36 (32–41)					
	2000	< 1	0.012 (0.010–0.014)	63 (55–72)					
	2005	< 1	<0.01 (<0.01–<0.01)	29 (26–33)					
	2010	< 1	<0.01 (<0.01–<0.01)	22 (20–25)	<0.01 (<0.01–<0.01)	4.5 (0.21–15)	6	19	87 (77–99)
	2011	< 1	0.01 (<0.01–0.012)	33 (29–37)			9	28	87 (77–99)
	2012	< 1	<0.01 (<0.01–0.010)	28 (25–32)			8	25	87 (77–99)
United States of America	1990	255	30 (26–33)	12 (10–13)	1.6 (1.4–1.8)	0.6 (0.54–0.69)	25 701	10	87 (77–99)
	1995	268	26 (23–30)	9.8 (8.5–11)	2.2 (1.9–2.5)	0.8 (0.71–0.91)	22 728	8.5	87 (77–99)
	2000	285	19 (16–21)	6.6 (5.8–7.5)	1.2 (1.1–1.4)	0.4 (0.38–0.49)	16 310	5.7	87 (77–99)
	2005	298	16 (14–18)	5.4 (4.8–6.1)	1.3 (1.2–1.5)	0.5 (0.39–0.50)	14 080	4.7	87 (77–99)
	2010	312	13 (11–15)	4.1 (3.6–4.7)	1.2 (1.0–1.4)	0.4 (0.34–0.43)	11 181	3.6	87 (77–99)
	2011	315	12 (11–14)	3.8 (3.4–4.3)	1.1 (1.0–1.3)	0.4 (0.32–0.41)	10 521	3.3	87 (77–99)
	2012	318	11 (10–13)	3.6 (3.2–4.1)	1.1 (0.96–1.2)	0.4 (0.30–0.39)	9 945	3.1	87 (77–99)
Uruguay	1990	3	1 (0.890–1.2)	33 (29–37)	0.013 (0.011–0.014)	0.4 (0.35–0.46)	886	28	87 (77–99)
	1995	3	0.72 (0.630–0.810)	22 (20–25)	0.022 (0.019–0.025)	0.7 (0.60–0.78)	625	19	87 (77–99)
	2000	3	0.74 (0.650–0.840)	22 (20–25)	0.067 (0.059–0.076)	2 (1.8–2.3)	645	19	87 (77–99)
	2005	3	0.72 (0.630–0.810)	22 (19–24)	0.11 (0.093–0.12)	3.2 (2.8–3.6)	622	19	87 (77–99)
	2010	3	0.8 (0.700–0.910)	24 (21–27)	0.13 (0.11–0.14)	3.8 (3.3–4.3)	699	21	87 (77–99)
	2011	3	0.94 (0.820–1.1)	28 (24–31)	0.15 (0.13–0.17)	4.4 (3.9–5.0)	817	24	87 (77–99)
	2012	3	0.93 (0.810–1.1)	27 (24–31)	0.14 (0.12–0.16)	4.2 (3.7–4.8)	808	24	87 (77–99)
US Virgin Islands	1990	< 1	<0.01 (<0.01–<0.01)	4.5 (3.9–5.0)			4	3.9	87 (77–99)
	1995	< 1	<0.01 (<0.01–<0.01)	4.3 (3.8–4.9)			4	3.7	87 (77–99)
	2000	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
	2005	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
	2010	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
	2011	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
	2012	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
Venezuela (Bolivarian Republic of)	1990	20	7 (4.9–9.4)	35 (25–47)	0.24 (0.17–0.33)	1.2 (0.88–1.7)	5 457	28	78 (58–110)
	1995	22	7.7 (6.3–9.2)	35 (28–42)	0.42 (0.30–0.56)	1.9 (1.4–2.5)	5 578	25	73 (60–89)
	2000	24	8.4 (6.8–10)	34 (28–41)	0.59 (0.44–0.78)	2.4 (1.8–3.2)	6 466	26	77 (64–95)
	2005	27	9 (7.4–11)	34 (28–41)	0.76 (0.56–0.98)	2.8 (2.1–3.7)	6 847	26	76 (63–93)
	2010	29	9.7 (8.0–12)	33 (27–40)	0.89 (0.72–1.1)	3.1 (2.5–3.7)	6 451	22	67 (56–81)
	2011	30	9.8 (8.1–12)	33 (27–40)	1.3 (1.0–1.5)	4.3 (3.5–5.2)	6 282	21	64 (54–78)
	2012	30	9.9 (8.2–12)	33 (27–39)	1.2 (0.94–1.4)	3.9 (3.1–4.7)	6 495	22	65 (55–79)

[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Anguilla		1990	0									–
		1995	2	0	2	0		0		0		0
		2000										–
		2005										–
		2010	1	0	1	0	0	0	0	0	0	0
		2011	0	0	0	0	0	0	0	0	0	
	• 0 … 0 •	2012	0	0	0	0	0	0	0	0	0	
Antigua and Barbuda		1990	1									–
		1995	0									–
		2000	4	3	1	0		0		0		75
		2005	6	6	0	0	0	0	0	0	0	100
		2010	7	6	0	0	0	0	0	0	1	100
		2011	6	6	0	0	0	0	2	2	0	100
	• 2 … 3 •	2012	3	1	1	1	0	0	1	1		50
Argentina		1990	12 309									–
		1995	13 450	5 698	4 668	3 067						55
		2000	11 767	4 749	4 110	1 773		104	1 724	1 828		54
		2005	10 576	4 709	3 357	1 561	0	143	666	809	806	58
		2010	7 336	3 973	2 011	854	159	290	426	716	49	66
		2011	9 733	5 150	2 705	1 426	138	314	758	1 072		66
	• 38 … 21 •	2012	8 758	4 661	2 341	1 291	143	322	848	1 170		67
Aruba		1990										–
		1995										–
		2000										–
		2005										–
		2010	6	4	2							67
		2011	8	7	0	1						100
	• 0 … 27 •	2012	28	6	20	1	0	1	1	2	0	23
Bahamas		1990	46									–
		1995	57	38	11	8		1		1		78
		2000	82	56	23	4		0	0	0		71
		2005	48	30	8	7	1	2	2	4	0	79
		2010	31	19	3	7	1	1	1	2	0	86
		2011	41	23	12	5	0	1	1	2	0	66
	• 18 … 9 •	2012	32	21	11	0	0	0	0	0	0	66
Barbados		1990	5									–
		1995	3	3								100
		2000	3	3	0	0		0	0	0		100
		2005										–
		2010	6	6	0	0	0	0	0	0	0	100
		2011	0	0	0	0	0	0	0	0	0	
	• 2 … 1 •	2012	4	4	0	0	0	0	0	0	0	100
Belize		1990	57									–
		1995	95	36	34	1		4		4		51
		2000	106	44	55	1		6	0	6		44
		2005	102	59	29	3	0	11	4	15	0	67
		2010	145	97	47	0	0	1	0	1	0	67
		2011	74	64	0	0	0	10	2	12	0	100
	• 30 … 26 •	2012	84	36	36	5	0	7	0	7	0	50
Bermuda		1990	0									–
		1995	4	2	2							50
		2000	0	0	0	0		0	0	0		
		2005										–
		2010	1	1	0	0	0	0	0	0	0	100
		2011	1	0	1	0	0	0	0	0	0	0
	• 0 … 5 •	2012	3	1	1	1	0	0	0	0	0	50
Bolivia (Plurinational State of)		1990	11 166									–
		1995	14 422	7 010	1 408	1 133		63		63		83
		2000	10 127	6 458	1 565	1 288		451	1 630	2 081		80
		2005	9 748	6 278	1 250	1 673		547	225	772		83
		2010	8 363	5 613	630	1 694	0	408	257	665	18	90
		2011	8 521	5 746	643	1 721		411	226	637		90
	• 164 … 79 •	2012	8 257	5 568	571	1 672	0	446	227	673	0	91
Bonaire, Saint Eustatius and Saba		2010	0	0	0	0	0					
		2011	1	0	0	0	0	1	0	1	0	
		2012	0	0	0	0	0	0	0	0	0	
Brazil		1990	74 570									–
		1995	91 013	45 650	29 291	13 814						61
		2000	77 899	41 186	23 622	10 457		2 634	8 700	11 334		64
		2005	80 675	42 093	23 990	11 037		3 089	6 548	9 637	466	64
		2010	74 395	37 932	23 030	10 017	18	3 398	7 551	10 949	0	62
		2011	77 647	40 294	20 961	10 067	15	3 555	6 490	10 045	2 755	66
	• 50 … 38 •	2012	75 122	40 152	20 770	10 297	11	3 867	7 633	11 500	25	66
British Virgin Islands		1990										–
		1995										–
		2000	1	1								100
		2005	0	0	0	0	0	0	0	0	0	
		2010	1	1	0	0	0	0	0	0	0	100
		2011	0	0	0	0	0	0	0	0	0	
	• 0 … 0 •	2012	0	0	0	0	0	0	0	0	0	
Canada		1990	1 997	549	516	723	0	180		180	29	52
		1995	1 965	436	656	634	0	195		195	44	40
		2000	1 723	492	528	482	20	145		145	56	48
		2005	1 552	433	446	562	4	39	64	103	68	49
		2010	1 361	358	472	444	0	48	24	72	39	43
		2011	1 430	407	456	469	0	59	22	81	39	47
	• 7 … 5 •	2012	1 653	478	574	519	0	58	33	91	24	45
Cayman Islands		1990	2									–
		1995	2	0	2	1		0		0		0
		2000	5	5	0	0		0	0	0		100
		2005										–
		2010	4	2	2	0	0	0	0	0	0	50
		2011	2	1	1	0	0	0	0	0	0	50
	• 8 … 10 •	2012	6	5	1	0	0	0	0	0	0	83
Chile		1990	6 151									–
		1995	4 150	1 561	1 284	1 017		225		225		55
		2000	3 021	1 290	879	694		158		158		59
		2005	2 505	1 186	502	631		186	128	314		70
		2010	2 376	1 154	502	553	0	167	96	263	0	70
		2011	2 450	1 196	473	594	0	187	85	272	0	72
	• 47 … 14 •	2012	2 394	1 173	538	518	0	165	66	231	0	69
Colombia		1990	12 447									–
		1995	9 912	7 530	1 380	1 002						85
		2000	11 630	8 358	1 446	1 487		339		339		85
		2005	10 360	6 870	1 429	1 618		443		443		83
		2010	11 420	7 028	1 696	1 985	311	400	469	869	0	81
		2011	11 884	6 807	2 355	2 275	0	447	554	1 001	0	74
	• 37 … 24 •	2012	11 424	6 523	2 279	2 264	0	358	405	763	0	74

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Costa Rica		1990	230									–
		1995	586	245	71	31		0		0		78
		2000	585	349	184	98		35		35		65
		2005	534	330	81	104		19	26	45		80
		2010	492	267	89	108	1	25	7	32	2	75
		2011	514	285	128	85	0	16	10	26	0	69
	• 7 10 •	2012	475	257	99	102	0	17	5	22	0	72
Cuba		1990	546									–
		1995	1 553	834	520	199		54		54		62
		2000	1 183	675	257	201		50	122	172		72
		2005	772	467	160	103		40	9	49	2	74
		2010	827	462	212	98	10	45	11	56	0	69
		2011	805	437	219	86	6	57	16	73	0	67
	• 5 7 •	2012	734	374	200	112	2	46	14	60	0	65
Curaçao		2010	5	5	0	0	0					100
		2011	1	0	1	0	0	0	0	0	0	0
		2012	1	1	0	0	0	0	0	0	0	100
Dominica		1990	6									–
		1995	8	5				3		3		100
		2000										–
		2005										–
		2010	8	8	0	0	0	0	0	0	0	100
		2011	2	2	0	0	0	0	1	1	0	100
	• 8 10 •	2012	7	5	1	0	0	1	1	2	0	83
Dominican Republic		1990	2 597									–
		1995	4 053	2 787	1 418	244		204		204		66
		2000	5 291	2 907	1 234	540		610		610		70
		2005	5 003	2 949	1 032	602		420	309	729		74
		2010	3 964	2 159	803	578	100	324	196	520	0	73
		2011	4 309	2 454	809	655	49	342	163	505	0	75
	• 36 41 •	2012	4 262	2 483	817	544	44	374	178	552	0	75
Ecuador		1990	8 243									–
		1995	7 893	5 890	2 237	420						72
		2000	6 908	5 064	1 338	400		106	280	386		79
		2005	4 416	3 048	635	330		403	392	795		83
		2010	4 832	3 373	404	655	0	400	263	663	0	89
		2011	5 106	3 521	380	808	0	397	244	641	0	90
	• 81 35 •	2012	5 456	3 856	285	856	111	348	315	663		93
El Salvador		1990	2 367									–
		1995	2 422		2 241	181						–
		2000	1 485	1 008	278	108		91	180	271		78
		2005	1 794	1 059	402	255		78	36	114	0	72
		2010	1 700	972	338	328	0	62	30	92	0	74
		2011	1 896	1 079	371	384	0	62	21	83	0	74
	• 44 33 •	2012	2 053	1 237	313	415	0	88	10	98	0	80
Grenada		1990	0									–
		1995	4	2								100
		2000	0	0	0	0		0	0	0		
		2005										–
		2010	4	4	0	0	0	0	0	0	0	100
		2011	2	1	1	0	0	0	0	0	0	50
	• 0 1 •	2012	1	1	0	0	0	0	0	0	0	100
Guatemala		1990	3 813									–
		1995	3 119	2 368	546	205		249		249		81
		2000	2 913	2 052	518	202		141		141		80
		2005	3 803	2 420	588	256		101	58	159	438	80
		2010	3 322	2 121	265	348	436	152	29	181	0	89
		2011	3 040	1 961	309	243	415	112	48	160	0	86
	• 43 23 •	2012	3 442	2 212	382	311	393	144	57	201		85
Guyana		1990	168									–
		1995	296	85	187	22		2		2		31
		2000	422	119	231	34		38	46	84		34
		2005	639	240	352	33	6	8	17	25	0	41
		2010	712	325	274	75	0	38	124	162	0	54
		2011	710	323	282	78	0	27	206	233	0	53
	• 23 94 •	2012	748	309	339	77	0	23	221	244	0	48
Haiti		1990										–
		1995	6 212									–
		2000	10 420	5 887	2 930	1 367		236	110	346		67
		2005	14 311	7 340	5 292	1 484		195	33	228		58
		2010	14 222	8 242	4 335	1 307	0	338	43	381	0	66
		2011	14 315	8 011	4 553	1 374	0	377	46	423	0	64
	• 0 163 •	2012	16 568	9 254	4 956	1 914	0	444	155	599		65
Honduras		1990	3 647									–
		1995	4 984	2 306	2 214	232		100		100		51
		2000	6 406	3 404	2 396	370		236		236		59
		2005	3 333	2 069	721	362		181		181		74
		2010	2 876	1 842	482	382	0	170	25	195	0	79
		2011	3 233	2 060	616	377	0	180	10	190		77
	• 74 38 •	2012	3 014	1 945	509	362	0	198	32	230	0	79
Jamaica		1990	123									–
		1995	109	93	14	2		2		2		87
		2000	127	90	20	4		13		13		82
		2005	90	53	31	6	0	0	5	5	0	63
		2010	130	76	46	6	0	2	17	19	0	62
		2011	105	35	39	6	24	1	3	4	0	47
	• 5 3 •	2012	91	46	33	9	0	3	3	6	0	58
Mexico		1990	14 437									–
		1995	11 329	9 220	1 807	302						84
		2000	18 434	11 676	1 675	2 081		421	914	1 335		87
		2005	18 524	11 997	421	2 657	2 831	618	1 408	2 026		97
		2010	20 155	12 572	2 812	3 464	0	722	544	1 266	585	82
		2011	19 857	12 960	2 497	3 529	0	871	671	1 542	0	84
	• 17 17 •	2012	20 470	13 038	2 681	3 839	139	773	878	1 651	0	83
Montserrat		1990	1									–
		1995										–
		2000	0	0	0	0		0	0	0		
		2005	1	1	0	0	0	0	0	0	0	100
		2010	0	0	0	0	0	0	0	0		
		2011	0	0	0	0	0	0	0	0	0	
	• 9 0 •	2012	0	0	0	0	0	0	0	0	0	
Netherlands Antilles		1990										–
		1995										–
		2000	5	2	3	0	0	0	0	0	0	40
	• 0 0 •	2005										–

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES SMEAR-POSITIVE	NEW CASES SMEAR-NEGATIVE/ UNKNOWN	NEW CASES EXTRA-PULMONARY	NEW CASES OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Nicaragua		1990	2 944									–
		1995	2 842	1 568	854	253		167		167		65
		2000	2 402	1 471	541	231		159		159		73
		2005	1 907	1 253	395	160		99	169	268	0	76
		2010	2 448	1 440	575	274	0	159	127	286	0	71
		2011	2 693	1 552	653	335	0	153	129	282	0	70
	• 71 47 •	2012	2 790	1 484	817	339	0	150	144	294	0	64
Panama		1990	846									–
		1995	1 300	1 066	114	28		108		108		90
		2000	1 169	460	589	74	5	41	93	134		44
		2005	1 637	860	505	216		56	191	247		63
		2010	1 496	707	425	287	0	77	134	211	0	62
		2011	1 571	830	433	235	0	55	124	179	18	66
	• 34 40 •	2012	1 520	778	434	248	0	60	155	215	0	64
Paraguay		1990	2 167	993								100
		1995	1 745	748	870	127		28		28		46
		2000	1 950	900	791	170		14	516	530		53
		2005	2 075	1 260	665	150			273	273		65
		2010	2 352	1 318	499	269	86	105	109	214	75	73
		2011	2 372	1 371	515	251	108	127	177	304	0	73
	• 51 36 •	2012	2 416	1 391	494	221	187	123	207	330	0	74
Peru		1990	37 905									–
		1995	45 310	32 096	7 803	5 411						80
		2000	38 661	22 580	6 018	5 682		4 381		4 381		79
		2005	33 747	18 490	5 592	5 335	809	3 195	1 794	4 989	326	77
		2010	31 073	17 264	5 201	5 185	647	2 776	1 404	4 180		77
		2011	31 241	17 754	5 164	5 564	712	2 047	1 603	3 650	0	77
	• 174 99 •	2012	29 760	17 653	4 556	5 233	583	1 735	1 945	3 680	0	79
Puerto Rico		1990	159									–
		1995	262	128	111	23						54
		2000	174	81	69	24						54
		2005	113	60	37	16	0	0	0	0	0	62
		2010	80	37	35	4	0	4	0	4	0	51
		2011	50	29	13	8	0	0	0	0	0	69
	• 5 2 •	2012	71	41	17	10	0	3	0	3	0	71
Saint Kitts and		1990	0									–
Nevis		1995	5	4								100
		2000	0	0	0	0		0	0	0		
		2005	0	0	0	0	0	0	2	2		
		2010	2	2	0	0	0	0	0	0	0	100
		2011	1	1	0	0	0	0	0	0	0	100
	• 0 4 •	2012	2	2	0	0	0	0	0	0	0	100
Saint Lucia		1990	13									–
		1995	11	11								100
		2000	9	7	1	0		1	2	3		88
		2005	14	11	1	0	0	2	0	2		92
		2010	9	9	0	0	0	0	0	0	0	100
		2011	7	7	0	0	0	0	0	0	0	100
	• 9 6 •	2012	11	11	0	0	0	0	0	0	0	100
Saint Vincent and		1990	2									–
the Grenadines		1995	13	5	7	0		4		4		42
		2000	16	9	4	0		3	0	3		69
		2005	7	6	1	0	0	0	0	0	0	86
		2010	15	8	7	0	0	0	2	2	0	53
		2011	17	8	9	0	0	0	0	0	0	47
	• 2 27 •	2012	30	27	3	0	0	0	4	4	0	90
Sint Maarten		2010	3	3	0	0	0	0	0	0		100
(Dutch part)		2011	2	2	0	0	0	0		0		100
		2012	1	0	1	0	0	0	0	0	0	0
Suriname		1990	82									–
		1995										–
		2000	89	37	40	12		0	1	1		48
		2005	117	49	54	6	2	6	2	8	0	48
		2010	194	130	42	14	2	6	10	16	0	76
		2011	125	64	34	20	1	5	6	11	1	65
	• 20 24 •	2012	128	83	28	13	2	2	5	7	0	75
Trinidad and		1990	120									–
Tobago		1995	166	7	68	12		22		22		9
		2000	198	115	61	17		5	26	31		65
		2005	166	95	50	12	0	9	13	22		66
		2010	219	136	58	20	0	5	39	44	0	70
		2011	224	121	77	19	0	7	42	49	0	61
	• 10 20 •	2012	274	167	81	19	0	7	47	54	0	67
Turks and Caicos		1990	0									–
Islands		1995										–
		2000										–
		2005										–
		2010	6	3	1	1	0	1	1	2	0	75
		2011	9	8	1	0	0	0	1	1	0	89
	• 0 25 •	2012	8	5	2	1	0	0	0	0	0	71
United States		1990	25 701									–
of America		1995	22 728	8 093	10 795	3 835	5					43
		2000	16 310	5 883	7 204	3 211	12					45
		2005	14 080	5 111	6 030	2 939	0					46
		2010	11 181	3 695	4 990	2 134	362					43
		2011	10 521	3 742	4 556	2 189	34					45
	• 10 3 •	2012	9 945	3 563	4 261	2 100	21					46
Uruguay		1990	886									–
		1995	625	349	178	78		20		20		66
		2000	645	348	165	77		39		39		68
		2005	622	355	147	73	32	15	4	19		71
		2010	699	368	218	72	0	41	0	41	0	63
		2011	817	467	249	48	0	53	0	53	0	65
	• 28 24 •	2012	808	432	269	59	0	48	7	55	0	62
US Virgin Islands		1990	4									–
		1995	4	2	2	0						50
		2000										–
		2005										–
		2010										–
		2011										–
	• 4 0 •	2012										–
Venezuela		1990	5 457									–
(Bolivarian		1995	5 578	3 056	1 517	709		272		272		67
Republic of)		2000	6 466	3 525	1 616	948		377		377		69
		2005	6 847	3 653	1 853	1 094		247	103	350		66
		2010	6 451	3 252	1 758	1 077	0	248	194	442	116	65
		2011	6 282	3 224	1 649	1 196	0	213	195	408	0	66
	• 28 22 •	2012	6 495	3 446	1 617	1 143	0	289	282	571	0	68

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

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TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Anguilla		1995	0		–						
		2000			–						
		2005			–						
		2009		0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Antigua and Barbuda		1995			–						
		2000	3	4	133	100	0	0	0	0	0
		2005	6	6	100	50		33			17
		2009	1	3	300	67	0	33	0	0	0
		2010	6	6	100	0	33	33	0	33	0
	• 0 17 •	2011	6	6	100		17	33		50	0
Argentina		1995	5 698	5 707	100	5	7	1	0	3	84
		2000	4 749	5 177	109	26	20	5	0	6	43
		2005	4 709	4 709	100	19	34	5	0	5	37
		2009	4 044	5 062	125	19	26	4	0	7	43
		2010	3 973	5 088	128	20	27	4	0	8	40
	• 12 52 •	2011	5 150	5 600	109	18	33	5	0	8	36
Aruba		1995			–						
		2000			–						
		2005			–						
		2009		6	–						
		2010	4		–						
	• 0 92 •	2011	7	13	186	92			8		0
Bahamas		1995	38		–						
		2000	56		–						
		2005	30	30	100	17	40	17	7	20	0
		2009	26	26	100	12	69	8	0	12	0
		2010	19	19	100	16	53	16	5	11	0
	• 0 70 •	2011	23	23	100	4	65	26	0	4	0
Barbados		1995	3		–						
		2000	3		–						
		2005		11	–	45	45	9			0
		2009	2	2	100	100	0	0	0	0	0
		2010	6	6	100	100	0	0	0	0	0
	• 0 0 •	2011	0	0	–						
Belize		1995	36	29	81	52	0	10	3	28	7
		2000	44	45	102	78	0	9	0	2	11
		2005	59	59	100	56	19	12	2	12	0
		2009	82		–						
		2010	97	142	146						
	• 52 0 •	2011	64		–						
Bermuda		1995	2		–						
		2000	0		–						
		2005			–						
		2009		1	–	0	0	0	0	0	100
		2010	1	1	100	0	0	0	0	0	100
	• 0 0 •	2011	0	1	–	0	0	0	0	0	100
Bolivia (Plurinational State of)		1995	7 010	7 010	100	53	9	4	1	9	24
		2000	6 458	6 212	96	73	6	4	1	9	7
		2005	6 278	6 278	100	76	2	3	1	5	12
		2009	5 937	5 897	99	84	1	4	1	5	4
		2010	5 613	5 571	99	86	2	4	1	5	3
	• 62 86 •	2011	5 746	5 770	100	84	2	3	1	5	5
Bonaire, Saint Eustatius and Saba		2009		0	–						
		2010	0	0	–						
		2011	0	0	–						
Brazil		1995	45 650	45 650	100	17	0	1	1	3	79
		2000	41 186	34 007	83	49	22	4	0	9	16
		2005	42 093	42 093	100	31	44	5	1	9	9
		2009	39 267	40 818	104	31	41	5	1	10	11
		2010	37 932	41 840	110	37	37	5	0	11	10
	• 17 76 •	2011	40 294	42 764	106	37	38	5	0	10	9
British Virgin Islands		1995			–						
		2000	1	1	100			100			0
		2005	0		–						
		2009		1	–	0	100	0	0	0	0
		2010	1	0	0						
	• 0 0 •	2011	0	0	–						
Canada		1995	436		–						
		2000	492	492	100	22	13	5		1	59
		2005	433	459	106	8	59	9	0	1	22
		2009	462	850	184	10	65	7	0	0	17
		2010	358	854	239	12	65	8	0	0	15
	• 0 62 •	2011	407	858	211	8	54	9	0	0	29
Cayman Islands		1995	0		–						
		2000	5	5	100	0	40	0	0	0	60
		2005		1	–	0	0	0	0	100	0
		2009	1	2	200	50	0	0	0	0	50
		2010	2	2	100	50	0	0	0	0	50
	• 0 100 •	2011	1	1	100	100	0	0	0	0	0
Chile		1995	1 561	1 111	71	79		7	0	8	5
		2000	1 290	1 360	105	82		9	0	6	2
		2005	1 186	1 147	97	83	0	9	0	6	2
		2009	1 152	1 365	118	61	11	9	0	7	12
		2010	1 154	1 437	125	51	20	9	0	6	14
	• 79 71 •	2011	1 196	1 462	122	50	22	7	0	6	15
Colombia		1995	7 530		–						
		2000	8 358	1 634	20	70	10	5	1	8	6
		2005	6 870	7 778	113	63	9	6	1	7	14
		2009	7 319	6 899	94	68	9	6	2	9	6
		2010	7 028	7 364	105	69	10	7	1	9	4
	• 0 77 •	2011	6 807	6 805	100	66	11	7	1	10	5
Costa Rica		1995	245		–						
		2000	349	349	100	43	14	10	1	12	19
		2005	330	306	93	85	4	5	2	3	1
		2009	271	166	61	49	4	5	1	1	39
		2010	267	297	111	75	12	7	2	2	2
	• 0 88 •	2011	285	282	99	85	3	7	1	2	2
Cuba		1995	834	834	100	90	0	4	3	2	2
		2000	675	673	100	91	2	4	1	1	1
		2005	467	466	100	90	2	6	1	1	1
		2009	418	415	99	87	3	7	2	1	0
		2010	462	458	99	89	1	7	1	2	0
	• 90 88 •	2011	437	443	101	83	5	8	2	3	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Curaçao		2009		5	–						
		2010	5		–						
		2011	0	1	–						
Dominica		1995	5		–						
		2000			–						
		2005			–						
		2009	4	4	100	100	0	0	0	0	0
		2010	8	3	38	67	33	0	0	0	0
	• 0 100 •	2011	2	2	100	100	0	0	0	0	0
Dominican Republic		1995	2 787	2 007	72	43	21	5	2	13	16
		2000	2 907	2 760	95	37	34	5	2	19	4
		2005	2 949	2 697	91	80	5	4	2	7	3
		2009	2 441	2 441	100	79	6	4	2	7	2
		2010	2 159	2 194	102	73	7	5	1	7	6
	• 64 83 •	2011	2 454	2 454	100	76	7	4	2	8	3
Ecuador		1995	5 890	5 236	89		39	2	8	14	37
		2000	5 064		–						
		2005	3 048	2 150	71	81	3	3	3	6	5
		2009	3 317	3 330	100	71	4	4	3	8	11
		2010	3 373	3 373	100	75	4	3	3	7	8
	• 39 78 •	2011	3 521	3 441	98	73	4	3	3	7	10
El Salvador		1995			–						
		2000	1 008	1 008	100	78	1	7	1	5	8
		2005	1 059	1 059	100	91	0	4	1	2	1
		2009	930	930	100	88	1	5	4	2	0
		2010	972	972	100	91	1	4	2	2	0
	• 0 93 •	2011	1 079	1 079	100	93	0	4	1	2	0
Grenada		1995	2		–						
		2000	0		–						
		2005		6	–	67		33			0
		2009	4	4	100	50		50			0
		2010	4	4	100	75	0	25	0	0	0
	• 0 100 •	2011	1	1	100	100					0
Guatemala		1995	2 368	2 368	100	56	5	3	1	4	31
		2000	2 052	1 908	93	75	11	5	1	7	1
		2005	2 420		–						
		2009	1 609	2 121	132	77	6	6	1	9	1
		2010	2 121	2 121	100	77	6	6	1	9	1
	• 61 86 •	2011	1 961	2 056	105	81	5	5	1	8	0
Guyana		1995	85	296	348	10	34	11	1	38	6
		2000	119	119	100	43	13	12	5	24	3
		2005	240	257	107	2	57	7		26	9
		2009	328	328	100	13	57	8	1	19	2
		2010	325	325	100	30	41	6	1	18	4
	• 44 72 •	2011	323	323	100	22	50	7	1	16	4
Haiti		1995		3 081	–		70	4	1	21	3
		2000	5 887	5 887	100	57	14	5	1	13	10
		2005	7 340	7 340	100	72	8	6	1	7	6
		2009		8 435	–	67	12	5	1	8	7
		2010	8 242	8 242	100	72	10	5	1	7	5
	• 70 84 •	2011	8 011	8 390	105	74	10	4	1	6	5
Honduras		1995	2 306	2 226	97	39	25	7	0	4	25
		2000	3 404	2 362	69	81	5	6	1	5	3
		2005	2 069	1 905	92	81	7	5	0	4	3
		2009	1 881	1 881	100	79	6	6	1	6	2
		2010	1 842	1 918	104	79	6	6	1	6	2
	• 64 88 •	2011	2 060	2 004	97	82	6	5	0	5	2
Jamaica		1995	93	93	100	2	65	10	1	17	5
		2000	90	99	110	5	40	23	0	11	20
		2005	53	53	100	4	53	13	0	26	4
		2009	77	76	99	55	14	14	0	11	5
		2010	76	76	100	13	34	9	0	5	38
	• 67 47 •	2011	35	59	169	25	22	7	0	5	41
Mexico		1995	9 220	9 220	100	69	6	4	3	12	6
		2000	11 676	11 538	99	64	12	6	1	9	8
		2005	11 997	12 172	101	71	6	5	1	6	11
		2009	11 862	11 821	100	82	4	6	1	5	2
		2010	12 572	12 304	98	82	4	6	1	5	1
	• 75 86 •	2011	12 960	12 622	97	72	15	5	1	4	2
Montserrat		1995			–						
		2000	0		–						
		2005	1		–						
		2009		0	–						
		2010	0	0	–						
	• 0 0 •	2011	0		–						
Netherlands Antilles		1995			–						
		2000	2	5	250			20			80
	• 0	2005			–						
Nicaragua		1995	1 568	1 536	98	66	14	4	2	10	4
		2000	1 471	1 437	98	70	13	5	1	9	2
		2005	1 253	1 496	119	73	12	5	2	6	3
		2009	1 329	1 552	117	69	16	4	1	7	3
		2010	1 440	1 704	118	66	18	5	2	6	3
	• 80 86 •	2011	1 552	1 565	101	68	18	3	2	7	3
Panama		1995	1 066	1 388	130	10	60	14	1	13	3
		2000	460	460	100	27	33	7	2	22	10
		2005	860	873	102	68	12	8	0	10	1
		2009	755	768	102	65	16	7	1	12	0
		2010	707	717	101	64	16	7	1	12	0
	• 69 84 •	2011	830	861	104	68	16	5	1	10	0
Paraguay		1995	748	748	100	8	43	3	0	17	29
		2000	900	900	100	21	45	5	0	22	7
		2005	1 260	1 452	115	46	33	5		8	7
		2009	1 498	1 467	98	75	5	7	0	5	7
		2010	1 318	1 317	100	69	9	8	0	5	8
	• 51 78 •	2011	1 371	1 367	100	70	8	7	1	5	9
Peru		1995	32 096	28 185	88	75	9	3	2	6	6
		2000	22 580	22 230	98	90	0	2	2	3	4
		2005	18 490	14 793	80	91		2	2	4	1
		2009	17 391	14 212	82	70	11	3	1	6	9
		2010	17 264	17 264	100	57	12	2	5	5	20
	• 83 74 •	2011	17 754	16 694	94	68	6	3	7	5	11
Puerto Rico		1995	128	128	100		68	23		8	2
		2000	81	81	100		64	31		5	0
		2005	60	60	100	75	0	22	0	3	0
		2009	30	37	123	81	0	16	0	0	3
		2010	37	37	100	78	0	14	3	5	0
	• 68 73 •	2011	29	40	138	0	72	25	2	0	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT: CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Saint Kitts and Nevis		1995	4	5	125	20	40	20	0	20	0
		2000	0		–						
		2005	0		–						
		2009	4	5	125	80	0	0	0	0	20
		2010	2	2	100	100	0	0	0	0	0
	• 60 100 •	2011	1	1	100	100	0	0	0	0	0
Saint Lucia		1995	11		–						
		2000	7	8	114	88	12	0	0	0	0
		2005	11	13	118	15	54	31	0	0	0
		2009	7	7	100		57	29	0	14	0
		2010	9	9	100	22	67	0	0	0	11
	• 0 57 •	2011	7	7	100	43	14	14	29	0	0
Saint Vincent and the Grenadines		1995	5		–						
		2000	9	13	144	100	0	0	0	0	0
		2005	6		–						
		2009	3	1	33	0	0	0	0	0	100
		2010	8	8	100	0	0	0	0	0	100
	• 0 56 •	2011	8	9	112	44	11	11	0	33	0
Sint Maarten (Dutch part)		2009			–						
		2010	3	3	100		100	0	0	0	0
		2011	2	2	100	100	0	0	0	0	0
Suriname		1995		51	–	10	4	12		8	67
		2000	37	37	100	49	19	16	0	14	3
		2005	49		–						
		2009	149	143	96	64	3	11	1	16	5
		2010	130	73	56	60	0	12	0	4	23
	• 14 76 •	2011	64	75	117	71	5	13	0	4	7
Trinidad and Tobago		1995	7	78	1 114	49	21	19	1	10	0
		2000	115	194	169	22	46	11	2	6	13
		2005	95	106	112	68	4	12		16	0
		2009	154	154	100	61	8	14	1	14	1
		2010	136	136	100	72	4	9	3	11	1
	• 69 72 •	2011	121	123	102	69	3	11	1	15	1
Turks and Caicos Islands		1995			–						
		2000		2	–	0	0	0	0	100	0
		2005		3	–	33	33	0	0	0	33
		2009			–						
		2010	3	4	133	75					25
	• 0 22 •	2011	8	9	112		22			67	11
United States of America		1995	8 093	8 116	100		76	15		4	6
		2000	5 883	5 901	100		83	11		3	3
		2005	5 111	5 136	100		84	8	2		6
		2009	4 014	7 460	186		60	6		1	32
		2010	3 695	7 034	190		64	6		1	29
	• 76 78 •	2011	3 742	5 955	159		78	6		1	15
Uruguay		1995	349	370	106	41	27	10	1	4	17
		2000	348	344	99	85	0	13	1	1	0
		2005	355	345	97	80	4	11	0	4	1
		2009	409	406	99	73	7	12	0	6	2
		2010	368	368	100	80	5	10	0	5	0
	• 68 85 •	2011	467	467	100	81	4	8	0	7	0
US Virgin Islands		1995	2	2	100	50		0	0	0	50
		2000			–						
		2005			–						
		2009			–						
		2010			–						
	• 50 0 •	2011			–						
Venezuela (Bolivarian Republic of)		1995	3 056	3 056	100	68	6	4	1	8	13
		2000	3 525	3 390	96	76	0	4	0	13	6
		2005	3 653	3 581	98	83		5	0	10	2
		2009	3 436	3 433	100	84	0	4	0	11	1
		2010	3 252	3 157	97	83	0	5	0	11	0
	• 74 80 •	2011	3 224	3 224	100	80	0	5	0	12	3

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Anguilla		1995	0		–						
		2000			–						
		2005			–						
		2009		0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Antigua and Barbuda		1995			–						
		2000	0		–						
		2005	0		–						
		2009	2	1	50	100	0	0	0	0	0
		2010	0	0	–						
	• 0 50 •	2011	2	2	100	50	0	50	0	0	0
Argentina		1995			–						
		2000	1 828		–						
		2005	809	1 615	200	7	26	5	0	9	53
		2009	827	893	108	10	20	4	1	13	52
		2010	716	1 114	156	9	23	4	1	15	49
	• 0 41 •	2011	1 072	1 492	139	9	33	5	0	16	38
Aruba		1995			–						
		2000			–						
		2005			–						
		2009			–						
		2010			–						
	• 0 0 •	2011			–						
Bahamas		1995	1		–						
		2000	0		–						
		2005	4	4	100	25	50	0	0	25	0
		2009	5	5	100	20	60	20	0	0	0
		2010	2	2	100	0	100	0	0	0	0
	• 0 100 •	2011	2	2	100	0	100	0	0	0	0
Barbados		1995			–						
		2000	0		–						
		2005			–						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Belize		1995	4	13	325	23	0	23	8	38	8
		2000	6		–						
		2005	15	14	93	57	29	14	0	0	0
		2009	12		–						
		2010	1	1	100						
	• 23 0 •	2011	12		–						
Bermuda		1995			–						
		2000	0		–						
		2005			–						
		2009		0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Bolivia (Plurinational State of)		1995	63	462	733	57	9	7	5	15	7
		2000	2 081	804	39	49	11	12	2	8	16
		2005	772	772	100	63	3	5	3	7	19
		2009	732	598	82	73	5	7	2	7	7
		2010	665	589	89	72	5	5	3	10	5
	• 66 73 •	2011	637	560	88	71	2	6	3	10	7
Bonaire, Saint Eustatius and Saba		2009		0	–						
		2010		0	–						
		2011	1	1	100						
Brazil		1995			–						
		2000	11 334	7 859	69	30	10	4	0	14	41
		2005	9 637	9 479	98	26	22	7	2	19	25
		2009	9 818	10 664	109	15	28	8	2	23	24
		2010	10 949	10 721	98	18	28	8	2	25	19
	• 0 49 •	2011	10 045	12 083	120	19	30	9	2	23	17
British Virgin Islands		1995			–						
		2000			–						
		2005	0		–						
		2009		0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Canada		1995	195		–						
		2000	145	145	100	16	16	6	1	2	60
		2005	103	106	103	8	59	7	0	3	23
		2009	94	95	101	4	60	7	0	1	27
		2010	72	94	131	15	56	9	0	0	20
	• 0 56 •	2011	81	101	125	8	49	9	0	0	35
Cayman Islands		1995	0		–						
		2000	0		–						
		2005		0	–						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Chile		1995	225		–						
		2000	158	150	95	32	26	8	1	18	15
		2005	314	140	45	69	3	14	1	9	3
		2009	306	219	72	15	9	7	2	7	60
		2010	263	336	128	14	12	6	2	9	58
	• 0 43 •	2011	272	281	103	24	19	7	1	15	33
Colombia		1995			–						
		2000	339		–						
		2005	443	0	0						
		2009	616		–						
		2010	869	920	106	11	5	3	1	7	73
	• 0 45 •	2011	1 001	1 001	100	32	13	7	4	23	22
Costa Rica		1995	0		–						
		2000	35	69	197	23	9	10	3	25	30
		2005	45	49	109	55	12	4	2	24	2
		2009	31	2	6	0	0	50	0	0	50
		2010	32	35	109	37	43	11	0	9	0
	• 0 81 •	2011	26	26	100	54	27	12	4	4	0
Cuba		1995	54	55	102	82	0	7	5	5	0
		2000	172	58	34	78	7	10	3	2	0
		2005	49	48	98	67		6	4	2	21
		2009	51	61	120	69	5	15	5	7	0
		2010	56	55	98	67	15	4	4	11	0
	• 82 68 •	2011	73	72	99	53	15	19	3	10	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Curaçao		2009			–						
		2010			–						
		2011	0	0	–						
Dominica		1995	3		–						
		2000			–						
		2005			–						
		2009	1	0	0						
		2010	0	1	–	0	100	0	0	0	0
	• 0 0 •	2011	1	1	100	0	0	0	100	0	0
Dominican Republic		1995	204		–						
		2000	610	498	82	29	26	3	4	27	11
		2005	729	530	73	56	5	7	8	19	6
		2009	452	434	96	47	6	13	5	29	0
		2010	520	384	74	51	13	9	5	18	4
	• 0 61 •	2011	505	415	82	46	15	7	5	20	6
Ecuador		1995			–						
		2000	386		–						
		2005	795	554	70	56	8	5	10	12	9
		2009	756	756	100	46	9	6	8	16	16
		2010	663		–						
	• 0 35 •	2011	641	641	100	29	6	3	5	10	46
El Salvador		1995			–						
		2000	271	181	67	63	3	9	3	18	3
		2005	114	114	100	68	0	6	4	13	8
		2009	113	113	100	85	3	3	1	8	1
		2010	92	92	100	88	2	2	3	1	3
	• 0 90 •	2011	83	83	100	90	0	2	0	5	2
Grenada		1995			–						
		2000	0		–						
		2005			–						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Guatemala		1995	249	254	102	59	15	4	2	4	17
		2000	141	164	116	63	16	4	4	10	2
		2005	159		–						
		2009	128	181	141	55	8	5	7	20	4
		2010	181	181	100	55	8	5	7	20	4
	• 73 64 •	2011	160	182	114	51	14	11	4	20	1
Guyana		1995	2		–						
		2000	84	38	45	24	29	13	5	26	3
		2005	25	23	92	22	35	9	9	13	13
		2009	205	205	100	0	51	14	0	18	17
		2010	162	162	100	0	52	14	1	28	5
	• 0 49 •	2011	233	233	100	6	43	9	1	33	8
Haiti		1995			–						
		2000	346	55	16	42	15	5	7	22	9
		2005	228	228	100	63	7	3	0	13	14
		2009		381	–	49	20	7	3	10	11
		2010	381	381	100	60	14	5	2	10	8
	• 0 72 •	2011	423	453	107	61	11	4	6	10	9
Honduras		1995	100		–						
		2000	236	180	76	44	10	8	2	6	29
		2005	181	169	93	59	9	6	2	17	7
		2009	225	192	85	50	7	10	1	10	22
		2010	195	164	84	66	9	7	2	15	1
	• 0 68 •	2011	190	165	87	64	5	9	2	16	4
Jamaica		1995	2	6	300	0	67	17	0	17	0
		2000	13		–						
		2005	5	5	100		20			80	0
		2009	20	19	95	16	58	5	0	21	0
		2010	19	19	100	5	26	26	0	21	21
	• 67 25 •	2011	4	4	100	0	25	0	0	25	50
Mexico		1995			–						
		2000	1 335	138	10	33	4	8	7	12	36
		2005	2 026	1 456	72	48	7	7	4	14	20
		2009	1 535	1 229	80	56	5	9	6	10	14
		2010	1 266	1 272	100	55	7	9	6	11	10
	• 0 61 •	2011	1 542	1 352	88	47	14	10	5	10	14
Montserrat		1995			–						
		2000	0		–						
		2005	0		–						
		2009		0	–						
		2010	0	0	–						
	• 0 0 •	2011	0		–						
Netherlands Antilles		1995			–						
		2000	0		–						
	• 0	2005			–						
Nicaragua		1995	167	289	173	69	10	4	3	11	3
		2000	159	230	145	65	10	6	2	15	2
		2005	268	181	68	71	12	7	2	7	2
		2009	282	178	63	70	6	3	6	11	3
		2010	286	204	71	60	16	8	4	9	2
	• 78 69 •	2011	282	134	48	58	10	10	2	14	4
Panama		1995	108		–						
		2000	134	42	31	19	24	2	0	48	7
		2005	247	237	96	23	35	9	4	22	7
		2009	235	203	86	18	30	10	0	37	4
		2010	211	208	99	23	34	11	3	30	0
	• 0 59 •	2011	179	203	113	24	34	11	2	28	0
Paraguay		1995	28		–						
		2000	530	144	27	19	40	6	1	25	9
		2005	273	164	60	44	26	4		10	16
		2009	177	188	106	47	9	9	4	11	20
		2010	214	216	101	54	6	8	2	9	20
	• 0 67 •	2011	304	228	75	60	7	4	4	9	16
Peru		1995			–						
		2000	4 381	4 521	103	78	0	4	7	6	4
		2005	4 989	2 299	46	78		5	5	11	1
		2009	4 324	2 163	50	49	21	4	2	12	12
		2010	4 180		–						
	• 0 0 •	2011	3 650		–						
Puerto Rico		1995			–						
		2000			–						
		2005	0	113	–		73	23	0	4	1
		2009	0	0	–						
		2010	4	4	100	50	0	25	25	0	0
	• 0 0 •	2011	0	0	–						

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Saint Kitts and Nevis		1995			–						
		2000	0		–						
		2005	2	2	100		50				50
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Saint Lucia		1995			–						
		2000	3	1	33	100	0	0	0	0	0
		2005	2		–						
		2009	3	3	100		33	67	0	0	0
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Saint Vincent and the Grenadines		1995	4		–						
		2000	3	3	100	100	0	0	0	0	0
		2005	0		–						
		2009	2	1	50	0	0	0	0	100	0
		2010	2	0	0						
	• 0 0 •	2011	0	0	–						
Sint Maarten (Dutch part)		2009			–						
		2010	0		–						
		2011	0	0	–						
Suriname		1995			–						
		2000	1		–						
		2005	8		–						
		2009	15	12	80	50	0	8	0	42	0
		2010	16	11	69	45	9	27	0	0	18
	• 0 64 •	2011	11	11	100	45	18	36	0	0	0
Trinidad and Tobago		1995	22		–						
		2000	31	22	71	23	45	14	9	9	0
		2005	22	21	95	19	38	29		14	0
		2009	60	60	100	48	20	15	0	17	0
		2010	44	44	100	43	20	14	0	23	0
	• 0 35 •	2011	49	49	100	22	12	12	0	51	2
Turks and Caicos Islands		1995			–						
		2000			–						
		2005		3	–	33	33	33	0	0	0
		2009			–						
		2010	2	0	0						
	• 0 0 •	2011	1	0	0						
United States of America		1995			–						
		2000			–						
		2005			–						
		2009			–						
		2010			–						
	• 0 0 •	2011			–						
Uruguay		1995	20	25	125	56	20	16	0	8	0
		2000	39		–						
		2005	19	30	158	57	17	13	3	7	3
		2009	37	41	111	46	10	34	0	7	2
		2010	41	41	100	56	20	15	0	5	5
	• 76 79 •	2011	53	53	100	74	6	11	0	9	0
US Virgin Islands		1995			–						
		2000			–						
		2005			–						
		2009			–						
		2010			–						
	• 0 0 •	2011			–						
Venezuela (Bolivarian Republic of)		1995	272		–						
		2000	377		–						
		2005	350	247	71	80		4	2	12	2
		2009	428	261	61	80	0	4	2	13	2
		2010	442	248	56	83	0	6	1	10	0
	• 0 80 •	2011	408	400	98	80	0	9	0	10	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

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TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Anguilla		2005								
		2010	0	0	1	0				
		2011		0	0	0				
	– –	2012		0	0	0				
Antigua and Barbuda		2005	100	6	6	3	50	100	100	0
		2010	86	6	7	5	83	40	100	0
		2011	75	6	8	4	67	50	100	5
	• 100 100 •	2012	100	4	4	2	50	50	100	1
Argentina		2005			11 242					
		2010	14	1 121	7 762	672	60			
		2011	13	1 313	10 491	735	56			
	– 15 •	2012	15	1 434	9 606	685	48			
Aruba		2005								
		2010			6					
		2011			8					
	– 3 •	2012	3.4	1	29	1	100		100	
Bahamas		2005			50					
		2010	100	33	32	16	48	31	75	
		2011	100	42	42	12	29	42	67	
	– 100 •	2012	100	32	32	8	25	38	62	
Barbados		2005		8		2	25	0		
		2010	100	6	6	2	33	0	100	
		2011		0	0	0				
	– 100 •	2012	100	4	4	1	25	0	100	
Belize		2005	100	106	106	25	24	68	68	409
		2010	98	142	145	29	20	100	100	
		2011	84	64	76	24	38		100	
	• 100 81 •	2012	81	68	84	19	28		100	
Bermuda		2005		1		0	0			
		2010	100	1	1	0	0			
		2011	100	1	1	0	0			
	– 100 •	2012	100	3	3	0	0			
Bolivia (Plurinational State of)		2005	0	0	9 973	0				50
		2010	22	1 897	8 620	130	6.9	0	87	
		2011	45	3 928	8 747	333	8.5		36	
	• 0 60 •	2012	60	5 049	8 484	164	3.2		100	
Bonaire, Saint Eustatius and Saba		2010		0	0	0				
		2011	0	0	1	0				
		2012		0	0	0				
Brazil		2005	59	51 552	87 223	8 249	16	0	85	674
		2010	63	51 764	81 946	9 338	18		92	
		2011	64	53 455	84 137	9 088	17	0	100	
	• 59 55 •	2012	55	45 733	82 755	9 049	20	0	100	
British Virgin Islands		2005		0	0	0				27
		2010	0	0	1	0				
		2011		0	0	0				
	– –	2012		0	0	0				
Canada		2005	26	414	1 616	63	15			
		2010	48	658	1 385	53	8.1			
		2011	35	513	1 452	61	12			
	• 26 42 •	2012	42	716	1 686	57	8			
Cayman Islands		2005		1		0	0			
		2010	75	3	4	0	0			
		2011	100	2	2	0	0			
	– 100 •	2012	100	6	6	0	0			
Chile		2005			2 633					
		2010			2 472					
		2011	11	286	2 535	148	52			
	– 16 •	2012	16	392	2 460	140	36			
Colombia		2005	53	5 537	10 360	353	6.4			
		2010	43	5 079	11 889	1 231	24		35	
		2011	53	6 579	12 438	1 292	20		36	
	• 53 66 •	2012	66	7 791	11 829	1 400	18		34	
Costa Rica		2005	67	374	560	50	13		84	
		2010	99	494	499	54	11	0	0	
		2011	96	505	524	36	7.1	0	0	
	• 67 94 •	2012	94	453	480	49	11			0
Cuba		2005	93	729	781	0	0			
		2010	100	862	838	56	6.5	0	62	1 366
		2011	95	780	821	62	7.9	34	89	1 429
	• 93 83 •	2012	83	618	748	54	8.7	81	94	1 339
Curaçao		2010	0	0	5	0				
		2011	0	0	1	0				
		2012	100	1	1	1	100			
Dominica		2005				0				
		2010	38	3	8	1	33	100	100	
		2011	67	2	3	0	0			
	– 75 •	2012	75	6	8	0	0			
Dominican Republic		2005	1.5	78	5 312	3	3.8	0	0	953
		2010	60	2 489	4 160	547	22	7.9	3.8	5 041
		2011	57	2 540	4 472	460	18	58	93	
	• 1 61 •	2012	61	2 721	4 440	557	20	69	48	
Ecuador		2005	0.21	10	4 808	3	30	0		
		2010	100	5 183	5 095	427	8.2		100	
		2011	68	3 640	5 350	576	16			
	• 0 86 •	2012	86	4 974	5 771	669	13			
El Salvador		2005	84	1 544	1 830	188	12	20	38	
		2010	96	1 667	1 730	180	11	82	63	455
		2011	98	1 878	1 917	194	10	85	77	
	• 84 99 •	2012	99	2 036	2 063	214	11	66	83	
Grenada		2005		0		0				
		2010	100	4	4	1	25	0	0	0
		2011	100	2	2	0	0			
	– 100 •	2012	100	1	1	0	0			0
Guatemala		2005	16	600	3 861	478	80		240	
		2010	63	2 121	3 351	255	12	100	100	
		2011	72	2 223	3 088	285	13	16	30	
	• 16 85 •	2012	85	2 982	3 499	293	9.8	0	95	
Guyana		2005	70	456	656	80	18			
		2010	88	734	836	209	28	77	59	144
		2011	93	852	916	199	23	94	83	119
	• 70 94 •	2012	94	914	969	284	31	71	59	154
Haiti		2005	0	0	14 344	1 797				
		2010	67	9 518	14 265	1 892	20	13	9.8	4 112
		2011	78	11 213	14 361	2 320	21	11	6.9	
	• 0 81 •	2012	81	13 518	16 723	2 705	20	59	46	15 283

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Honduras		2005	44	1 455	3 333	200	14	0	0	0
		2010	54	1 557	2 901	201	13	90	90	27
		2011	75	2 443	3 243	261	11	50	72	
	• 44 76 •	2012	76	2 312	3 046	259	11	52	74	286
Jamaica		2005	83	79	95	28	35	43	54	
		2010	87	128	147	30	23		100	
		2011	85	92	108	17	18		82	
	• 83 69 •	2012	69	65	94	13	20			
Mexico		2005	6.9	1 382	19 932	217	16			
		2010	43	8 915	20 699	1 645	18	100	26	
		2011	56	11 416	20 528	1 520	13	70	25	
	• 7 70 •	2012	70	15 005	21 348	1 233	8.2	70	24	
Montserrat		2005	100	1	1	0	0			
		2010		0	0	0				
		2011		0	0	0				
	• 100 –	2012			0					
Netherlands Antilles		2005		2		2	100			
Nicaragua		2005	0	0	2 076	30		0		
		2010	56	1 440	2 575	60	4.2	67	67	465
		2011	55	1 552	2 822	60	3.9	67	67	152
	• 0 72 •	2012	72	2 117	2 934	105	5	78	74	230
Panama		2005	86	1 569	1 828	200	13		10	400
		2010	96	1 558	1 630	240	15	63	84	
		2011	95	1 608	1 695	241	15	94	93	
	• 86 96 •	2012	96	1 600	1 675	224	14	89	65	
Paraguay		2005			2 348					
		2010	33	817	2 461	144	18	0	67	
		2011	60	1 533	2 549	174	11	25	56	
	– 73 •	2012	73	1 906	2 623	154	8.1	60	79	
Peru		2005	1.9	668	35 541	668	100			1 214
		2010	29	9 539	32 477	853	8.9		1.2	1 183
		2011	21	7 052	32 844	960	14		68	
	• 2 18 •	2012	18	5 836	31 705	979	17		87	1 416
Puerto Rico		2005	82	93	113	28	30			
		2010	95	76	80	14	18	43	50	
		2011	92	46	50	10	22	50	50	
	• 82 86 •	2012	86	61	71	11	18	82	36	
Saint Kitts and Nevis		2005			2					
		2010	100	2	2	0	0			
		2011	100	1	1	0	0			
	– 100 •	2012	100	2	2	0	0			
Saint Lucia		2005	7.1	1	14	0	0			
		2010	100	9	9	0	0			
		2011	100	7	7	1	14	100	100	
	• 7 100 •	2012	100	11	11	1	9.1	100	100	1
Saint Vincent and the Grenadines		2005	100	7	7	1	14	0	0	
		2010	59	10	17	3	30		100	
		2011	76	13	17	5	38	80	80	
	• 100 91 •	2012	91	31	34	9	29	67	67	
Sint Maarten (Dutch part)		2010	100	3	3	0	0			
		2011	100	2	2	0	0			
		2012	100	1	1	0	0			
Suriname		2005	73	87	119	20	23		10	
		2010	85	173	204	58	34	10	38	
		2011	89	117	131	38	32	18	55	
	• 73 91 •	2012	91	121	133	36	30		69	
Trinidad and Tobago		2005	69	124	179	42	34	29	36	0
		2010	98	254	258	58	23	19	34	11
		2011	95	252	266	84	33	24	19	
	• 69 97 •	2012	97	311	321	82	26	28	29	
Turks and Caicos Islands		2005		5		1	20	0	0	
		2010	71	5	7	1	20	100	100	
		2011	10	1	10	0	0			
	– 0 •	2012	0	0	8	0				
United States of America		2005	59	8 273	14 080	1 035	13			
		2010	66	7 404	11 181	627	8.5			
		2011	83	8 752	10 521	668	7.6			
	• 59 84 •	2012	84	8 376	9 945	625	7.5			
Uruguay		2005	92	574	626	74	13	0		
		2010	92	646	699	104	16	0	34	
		2011	94	769	817	110	14	0	31	
	• 92 95 •	2012	95	775	815	134	17	0	24	
US Virgin Islands		2005								
		2010								
		2011								
	– –	2012								
Venezuela (Bolivarian Republic of)		2005	39	2 678	6 950	392	15	0	39	
		2010	78	5 213	6 645	479	9.2		33	102
		2011	64	4 133	6 477	519	13		32	
	• 39 73 •	2012	73	4 956	6 777	581	12		89	

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TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Anguilla	2005					–			–
	2010	0			0	–		0	–
	2011	0			0	–		0	–
	2012	0	0 (0–0)	0 (0–0)	0	–	0 (0–0)	0	–
Antigua and Barbuda	2005					–			–
	2010	0			0	0		0	–
	2011	0			0	0		0	0
	2012	0	0.18 (<0.1–0.27)	<0.1 (<0.1–<0.1)	0	0	0.14 (<0.1–0.23)	0	0
Argentina	2005	276			2369	46		1290	160
	2010	109				–			–
	2011	103				–			–
	2012	63	340 (230–440)	160 (88–260)		–	180 (110–260)		–
Aruba	2005					–			–
	2010					–			–
	2011	0			5	71			–
	2012		0.85 (0.57–1.1)	0.57 (0.36–0.81)		–	0.27 (<0.1–0.46)		–
Bahamas	2005					–			–
	2010	0			21	95		2	100
	2011	1			31	97		1	50
	2012	1	1.2 (<0.1–6.1)	1.2 (<0.1–6.1)	27	84	0 (0–0)	0	–
Barbados	2005					–			–
	2010	0			0	0		0	–
	2011	0			0	–		0	–
	2012	0	<0.1 (<0.1–0.10)	<0.1 (<0.1–0.10)	0	0	0 (0–0)	0	–
Belize	2005	0			0	0		3	20
	2010	0				–			–
	2011	0				–			–
	2012	0	2.5 (1.7–3.4)	1.6 (1.0–2.2)	0	0	0.96 (0.32–1.6)	0	0
Bermuda	2005					–			–
	2010	0			1	100		0	–
	2011	0			1	100		0	–
	2012	0	0 (0–1.7)	0 (0–1.7)	2	200	0 (0–0)	0	–
Bolivia (Plurinational State of)	2005	63				–			–
	2010	106			0	0		664	100
	2011	83			98	1.7		597	94
	2012	117	150 (88–210)	74 (27–160)	1376	22	75 (60–94)	634	94
Bonaire, Saint Eustatius and Saba	2010	0			0	–		0	–
	2011	1				–		1	100
	2012	0	0 (0–0)	0 (0–0)	0	–	0 (0–0)	0	–
Brazil	2005	373				–		5917	61
	2010	573			22	<0.1		643	5.9
	2011	566			21	<0.1		604	6.0
	2012	684	1 700 (1 400–2 000)	850 (620–1 100)	700	1.6	860 (660–1 100)	198	1.7
British Virgin Islands	2005					–			–
	2010	0			0	0		0	–
	2011	0			0	–		0	–
	2012	0	0 (0–0)	0 (0–0)	0	–	0 (0–0)	0	–
Canada	2005	22			1130	150			–
	2010	15			987	130		51	71
	2011	19				–			–
	2012	9	7.4 (2.2–13)	6.0 (2.4–12)	1244	140	1.4 (<0.1–7.8)	63	69
Cayman Islands	2005					–			–
	2010	0			1	50		0	–
	2011	0			1	100		0	–
	2012	0	0 (0–3.1)	0 (0–3.1)	5	100	0 (0–0)	0	–
Chile	2005	6			49	3.2		226	72
	2010	10			65	4.4		276	100
	2011	9			71	4.8		277	100
	2012	18	19 (7.5–30)	12 (4.4–26)	125	8.4	6.7 (2.2–15)	172	74
Colombia	2005					–			–
	2010	131			1240	17		495	57
	2011	108			2620	36		568	57
	2012	105	310 (220–400)	210 (140–320)	2378	33	98 (74–130)	391	51
Costa Rica	2005	3			2	0.49		1	2.2
	2010	3			203	64			–
	2011	0			32	9.6		16	62
	2012	1	6.4 (0.81–12)	5.4 (1.5–14)	273	95	1.0 (<0.1–5.0)	22	100
Cuba	2005	1			169	32		19	39
	2010	7			174	36		31	55
	2011	10			313	60		76	100
	2012	8	11 (3.4–19)	4.3 (0.52–15)	269	61	7.1 (2.7–14)	51	85
Curaçao	2010	0			5	100			–
	2011	0			1	100		0	–
	2012	0	0 (0–0.98)	0 (0–0.98)	1	100	0 (0–0)	0	–
Dominica	2005					–			–
	2010	0			1	12		1	–
	2011	0			1	50		1	100
	2012	0	0 (0–0)	0 (0–5.9)	2	40	0 (0–2.0)	1	50
Dominican Republic	2005					–			–
	2010	108			32	1.4		106	20
	2011	117			12	0.42		77	15
	2012	92	330 (230–430)	220 (140–330)	79	3.1	110 (71–150)	193	35
Ecuador	2005	253			117	3.2		502	63
	2010	176			363	10		584	88
	2011	354			239	6.3		284	44
	2012	223	380 (320–450)	210 (150–280)	529	13	170 (150–190)	827	120
El Salvador	2005	14			12	1.1		14	12
	2010	2			0	0		2	2.2
	2011	4			238	22		69	83
	2012	8	16 (5.9–26)	5.1 (0.61–18)	252	20	11 (4.8–20)	73	74
Grenada	2005					–			–
	2010	0				–			–
	2011	0				–			–
	2012	0	<0.1 (<0.1–<0.1)	<0.1 (<0.1–<0.1)		–	0 (0–0)		–
Guatemala	2005	40			20	0.83		40	25
	2010	18				–		18	9.9
	2011	27			0	0		27	17
	2012	69	140 (100–180)	89 (55–140)	37	1.4	53 (40–69)	74	37
Guyana	2005					–			–
	2010	5			0	0		0	0
	2011	3			2	0.62		55	24
	2012	0	48 (25–70)	14 (9.1–20)	3	0.97	33 (11–56)	1	0.41

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically positive cases.

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Haiti	2005				53	0.72			–
	2010	41			2	<0.1		39	10
	2011	86				–			–
	2012	81	390 (270–520)	310 (200–440)		–	82 (28–140)	81	14
Honduras	2005	3			3	0.13		0	0
	2010	9			57	3.1		62	32
	2011	5			30	1.5		65	34
	2012	6	71 (37–110)	43 (19–84)	41	2.1	28 (13–51)	96	42
Jamaica	2005	0			11	19		2	40
	2010	1			40	31		5	26
	2011	1			28	64		1	25
	2012	0	2.6 (1.7–3.4)	1.7 (1.1–2.4)	16	28	0.82 (0.28–1.4)	0	0
Mexico	2005	394			314	2.1		74	3.7
	2010	140			21	0.16		505	40
	2011	140			6	<0.1		180	12
	2012	114	480 (350–620)	380 (330–440)	13	<0.1	100 (84–130)	148	9.0
Montserrat	2005	1			0	0		0	–
	2010	0			0	–		0	–
	2011	0			0	–		0	–
	2012	0	0 (0–0)	0 (0–0)		–	0 (0–0)		–
Netherlands Antilles	2005					–			–
Nicaragua	2005	50			8	0.64		8	3.0
	2010	18			50	3.5		150	52
	2011	13			200	13		67	24
	2012	21	46 (21–70)	14 (1.7–52)		–	31 (18–49)		–
Panama	2005	5			29	3.3		48	19
	2010	10			58	8.2		17	8.1
	2011	7			25	2.3		40	22
	2012	11	56 (35–78)	27 (17–38)	2	0.26	29 (9.9–49)	7	3.3
Paraguay	2005	13				–			–
	2010	1			115	8.2		52	24
	2011	6			227	15		93	31
	2012	7	55 (19–90)	6.5 (0.16–36)	235	15	48 (20–92)	89	27
Peru	2005	2748				–		2336	47
	2010	1048				–			–
	2011	1663			1199	6.5		598	16
	2012	1225	2 200 (2 100–2 300)	890 (820–960)	14484	79	1 300 (1 200–1 400)	1902	52
Puerto Rico	2005	0				–			–
	2010	0			69	100		4	100
	2011	3			44	110		0	–
	2012	1	1.0 (0–2.6)	0 (0–3.8)	52	98	1.0 (<0.1–2.7)	3	100
Saint Kitts and Nevis	2005					–			–
	2010	0			0	0		0	–
	2011	0			0	0		0	–
	2012	0	<0.1 (<0.1–<0.1)	<0.1 (<0.1–<0.1)	0	0	0 (0–0)	0	–
Saint Lucia	2005					–			–
	2010	0			0	0		0	–
	2011	0			2	29		0	–
	2012	0	0.24 (0.15–0.34)	0.24 (0.15–0.34)	0	0	0 (0–0)	0	–
Saint Vincent and the Grenadines	2005	6			6	86		0	–
	2010	0			2	22			–
	2011	0			1	12		0	–
	2012	0	1.2 (0.78–1.6)	0.66 (0.42–0.93)	2	7.4	0.55 (0.18–0.92)	0	0
Sint Maarten (Dutch part)	2010	0				–			–
	2011	0			0	0			–
	2012	0	<0.1 (<0.1–<0.1)	<0.1 (<0.1–<0.1)		–	0 (0–0)		–
Suriname	2005	1			49	44		0	0
	2010	0			1	0.70			–
	2011	0			0	0		0	0
	2012	0	3.4 (2.4–4.5)	2.5 (1.6–3.5)		–	0.96 (0.32–1.6)		–
Trinidad and Tobago	2005	3			0	0		3	14
	2010	0				–			–
	2011					–			–
	2012	0	11 (8.4–13)	4.5 (2.2–6.4)	6	2.4	6.4 (5.0–7.9)	10	19
Turks and Caicos Islands	2005					–			–
	2010	1				–			–
	2011					–			–
	2012		0.13 (<0.1–0.18)	0.13 (<0.1–0.18)		–	0 (0–0)		–
United States of America	2005	124			10064	110		505	–
	2010	107			7593	110		345	–
	2011	119			6899	99		304	–
	2012	81	81 (63–100)	81 (63–100)	6790	100	–	339	–
Uruguay	2005					–			–
	2010	1			160	36		22	54
	2011	1			422	75		38	72
	2012	1	1.3 (0–3.8)	0 (0–5.5)	466	88	1.3 (<0.1–6.9)	42	76
US Virgin Islands	2005					–			–
	2010					–			–
	2011					–			–
	2012		–	–		–	–		–
Venezuela (Bolivarian Republic of)	2005	28			163	4.3		15	4.3
	2010	21			26	0.78		160	36
	2011	25			565	17		195	48
	2012	21	100 (58–150)	26 (7.2–67)	460	13	77 (43–120)	148	26

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Anguilla	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	0	0	0	1		0	0	0	0	0	0	0		–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Antigua and Barbuda	1995																	–
	2000	0	0	0	0	0	0	1		1	1	1	0	0	0	0		0.33
	2005				1	1					2	2						0.50
	2010	0	0	2	0	2	1	0	0	0	0	1	0	0	0	0	0	5.0
	2011	0	0	1	1	3	1	1	0	0	1	0	0	0	0	0	0	7.0
	2012	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	–
Argentina	1995																	–
	2000	97	278	594	402	419	368	330		121	544	479	262	230	179	216		1.2
	2005	64	621	530	358	384	340	348		90	530	474	290	198	169	240		1.3
	2010	56	536	491	309	302	340	282	2	59	421	426	233	184	153	176	1	1.4
	2011	143	664	657	434	397	358	289	9	142	587	470	279	192	169	213	4	1.4
	2012	59	533	484	299	180	182	181	15	67	652	614	375	364	321	322	13	0.71
Aruba	1995																	–
	2000																	–
	2005																	–
	2010																	–
	2011					4		1				1				1		2.5
	2012				2	3				1	4		2	1		1		0.56
Bahamas	1995	3	3	5	7	4	2	2		0	1	7	2	0	0	1		2.4
	2000	1	2	7	9	4	3	2		2	5	7	8	2	3	1		1.0
	2005																	–
	2010	0	2	3	5	0	2	0	0	0	5	1	1	0	0	0	0	1.7
	2011	0	2	3	6	2	2	1	0	0	1	3	3	0	0	0	0	2.3
	2012	0	1	1	6	2	0	2	0	0	2	5	1	1	0	0	0	1.3
Barbados	1995																	–
	2000	0	0	0	2	0	0	0		0	0	1	0	0	0	0		2.0
	2005																	–
	2010	0	0	0	1	2	0	0	0	0	1	0	0	2	0	0	0	1.0
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Belize	1995	1	1	2	4	0	1	1		0	6	2	0	1	1	2		0.83
	2000	2	5	7	2	6	3	5		0	2	1	2	4	1	4		2.1
	2005	0	8	8	6	8	5	3		0	4	4	4	3	2	4		1.8
	2010	2	9	16	22	24	11	18		4	5	7	7	9	4	5		2.5
	2011	0	8	14	9	16	2	0		0	2	0	8	4	1	0		3.3
	2012	1	2	7	5	4	3	2	0	0	4	3	4	4	1	0	0	1.5
Bermuda	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	–
Bolivia (Plurinational State of)	1995																	–
	2000	166	1 182	797	518	466	340	366		191	831	588	334	254	192	233		1.5
	2005	157	1 320	725	439	391	346	415		160	846	533	276	226	182	262		1.5
	2010	95	1 150	622	415	395	338	409		119	744	471	238	191	162	264		1.6
	2011	100	1 231	685	372	371	302	457		146	778	459	235	183	155	272		1.6
	2012	99	1 096	672	368	358	353	380		101	792	480	223	204	193	249		1.5
Bonaire, Saint Eustatius and Saba	2010	0	0	0	0	0	0	0		0	0	0	0	0	0	0		–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Brazil	1995																	–
	2000	1 894	7 268	11 568	11 906	8 623	5 085	4 494		1 859	6 719	7 215	5 395	3 582	2 384	2 496		1.7
	2005	317	5 074	6 119	6 128	5 259	2 803	2 140		355	3 496	3 663	2 626	1 897	1 112	1 104		2.0
	2010	298	4 405	6 381	5 293	4 762	2 875	1 947	43	280	2 677	3 008	2 211	1 720	1 038	979	15	2.2
	2011	336	4 877	6 755	5 462	5 054	3 083	2 142	41	356	2 815	3 131	2 230	1 779	1 164	1 069	0	2.2
	2012	277	5 027	6 811	5 387	5 128	3 103	2 160	38	303	2 798	3 013	2 173	1 785	1 113	1 030	6	2.3
British Virgin Islands	1995																	–
	2000						1											–
	2005																	–
	2010	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Canada	1995	1	28	31	60	34	41	70		7	33	28	22	12	18	51		1.5
	2000	5	34	45	46	41	32	79		4	33	40	30	25	12	66		1.3
	2005	3	37	45	44	40	20	68		6	28	40	27	24	13	37		1.5
	2010	3	30	28	36	32	25	62	0	1	28	24	16	10	19	44	0	1.5
	2011	2	34	36	31	40	33	70	0	3	23	29	28	14	9	55	0	1.5
	2012	1	33	32	53	51	35	97	0	6	32	34	29	19	11	45	0	1.7
Cayman Islands	1995																	–
	2000	0	0	3	1	0	1	0										–
	2005																	–
	2010	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1.0
	2011	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	–
Chile	1995	24	148	182	204	155	141	163		24	100	120	108	75	73	107		1.7
	2000	6	81	160	198	150	132	126		10	66	96	70	54	58	83		2.0
	2005	3	74	128	179	162	115	133		4	55	78	60	56	36	93		2.1
	2010	2	90	115	144	159	122	157	0	6	56	76	59	56	40	72	0	2.2
	2011	4	88	139	143	164	127	134	0	6	62	75	66	69	48	71	0	2.0
	2012	4	91	122	135	170	117	149	5	4	59	69	53	56	60	76	3	2.1
Colombia	1995																	–
	2000	246	763	1 030	963	743	610	746		194	587	758	523	381	304	510		1.6
	2005	178	623	685	666	687	510	695		179	581	533	457	389	292	395		1.4
	2010	148	602	765	540	710	610	814	0	146	560	576	428	374	284	471	0	1.5
	2011	105	663	714	558	702	594	753	0	98	461	535	324	337	278	390	0	1.7
	2012	92	613	744	497	653	616	740	0	79	519	555	376	355	252	432	0	1.5
Costa Rica	1995	1	17	38	24	19	23	22		2	17	15	11	7	9	14		1.9
	2000	14	31	53	62	39	28	49		13	21	33	24	20	23	24		1.7
	2005	1	43	38	53	34	20	34		1	21	31	18	16	6	14		2.1
	2010	2	18	48	33	27	22	28	1	0	18	20	12	14	15	8	1	2.0
	2011	0	23	24	29	33	22	36	0	2	18	27	23	19	12	17	0	1.4
	2012	2	18	33	28	34	41	23	2	2	11	24	11	12	8	5	3	2.4
Cuba	1995	2	59	118	83	75	75	156		1	17	52	29	39	48	80		2.1
	2000	0	71	167	90	74	55	75		2	9	22	26	22	23	39		3.7
	2005	2	20	73	90	50	58	51		2	14	17	26	13	22	29		2.8
	2010	3	17	61	89	78	53	57	0	1	15	15	14	16	17	26	0	3.4
	2011	2	14	51	83	86	50	48	0	1	6	18	18	17	17	26	0	3.2
	2012	1	15	45	83	70	45	36	0	0	13	12	16	12	13	13	0	3.7
Curaçao	2010	0	0	0	2	1	0	0	0	0	1	1	0	0	0	0	0	1.5
	2011	0	0	0	0	0	0	0		0	0	0	0	0	0	0		–
	2012	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	–
Dominica	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	0	0	3	1	0	0	0	0	1	2	1	0	0	1.0
	2011	0	0		2	0	0	0	0	0	0	0	0	0	0	0	0	–
	2012	0	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	–

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Dominican Republic	1995																	–
	2000	73	410	481	344	173	125	113		65	317	325	212	115	79	75		1.4
	2005	43	399	483	386	228	123	105		57	339	332	209	119	72	54		1.5
	2010	29	276	346	292	170	112	85	0	43	239	207	142	102	54	62	0	1.5
	2011	20	333	406	318	200	133	112	0	30	242	274	159	103	66	58	0	1.6
	2012	15	317	489	315	197	126	111	0	26	230	260	148	119	62	68	0	1.7
Ecuador	1995																	–
	2000																	–
	2005	48	446	468	308	237	150	159		48	329	305	199	139	85	127		1.5
	2010	32	499	529	314	309	227	246		52	298	308	178	158	113	110		1.8
	2011	45	481	547	364	323	272	232		49	340	311	177	141	118	121		1.8
	2012	37	506	567	387	359	291	333		59	333	337	184	164	146	153		1.8
El Salvador	1995																	–
	2000	13	99	124	114	92	62	107		28	81	76	63	63	39	47		1.5
	2005	5	97	140	128	104	74	117		6	85	82	59	50	42	70		1.7
	2010	5	101	170	96	77	62	101	0	6	63	65	49	58	51	68	0	1.7
	2011	3	114	183	106	96	77	115	0	6	61	61	44	52	69	92	0	1.8
	2012	5	131	194	122	100	87	115	0	5	81	73	80	90	64	90	0	1.6
Grenada	1995																	–
	2000																	–
	2005																	–
	2010				1	1	1					1						3.0
	2011	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	–
	2012							1										–
Guatemala	1995	51	235	280	236	165	142	139		51	224	255	221	146	129	94		1.1
	2000	36	220	236	216	177	112	140		41	199	167	175	135	87	111		1.2
	2005	39	251	258	185	187	127	115		38	339	245	277	176	88	95		0.92
	2010	60	187	245	207	172	143	165		29	194	190	179	139	108	103		1.3
	2011	18	197	205	172	162	136	152		25	186	192	154	154	102	106		1.1
	2012																	–
Guyana	1995	7	8	5	6	9	6	7		3	5	7	6	5	2	4		1.5
	2000	4	20	19	14	7	6	9		1	11	8	7	5	5	3		2.0
	2005	12	48	130	116	81	41	20		14	41	62	41	30	11	9		2.2
	2010	2	32	38	65	49	22	13	0	2	22	25	19	20	10	6	0	2.1
	2011	8	26	54	61	54	19	13	0	2	17	19	17	17	7	9	0	2.7
	2012	5	30	39	68	64	23	8	0	4	17	10	17	12	7	5	0	3.3
Haiti	1995																	–
	2000	67	836	898	613	350	147	118		96	914	857	513	275	132	71		1.1
	2005	69	1 045	1 035	701	451	222	156		116	1 097	1 099	633	414	170	132		1.0
	2010	98	1 225	1 357	718	469	259	160	0	158	1 268	1 223	608	358	207	134	0	1.1
	2011	102	1 155	1 342	670	442	206	132	0	148	1 282	1 250	595	363	196	128	0	1.0
	2012	126	1 359	1 563	758	473	271	164		160	1 476	1 415	698	416	219	156		1.0
Honduras	1995	42	280	540	204	130	236	58		54	208	292	134	76	136	48		1.6
	2000	30	123	371	246	277	214	43		25	21	269	258	270	160	38		1.3
	2005	13	238	280	215	152	134	152		27	219	222	125	107	81	104		1.3
	2010	15	177	246	207	165	113	157	0	28	186	163	106	103	69	107	0	1.4
	2011	17	194	291	227	184	120	184	0	19	181	194	138	99	98	126	0	1.4
	2012	18	247	285	192	184	129	146	0	15	180	157	115	88	75	114	0	1.6
Jamaica	1995	2	9	14	9	11	8	9		2	7	6	5	5	2	2		2.1
	2000	0	6	13	13	15	6	5		1	8	8	7	2	5	1		1.8
	2005	0	4	6	6	10	6	7		0	1	5	4	0	1	3		2.8
	2010	1	7	15	15	8	6	7	0	0	5	4	5	1	0	2	0	3.5
	2011	0	2	6	3	4	4	3	0	1	3	4	0	3	1	1	0	1.7
	2012	1	10	8	3	5	5	1	0	1	1	5	4	2	0	0	0	2.5
Mexico	1995																	–
	2000	214	1 079	1 387	1 162	1 235	972	1 126		176	663	828	698	832	595	709		1.6
	2005	100	1 095	1 376	1 314	1 238	1 042	1 288		125	771	733	710	784	637	784		1.6
	2010	125	1 081	1 375	1 380	1 392	1 119	1 303	0	112	791	763	730	852	713	836	0	1.6
	2011	128	1 124	1 440	1 503	1 532	1 112	1 299	0	136	776	765	698	889	734	824	0	1.7
	2012	133	1 153	1 480	1 522	1 484	1 153	1 284	0	134	778	743	686	840	824	824	0	1.7
Montserrat	1995																	–
	2000																	–
	2005					1												–
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Netherlands Antilles	1995																	–
	2000	0	0	1	2	0	0	0		0	0	1	0	0	1	0		1.5
	2005																	–
Nicaragua	1995	23	178	172	175	126	96	92		24	176	215	98	83	64	46		1.2
	2000	18	194	174	147	108	64	90		34	188	173	98	76	46	61		1.2
	2005	17	163	159	116	106	61	79		23	135	122	103	61	54	47		1.3
	2010	22	157	189	141	115	82	108	0	27	154	149	92	75	50	79	0	1.3
	2011	10	273	235	156	108	61	94	0	4	61	145	161	108	64	72	0	1.5
	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Panama	1995	86	155	193	112	126	42	83		72	120	111	75	57	16	40		1.6
	2000	3	44	78	61	37	27	26		6	43	34	35	19	12	16		1.7
	2005	5	76	129	129	84	57	49		11	73	81	62	33	30	41		1.6
	2010	6	69	127	80	62	61	49	0	7	51	52	46	45	23	29	0	1.8
	2011	10	96	104	91	99	63	47	0	11	55	64	58	44	40	48	0	1.6
	2012	19	88	103	104	67	51	61	0	9	62	57	45	46	22	44	0	1.7
Paraguay	1995	18	64	71	96	74	57	61		13	65	49	46	35	34	53		1.5
	2000	16	112	103	105	86	80	71		12	69	86	41	41	30	46		1.8
	2005	23	168	185	136	117	87	99		31	89	98	69	52	29	71		1.9
	2010	18	163	244	129	143	103	99	11	18	106	99	39	50	46	45	5	2.2
	2011	9	182	238	135	151	124	103	6	14	110	103	55	39	36	62	4	2.2
	2012	4	180	230	158	143	116	129	7	16	95	98	60	55	38	60	2	2.3
Peru	1995	147	1 311	849	454	322	200	216		149	1 005	660	373	259	162	152		1.3
	2000	552	5 290	2 875	1 546	1 041	801	796		633	3 686	2 472	1 156	609	499	624		1.3
	2005	371	3 802	2 670	1 513	1 075	641	708		375	2 674	2 111	1 046	699	333	472		1.4
	2010																	–
	2011																	–
	2012																	–
Puerto Rico	1995	4	3	12	20	15	9	19		1	2	6	5	7	4	9		2.4
	2000	0	1	4	19	9	10	14		1	4	5	3	7	1	3		2.4
	2005	0	4	4	7	9	7	7		0	3	2	5	4	1	7		1.7
	2010	0	0	3	2	4	5	8	0	0	1	0	2	6	2	4	0	1.5
	2011	0	1	4	3	6	6	2	0	0	1	1	1	0	3	1	0	3.1
	2012	0	1	5	1	6	8	10	0	0	0	3	1	2	3	1	0	3.1
Saint Kitts and Nevis	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1.0
	2011	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1.0
Saint Lucia	1995																	–
	2000	0	0	0	1	0	1	2		0	1	0	1	0	1	0		1.3
	2005	0	0	0	0	2	1	2		1	1	0	1	1	0	2		0.83
	2010	0	0	1	2	0	1	2	0	0	0	0	1	0	1	1	0	2.0
	2011	0	0	1	1	0	3	2	0	0	0	0	0	0	0	0	0	–
	2012	0	2	0	1	4	0	2	0	0	1	0	0	0	1	0	0	4.5

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

	YEAR	MALE 0–14	MALE 15–24	MALE 25–34	MALE 35–44	MALE 45–54	MALE 55–64	MALE 65+	MALE UNKNOWN	FEMALE 0–14	FEMALE 15–24	FEMALE 25–34	FEMALE 35–44	FEMALE 45–54	FEMALE 55–64	FEMALE 65+	FEMALE UNKNOWN	MALE:FEMALE RATIO
Saint Vincent and the Grenadines	1995																	–
	2000	0	1	0	4	2	0	1		1	0	0	0	0	0	0		8.0
	2005	0	0	0	2	1	0	2		0	0	1	0	1	0	0		2.5
	2010	0	0	1	0	3	0	2	0	0	0	1	0	0	1	0	0	3.0
	2011	0	0	2	2	2	0	0	0	0	0	1	0	1	0	0	0	3.0
	2012	0	1	5	1	3	5	4	0	0	1	3	1	3	0	0	0	2.4
Sint Maarten (Dutch part)	2010			1										2				0.50
	2011		1									1						1.0
	2012	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	–
Suriname	1995																	–
	2000	1	6	6	3	2	0	4		2	3	6	3	0	1	1		1.4
	2005	0	7	8	12	6	3	4		0	3	2	1	2	1	2		3.6
	2010	0	5	21	35	19	5	10	0	1	4	6	10	6	2	8	0	2.6
	2011	0	4	7	15	18	3	5	0	0	1	1	5	2	2	1	0	4.3
	2012	0	6	7	15	14	9	7	0	2	1	7	5	7	1	0	2	2.3
Trinidad and Tobago	1995	2	6	15	10	12	7	4		0	6	4	2	5	3	0		2.8
	2000	0	7	18	27	17	7	7		0	5	7	9	5	2	4		2.6
	2005	0	10	11	13	21	10	3		0	4	9	3	5	4	3		2.4
	2010	0	11	21	17	32	20	8	0	0	4	7	7	5	2	2	0	4.0
	2011	1	14	27	13	15	16	7	0	1	6	7	3	4	2	5	0	3.3
	2012	0	7	31	22	28	12	11	0	2	9	11	10	8	4	12	0	2.0
Turks and Caicos Islands	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0.50
	2011	0	2	3	2	0	1	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0		2	0	0	0	0	0	0	2	0	1	0	0	0	0.67
United States of America	1995	19	355	876	1 417	1 121	742	1 099		26	280	579	499	285	202	591		2.3
	2000	6	365	602	906	904	577	738		14	246	376	349	253	152	396		2.3
	2005	14	383	535	666	767	499	624		11	241	348	276	242	161	322		2.2
	2010	5	246	360	371	505	403	466	2	9	195	265	183	165	130	223	0	2.0
	2011	12	235	403	374	557	434	486	0	15	160	254	199	150	138	269	1	2.1
	2012	10	239	322	333	502	455	529	0	14	161	262	169	175	148	243	1	2.0
Uruguay	1995	4	28	40	35	49	38	50		2	21	26	18	12	9	17		2.3
	2000	0	36	48	45	41	30	34		2	28	22	21	13	12	16		2.1
	2005	1	42	48	39	45	34	36		1	33	30	17	9	8	12		2.2
	2010	1	46	70	35	46	33	31	0	3	24	36	12	10	5	16	0	2.5
	2011	0	58	93	55	45	36	37	0	1	29	55	19	12	11	16	0	2.3
	2012	3	38	98	56	52	39	29	0	2	25	26	21	15	13	15	0	2.7
US Virgin Islands	1995	0	0	0	1	1	0	0										–
	2000																	–
	2005																	–
	2010																	–
	2011																	–
	2012																	–
Venezuela (Bolivarian Republic of)	1995																	–
	2000																	–
	2005	35	312	395	413	402	265	332		37	351	299	267	183	146	216		1.4
	2010	22	320	376	333	391	253	288		26	269	306	188	145	147	188		1.6
	2011	28	340	353	303	363	307	241	0	25	252	316	178	178	150	190	0	1.5
	2012	23	379	405	353	375	319	273	0	32	276	281	203	167	161	199	0	1.6

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2012**

	LABORATORIES								FREE THROUGH NTP		RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS		
Anguilla		–					No	No	No	No	No	
Antigua and Barbuda		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Argentina	1.7	0	12.5	1.9	0	0	In country	Yes	Yes (all suspects)	Yes	Yes	
Aruba		–					Out of country	Yes	No	No	Yes	
Bahamas		–					Out of country	Yes	Yes (other criteria)	Yes	Yes	
Barbados		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Belize	0.9	0	0	0	0	0	Out of country	No	Yes (all suspects)	Yes	Yes	
Bermuda		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Bolivia (Plurinational State of)	5.1	0	24.8	0.5	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Bonaire, Saint Eustatius and Saba		–					Out of country	Yes	Yes (all suspects)	Don't know	Yes	
Brazil	2.0	–	5.5	0.9	0.2	13	In country	Yes	Yes (all suspects)	Yes	Yes	
British Virgin Islands		–					Out of country	Yes	Yes (all suspects)	No	Yes	
Canada		–					In country	Yes	Yes (all suspects)	Yes	Yes	
Cayman Islands		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Chile	1.0	0	11.2	0.3	0.3	1	In country	Yes	Yes (all suspects)	Yes	Yes	
Colombia	5.6	0	124.6	0.4	0.5	4	In country	Yes	Yes (all suspects)	Yes	Yes	
Costa Rica	2.2	0	14.6	1	0	4	No	Yes	Yes (all suspects)	Yes	Yes	
Cuba		–					No	Yes	Yes (all suspects)	Yes	Yes	
Curaçao		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Dominica		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Dominican Republic	2.0	2	5.8	1	0	0	In country	Yes	Yes (all suspects)	Yes	Yes	
Ecuador	2.3	0	5.8	0.3		5	In country	Yes	Yes (all suspects)	Yes	Yes	
El Salvador	3.3	0	8.7	0.8	0	1	Out of country	Yes	Yes (all suspects)	Yes	Yes	83
Grenada		–							Yes (all suspects)	Yes	Yes	
Guatemala	1.9	18	3.3	1	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	14
Guyana	2.5	100	6.3	6.3	6.3	0	In and out of country	Yes	Yes (all suspects)	Yes	Yes	
Haiti	2.5	6	1.0	1	1	7		Yes	Yes (all suspects)	Yes	Yes	
Honduras	2.1	0	3.2	0.6	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	109
Jamaica	0.1	100	0	0	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	21
Mexico	1.0	0	2.7	0.6	<0.1	6	In and out of country	Yes	Yes (all suspects)	Yes	Yes	33
Montserrat		–					Out of country	No	Yes (all suspects)	No	Yes	
Nicaragua	3.2	100	1.7	0.8		0	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Panama	1.4	0	14.5	1.3	1.3	3	No	Yes	Yes (if TB is confirmed)	Yes	Yes	
Paraguay	1.8	23	8.2	0.7	0	0	In country	Yes	Yes (all suspects)	Yes	Yes	7
Peru	4.8	0	11.0	1.8	0.2	0	In country	Yes	Yes (all suspects)	Yes	Yes	
Puerto Rico		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Saint Kitts and Nevis		–					No	No	Yes (all suspects)	Yes	Yes	
Saint Lucia		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Saint Vincent and the Grenadines		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Sint Maarten (Dutch part)		–					Out of country	No	Yes (other criteria)	Yes	Yes	
Suriname	0.6	0	9.4	0	0	2	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Trinidad and Tobago		–					In and out of country	Yes	Yes (all suspects)	Yes	Yes	
Turks and Caicos Islands		–										
United States of America		–					In country	Yes	Yes (all suspects)	Yes	Yes	
Uruguay	<0.1	100	1.5	1.5	1.5	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	31
US Virgin Islands		–										
Venezuela (Bolivarian Republic of)	0.8	0	3.5	0.2	0.2	0	In country	Yes	Yes (all suspects)	Yes	Yes	2 242

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

TABLE A4.10 **Measured percentage of TB cases with MDR-TB[a], most recent year available**

	New TB cases				Previously treated TB cases			
	Year	Source	Coverage	Percentage	Year	Source	Coverage	Percentage
Anguilla								
Antigua and Barbuda								
Argentina	2005	Survey	National	2.2 (1.2–3.6)	2005	Survey	National	15 (9.8–23)
Aruba								
Bahamas	2012	Surveillance	National	3.7 (<0.1–19)	2012	Surveillance	National	0 (0–98)
Barbados								
Belize								
Bermuda	2012	Surveillance	National	0 (0–84)	2012	Surveillance	National	0 (0–98)
Bolivia (Plurinational State of)	1996	Survey	National	1.2 (0.44–2.6)	2012	Surveillance	National	11 (8.9–14)
Bonaire, Saint Eustatius and Saba	2011	Surveillance	National	50 (1.3–99)	2011	Surveillance	National	100 (2.5–100)
Brazil	2008	Survey	Sub-national	1.4 (1.0–1.8)	2008	Survey	Sub-national	7.5 (5.7–9.9)
British Virgin Islands								
Canada	2012	Surveillance	National	0.57 (0.23–1.2)	2012	Surveillance	National	1.6 (<0.1–8.5)
Cayman Islands	2012	Surveillance	National	0 (0–52)	2012	Surveillance	National	0 (0–98)
Chile	2001	Survey	National	0.69 (0.25–1.5)	2012	Surveillance	National	2.9 (0.95–6.7)
Colombia	2005	Survey	National	2.4 (1.6–3.6)	2012	Surveillance	National	13 (9.6–17)
Costa Rica	2006	Survey	National	1.5 (0.42–3.9)	2012	Surveillance	National	4.5 (0.12–23)
Cuba	2012	Surveillance	National	0.74 (<0.1–2.7)	2012	Surveillance	National	12 (4.4–24)
Curaçao	2012	Surveillance	National	0 (0–98)	2012	Surveillance	National	0 (0–98)
Dominica	2011	Surveillance	National	0 (0–98)	2012	Surveillance	National	0 (0–98)
Dominican Republic	1995	Survey	National	6.6 (4.1–10)	1995	Survey	National	20 (13–28)
Ecuador	2002	Survey	National	4.9 (3.5–6.7)	2012	Surveillance	National	26 (23–29)
El Salvador	2001	Survey	National	0.33 (<0.1–1.2)	2012	Surveillance	National	11 (4.9–20)
Grenada								
Guatemala	2002	Survey	National	3 (1.8–4.6)	2002	Survey	National	26 (20–34)
Guyana								
Haiti								
Honduras	2004	Survey	National	1.8 (0.76–3.4)	2004	Survey	National	12 (5.8–22)
Jamaica								
Mexico	2009	Survey	National	2.4 (2.1–2.8)	2009	Survey	National	6.3 (5.1–7.8)
Montserrat								
Nicaragua	2006	Survey	National	0.63 (<0.1–2.2)	2010	Surveillance	National	11 (6.2–17)
Panama								
Paraguay	2008	Survey	National	0.31 (<0.1–1.7)	2008	Survey	National	15 (6.1–28)
Peru	2012	Surveillance	National	3.9 (3.6–4.2)	2012	Surveillance	National	35 (33–37)
Puerto Rico	2012	Surveillance	National	0 (0–6.5)	2012	Surveillance	National	33 (0.84–91)
Saint Kitts and Nevis								
Saint Lucia								
Saint Vincent and the Grenadines								
Sint Maarten (Dutch part)								
Suriname								
Trinidad and Tobago								
Turks and Caicos Islands								
United States of America	2012	Surveillance	National	1 (0.80–1.3)	2012	Surveillance	National	2.9 (1.4–5.4)
Uruguay	2012	Surveillance	National	0 (0–0.79)	2012	Surveillance	National	2.4 (<0.1–13)
Venezuela (Bolivarian Republic of)	1999	Survey	National	0.52 (0.14–1.3)	1999	Survey	National	13 (7.6–22)

[a] Empty rows indicate an absence of high-quality survey or surveillance data. In the absence of high-quality national data, high-quality sub-national data are used.

EASTERN MEDITERRANEAN REGION

Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See **ANNEX 1** for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. The main updates implemented in this report are explained in Box 2.1 of Chapter 2. *Estimates published in previous global TB control reports should no longer be used*.

Data source

Data shown in this annex are taken from the WHO global TB database on 1 October 2013. Data shown in the main part of the report were taken from the database in July 2013. As a result, data in this annex may differ slightly from those in the main part of the report.

Data for all years can be downloaded from www.who.int/tb/data.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Afghanistan	1990	12	3.7 (0.860–8.5)	31 (7.3–72)	38 (13–77)	327 (112–655)	22 (14–33)	189 (117–279)
	1995	18	8.7 (2.9–18)	49 (17–100)	79 (37–140)	447 (208–775)	33 (27–40)	189 (155–227)
	2000	21	11 (4.0–21)	53 (19–102)	92 (43–160)	449 (210–775)	39 (32–47)	189 (155–227)
	2005	25	9.7 (3.9–18)	39 (16–73)	92 (46–150)	369 (185–617)	47 (38–56)	189 (155–227)
	2010	28	10 (4.2–18)	35 (15–65)	99 (50–160)	350 (177–580)	54 (44–64)	189 (156–225)
	2011	29	10 (4.4–19)	36 (15–66)	100 (52–170)	352 (177–585)	55 (45–66)	189 (156–225)
	2012	30	11 (4.6–20)	37 (15–68)	110 (54–180)	358 (181–595)	56 (47–67)	189 (156–226)
Bahrain	1990	< 1	0.034 (0.032–0.037)	7 (6.5–7.4)	0.16 (0.049–0.350)	33 (9.9–70)	0.13 (0.120–0.150)	27 (24–31)
	1995	< 1	0.02 (0.018–0.022)	3.5 (3.2–3.8)	0.081 (0.024–0.170)	14 (4.3–30)	0.049 (0.043–0.056)	8.8 (7.7–9.9)
	2000	< 1	0.017 (0.015–0.020)	2.5 (2.2–3.0)	0.37 (0.180–0.630)	56 (27–94)	0.24 (0.210–0.270)	36 (31–40)
	2005	< 1	<0.01 (<0.01–<0.01)	0.85 (0.78–0.93)	0.42 (0.170–0.790)	48 (19–89)	0.32 (0.280–0.360)	37 (32–41)
	2010	1	<0.01 (<0.01–<0.01)	0.44 (0.38–0.51)	0.34 (0.110–0.690)	27 (9.0–55)	0.28 (0.250–0.320)	23 (20–26)
	2011	1	<0.01 (<0.01–<0.01)	0.39 (0.32–0.46)	0.32 (0.120–0.630)	25 (9.0–49)	0.26 (0.230–0.290)	20 (18–23)
	2012	1	<0.01 (<0.01–<0.01)	0.34 (0.28–0.41)	0.38 (0.180–0.650)	29 (14–49)	0.26 (0.230–0.290)	20 (17–22)
Djibouti	1990	< 1	0.59 (0.140–1.3)	99 (24–226)	6.2 (2.2–12)	1 050 (368–2 070)	3.7 (2.3–5.3)	619 (395–893)
	1995	< 1	0.4 (0.160–0.750)	60 (23–114)	5.4 (2.2–10)	809 (326–1 510)	4.1 (3.4–4.9)	619 (506–744)
	2000	< 1	0.41 (0.180–0.740)	57 (25–102)	5.6 (2.4–10)	775 (333–1 400)	4.5 (3.8–5.2)	619 (528–718)
	2005	< 1	0.65 (0.260–1.2)	83 (33–156)	7.1 (3.4–12)	920 (444–1 570)	4.8 (3.9–5.8)	619 (506–744)
	2010	< 1	0.68 (0.290–1.2)	82 (34–149)	7.7 (3.7–13)	922 (440–1 580)	5.2 (4.3–6.2)	620 (512–738)
	2011	< 1	0.67 (0.280–1.2)	79 (34–144)	7.7 (3.6–13)	911 (430–1 570)	5.2 (4.3–6.2)	620 (512–738)
	2012	< 1	0.66 (0.280–1.2)	76 (33–139)	7.7 (3.6–13)	897 (418–1 560)	5.3 (4.4–6.3)	620 (512–738)
Egypt	1990	56	1.8 (1.4–2.2)	3.2 (2.5–3.9)	48 (22–84)	85 (39–149)	19 (16–23)	34 (29–40)
	1995	61	1.5 (1.2–1.9)	2.5 (1.9–3.2)	37 (19–61)	60 (31–99)	19 (16–23)	32 (27–37)
	2000	66	1.1 (0.840–1.4)	1.7 (1.3–2.2)	28 (14–46)	42 (20–70)	17 (14–20)	26 (22–30)
	2005	72	0.76 (0.700–0.830)	1.1 (0.97–1.2)	24 (12–41)	34 (17–57)	15 (13–18)	21 (18–25)
	2010	78	0.45 (0.420–0.490)	0.58 (0.54–0.62)	23 (12–39)	30 (15–50)	14 (12–16)	18 (15–21)
	2011	79	0.56 (0.530–0.600)	0.71 (0.66–0.76)	23 (12–39)	29 (15–49)	14 (12–16)	17 (15–20)
	2012	81	0.38 (0.350–0.400)	0.46 (0.43–0.50)	23 (12–39)	29 (15–48)	14 (12–16)	17 (14–19)
Iran (Islamic Republic of)	1990	56	2.6 (0.870–5.3)	4.6 (1.5–9.4)	29 (12–53)	51 (21–93)	18 (13–23)	31 (23–41)
	1995	60	3.2 (1.1–6.5)	5.4 (1.8–11)	35 (15–64)	58 (24–106)	21 (16–28)	35 (26–46)
	2000	66	2.5 (0.830–5.1)	3.8 (1.3–7.7)	27 (11–51)	41 (17–77)	17 (12–22)	26 (19–34)
	2005	70	2.1 (0.680–4.2)	3 (0.97–6.0)	23 (9.4–42)	32 (13–60)	14 (10–19)	20 (15–27)
	2010	74	2.2 (0.730–4.5)	3 (0.98–6.0)	24 (9.9–44)	32 (13–59)	15 (11–19)	20 (14–26)
	2011	75	2.3 (0.780–4.7)	3.1 (1.0–6.3)	25 (11–47)	34 (14–62)	16 (11–21)	21 (15–27)
	2012	76	2.2 (0.700–4.7)	2.9 (0.92–6.1)	25 (10–47)	33 (13–61)	16 (11–21)	21 (15–28)
Iraq	1990	18	1.2 (0.410–2.4)	6.9 (2.3–14)	17 (4.9–35)	94 (28–200)	9.5 (8.3–11)	54 (47–62)
	1995	20	1.2 (0.310–2.6)	5.7 (1.5–13)	16 (4.9–34)	79 (24–167)	11 (9.4–12)	53 (46–60)
	2000	24	1.1 (0.180–2.9)	4.7 (0.77–12)	14 (5.0–29)	61 (21–121)	12 (10–14)	50 (44–57)
	2005	27	1.1 (0.100–3.1)	3.9 (0.38–11)	19 (8.8–33)	70 (32–122)	13 (11–15)	48 (42–54)
	2010	31	0.98 (0.039–3.4)	3.2 (0.13–11)	24 (13–40)	78 (41–128)	14 (12–16)	45 (40–52)
	2011	32	0.97 (0.030–3.5)	3 (0.10–11)	23 (12–39)	73 (37–123)	14 (13–16)	45 (39–51)
	2012	33	0.96 (0.025–3.5)	2.9 (<0.1–11)	24 (12–40)	73 (36–122)	15 (13–17)	45 (39–51)
Jordan	1990	3	0.041 (0–0.330)	1.2 (0–9.9)	0.61 (0.230–1.2)	18 (6.8–35)	0.48 (0.420–0.550)	14 (13–16)
	1995	4	0.04 (0–0.390)	0.93 (0–9.0)	0.65 (0.250–1.2)	15 (5.8–29)	0.51 (0.450–0.580)	12 (10–13)
	2000	5	0.039 (0–0.410)	0.81 (0–8.6)	0.48 (0.180–0.930)	10 (3.8–20)	0.38 (0.340–0.440)	8.1 (7.1–9.1)
	2005	5	0.036 (0–0.410)	0.7 (0–7.8)	0.47 (0.170–0.910)	9 (3.3–17)	0.38 (0.330–0.430)	7.2 (6.3–8.1)
	2010	6	0.037 (0–0.420)	0.57 (0–6.5)	0.57 (0.240–1.0)	8.8 (3.8–16)	0.41 (0.360–0.460)	6.3 (5.5–7.1)
	2011	7	0.037 (0–0.420)	0.55 (0–6.3)	0.57 (0.250–1.0)	8.5 (3.7–15)	0.4 (0.350–0.460)	6 (5.2–6.8)
	2012	7	0.037 (0–0.420)	0.53 (0–6.0)	0.6 (0.280–1.0)	8.5 (3.9–15)	0.4 (0.360–0.460)	5.8 (5.1–6.5)
Kuwait	1990	2	0.019 (0.017–0.022)	0.94 (0.81–1.1)	0.48 (0.230–0.830)	23 (11–40)	0.32 (0.280–0.360)	15 (14–18)
	1995	2	0.023 (0.021–0.024)	1.4 (1.3–1.5)	0.46 (0.160–0.930)	29 (9.9–59)	0.39 (0.340–0.440)	24 (21–28)
	2000	2	0.015 (0.014–0.015)	0.76 (0.75–0.78)	0.77 (0.300–1.5)	41 (16–77)	0.59 (0.520–0.670)	31 (27–35)
	2005	2	0.023 (0.022–0.023)	0.99 (0.97–1.0)	0.71 (0.240–1.4)	31 (11–62)	0.59 (0.520–0.670)	26 (23–29)
	2010	3	0.033 (0.033–0.033)	1.1 (1.1–1.1)	1.7 (0.860–2.9)	58 (29–98)	1.1 (0.960–1.2)	37 (32–42)
	2011	3	0.018 (0.018–0.018)	0.58 (0.57–0.58)	0.98 (0.330–2.0)	31 (11–63)	0.77 (0.680–0.870)	25 (22–28)
	2012	3	0.031 (0.030–0.031)	0.94 (0.93–0.95)	1.1 (0.360–2.1)	33 (11–65)	0.85 (0.740–0.960)	26 (23–30)
Lebanon	1990	3	0.085 (0.046–0.130)	3.1 (1.7–5.0)	1.2 (0.460–2.3)	45 (17–87)	0.94 (0.820–1.1)	35 (31–39)
	1995	3	0.067 (0.034–0.110)	2.2 (1.1–3.7)	1.1 (0.340–2.2)	35 (11–72)	0.88 (0.770–1.0)	29 (26–33)
	2000	3	0.04 (0.020–0.069)	1.2 (0.61–2.1)	0.66 (0.220–1.3)	20 (6.9–41)	0.56 (0.490–0.630)	17 (15–20)
	2005	4	0.046 (0.025–0.074)	1.2 (0.62–1.8)	0.61 (0.260–1.1)	15 (6.5–28)	0.45 (0.400–0.510)	11 (10–13)
	2010	4	0.065 (0.035–0.110)	1.5 (0.80–2.4)	0.83 (0.370–1.5)	19 (8.6–34)	0.6 (0.530–0.680)	14 (12–16)
	2011	4	0.073 (0.039–0.120)	1.6 (0.86–2.6)	0.91 (0.410–1.6)	20 (9.1–36)	0.67 (0.590–0.760)	15 (13–17)
	2012	5	0.072 (0.038–0.120)	1.5 (0.81–2.5)	0.95 (0.390–1.7)	20 (8.5–37)	0.73 (0.640–0.830)	16 (14–18)
Libyan Arab Jamahiriya	1990	4	0.44 (0.170–0.840)	10 (3.9–20)	3.6 (1.7–6.4)	86 (39–150)	1.7 (1.4–2.0)	40 (33–48)
	1995	5	0.28 (0.120–0.500)	5.9 (2.6–11)	2.9 (1.3–5.1)	61 (27–108)	1.9 (1.5–2.3)	40 (33–48)
	2000	5	0.27 (0.120–0.490)	5.3 (2.3–9.4)	3 (1.3–5.4)	57 (24–104)	2.1 (1.7–2.5)	40 (33–48)
	2005	6	0.23 (0.120–0.390)	4.2 (2.1–6.9)	2.8 (1.1–5.5)	51 (19–98)	2.2 (1.9–2.6)	40 (34–46)
	2010	6	0.32 (0.140–0.570)	5.4 (2.4–9.5)	3.5 (1.5–6.3)	58 (25–104)	2.4 (2.0–2.9)	40 (33–48)
	2011	6	0.34 (0.140–0.610)	5.5 (2.3–10)	3.7 (1.8–6.4)	61 (29–105)	2.4 (2.0–2.9)	40 (33–48)
	2012	6	0.42 (0.180–0.760)	6.8 (2.9–12)	4.1 (1.9–7.0)	66 (31–113)	2.5 (2.0–2.9)	40 (33–48)
Morocco	1990	25	6.2 (4.8–7.7)	25 (19–31)	57 (24–110)	232 (97–426)	36 (27–47)	147 (110–189)
	1995	27	5.2 (3.7–6.8)	19 (14–25)	64 (30–110)	240 (112–415)	41 (33–49)	152 (124–182)
	2000	29	4.3 (2.8–6.1)	15 (9.7–21)	46 (20–84)	161 (68–292)	33 (29–38)	117 (102–132)
	2005	30	3.5 (2.0–5.5)	12 (6.8–18)	41 (17–75)	137 (57–251)	30 (26–34)	100 (88–113)
	2010	32	3.1 (1.5–5.2)	9.8 (4.9–16)	44 (19–79)	138 (59–251)	32 (28–36)	100 (88–114)
	2011	32	3 (1.5–5.2)	9.5 (4.6–16)	46 (20–82)	143 (62–257)	33 (29–37)	103 (90–117)
	2012	33	3 (1.4–5.1)	9.2 (4.4–16)	46 (19–83)	140 (58–257)	33 (29–38)	103 (90–117)
Oman	1990	2	0.059 (<0.01–0.200)	3.2 (0.14–11)	0.8 (0.360–1.4)	44 (20–78)	0.55 (0.490–0.630)	31 (27–35)
	1995	2	0.05 (<0.01–0.230)	2.3 (<0.1–10)	0.4 (0.140–0.790)	18 (6.5–37)	0.32 (0.280–0.360)	15 (13–17)
	2000	2	0.041 (<0.01–0.230)	1.8 (0–10)	0.57 (0.280–0.960)	26 (13–44)	0.37 (0.320–0.420)	17 (15–19)
	2005	3	0.035 (0–0.250)	1.4 (0–10)	0.36 (0.120–0.730)	14 (4.9–29)	0.3 (0.260–0.340)	12 (10–13)
	2010	3	0.028 (0–0.260)	1 (0–9.4)	0.45 (0.170–0.870)	16 (6.1–31)	0.35 (0.310–0.400)	13 (11–14)
	2011	3	0.029 (0–0.280)	0.97 (0–9.2)	0.51 (0.200–0.950)	17 (6.7–31)	0.39 (0.340–0.440)	13 (11–15)
	2012	3	0.031 (0–0.300)	0.92 (0–9.0)	0.6 (0.260–1.1)	18 (7.8–33)	0.44 (0.380–0.500)	13 (12–15)
Pakistan	1990	111	80 (24–170)	72 (22–152)	650 (250–1 300)	589 (222–1 130)	260 (160–380)	231 (143–341)
	1995	127	90 (32–180)	71 (25–139)	740 (330–1 300)	584 (262–1 030)	290 (240–350)	231 (189–278)
	2000	144	99 (36–190)	69 (25–135)	820 (370–1 400)	573 (260–1 010)	330 (270–400)	231 (189–278)
	2005	158	84 (33–160)	53 (21–101)	760 (380–1 300)	483 (239–810)	370 (300–440)	231 (189–278)
	2010	173	64 (28–110)	37 (16–66)	670 (330–1 100)	389 (191–657)	400 (330–480)	231 (190–276)
	2011	176	62 (27–110)	35 (15–63)	670 (330–1 100)	381 (185–647)	410 (340–490)	231 (190–276)
	2012	179	62 (27–110)	34 (15–61)	670 (320–1 100)	376 (181–641)	410 (340–490)	231 (190–276)
Qatar	1990	< 1	0.031 (0.030–0.032)	6.5 (6.3–6.6)	0.28 (0.110–0.520)	59 (24–108)	0.21 (0.190–0.240)	44 (39–50)
	1995	< 1	0.016 (0.016–0.017)	3.3 (3.1–3.4)	0.54 (0.260–0.910)	107 (52–182)	0.35 (0.310–0.400)	70 (61–79)
	2000	< 1	<0.01 (<0.01–<0.01)	0.7 (0.62–0.78)	0.43 (0.180–0.780)	72 (30–132)	0.32 (0.280–0.360)	54 (47–61)
	2005	< 1	<0.01 (<0.01–<0.01)	0.15 (0.12–0.17)	0.53 (0.230–0.950)	64 (28–115)	0.37 (0.330–0.420)	46 (40–52)
	2010	2	<0.01 (<0.01–<0.01)	0.22 (0.15–0.30)	0.82 (0.290–1.6)	47 (17–92)	0.67 (0.580–0.750)	38 (33–43)
	2011	2	<0.01 (<0.01–<0.01)	0.19 (0.12–0.27)	0.78 (0.260–1.6)	41 (14–82)	0.64 (0.560–0.720)	33 (29–38)
	2012	2	<0.01 (<0.01–<0.01)	0.17 (0.10–0.25)	1.2 (0.560–2.1)	60 (27–105)	0.84 (0.730–0.950)	41 (36–46)
Saudi Arabia	1990	16	0.63 (0.061–1.9)	3.9 (0.37–11)	4 (1.8–7.0)	25 (11–43)	2.8 (2.4–3.1)	17 (15–19)
	1995	19	0.71 (0.068–2.1)	3.8 (0.37–11)	3.9 (1.4–7.6)	21 (7.7–41)	3.1 (2.7–3.5)	17 (15–19)
	2000	20	0.79 (0.075–2.3)	3.9 (0.37–11)	5.3 (2.2–9.7)	26 (11–48)	4 (3.5–4.5)	20 (17–22)
	2005	25	0.95 (0.091–2.8)	3.9 (0.37–11)	5.1 (1.9–9.8)	21 (7.8–40)	4.1 (3.6–4.6)	16 (14–19)
	2010	27	1.1 (0.100–3.1)	3.9 (0.37–11)	7.7 (3.7–13)	28 (13–48)	5.1 (4.5–5.8)	19 (17–21)
	2011	28	1.1 (0.100–3.2)	3.9 (0.37–11)	6.1 (2.5–11)	22 (9.1–40)	4.5 (4.0–5.1)	16 (14–18)
	2012	28	1.1 (0.110–3.2)	3.9 (0.39–11)	4.9 (1.6–10)	17 (5.5–36)	4.2 (3.7–4.8)	15 (13–17)
Somalia	1990	6	5.7 (1.7–12)	90 (27–190)	46 (17–89)	732 (272–1 410)	18 (11–27)	285 (176–421)
	1995	6	5 (1.8–9.7)	79 (29–153)	42 (19–73)	663 (305–1 160)	18 (15–22)	285 (233–343)
	2000	7	5 (1.9–9.7)	68 (26–131)	45 (21–76)	604 (291–1 030)	21 (17–25)	285 (233–343)
	2005	8	4.8 (1.9–8.9)	56 (23–105)	45 (23–76)	537 (267–900)	24 (20–29)	285 (233–343)
	2010	10	5.7 (2.3–11)	59 (24–111)	53 (27–89)	555 (279–925)	28 (23–33)	286 (236–340)
	2011	10	6.1 (2.4–11)	61 (24–115)	56 (28–94)	566 (283–947)	28 (23–34)	286 (236–340)
	2012	10	6.5 (2.5–12)	64 (25–120)	59 (29–99)	581 (287–975)	29 (24–35)	286 (236–340)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
			NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
South Sudan	2011	10	3.1 (1.3–5.6)	30 (13–54)	28 (13–47)	268 (129–456)	15 (13–18)	146 (121–174)
	2012	11	3.2 (1.4–5.8)	30 (13–54)	28 (13–47)	257 (124–437)	16 (13–19)	146 (121–174)
Sudan	1990	26	11 (4.4–22)	44 (17–84)	99 (48–170)	386 (185–659)	44 (36–52)	170 (140–203)
	1995	30	9 (3.8–16)	30 (13–55)	89 (45–150)	296 (149–491)	47 (39–56)	158 (130–188)
	2000	34	9.3 (4.0–17)	27 (12–49)	90 (45–150)	262 (132–436)	50 (41–59)	144 (119–172)
	2005	40	9.3 (4.0–17)	24 (10–42)	90 (45–150)	226 (113–378)	53 (43–63)	133 (110–158)
	2010	46	10 (4.3–18)	22 (9.4–40)	96 (48–160)	210 (105–350)	54 (45–65)	119 (98–142)
	2011	36	8 (3.4–15)	22 (9.3–40)	76 (38–130)	209 (105–347)	42 (35–51)	117 (96–139)
	2012	37	8 (3.3–15)	22 (9.0–40)	77 (39–130)	207 (104–345)	42 (35–51)	114 (94–136)
Syrian Arab Republic	1990	12	0.97 (0.270–2.1)	7.8 (2.2–17)	11 (3.6–22)	86 (29–174)	7.5 (5.3–10)	61 (43–82)
	1995	14	0.85 (0.370–1.5)	5.9 (2.6–11)	9.3 (3.9–17)	65 (27–119)	6.6 (5.4–7.9)	46 (38–55)
	2000	16	0.56 (0.280–0.930)	3.4 (1.7–5.7)	7 (2.5–14)	43 (15–85)	5.7 (4.9–6.6)	35 (30–40)
	2005	18	0.47 (0.220–0.810)	2.6 (1.2–4.4)	5.9 (2.1–12)	33 (11–65)	4.8 (4.0–5.6)	26 (22–31)
	2010	22	0.47 (0.210–0.830)	2.2 (0.99–3.9)	5.6 (2.1–11)	26 (9.8–50)	4.3 (3.5–5.1)	20 (16–24)
	2011	22	0.47 (0.210–0.830)	2.2 (0.98–3.8)	5.5 (2.1–10)	25 (9.8–47)	4.1 (3.4–4.9)	19 (16–22)
	2012	22	0.46 (0.210–0.820)	2.1 (0.96–3.7)	5.3 (2.1–9.9)	24 (9.7–45)	3.9 (3.2–4.6)	18 (15–21)
Tunisia	1990	8	0.24 (0.130–0.370)	2.9 (1.6–4.6)	3.2 (1.3–5.8)	39 (16–72)	2.3 (2.0–2.6)	29 (25–32)
	1995	9	0.3 (0.160–0.470)	3.3 (1.8–5.3)	3.9 (1.7–6.9)	43 (18–77)	2.7 (2.4–3.1)	31 (27–35)
	2000	10	0.26 (0.140–0.410)	2.7 (1.5–4.3)	3.3 (1.4–6.0)	35 (15–63)	2.4 (2.1–2.7)	25 (22–28)
	2005	10	0.25 (0.140–0.400)	2.5 (1.4–4.0)	3.3 (1.4–5.9)	33 (14–59)	2.4 (2.1–2.7)	23 (21–27)
	2010	11	0.31 (0.170–0.500)	2.9 (1.6–4.7)	4.1 (1.7–7.6)	39 (16–71)	3 (2.6–3.4)	28 (25–32)
	2011	11	0.33 (0.180–0.520)	3.1 (1.7–4.8)	4.4 (1.8–8.1)	41 (17–75)	3.2 (2.8–3.6)	30 (26–34)
	2012	11	0.32 (0.170–0.500)	2.9 (1.6–4.6)	4.5 (1.7–8.5)	41 (16–78)	3.4 (3.0–3.8)	31 (27–35)
United Arab Emirates	1990	2	0.017 (0–0.110)	0.95 (0–6.1)	0.39 (0.170–0.710)	22 (9.2–39)	0.22 (0.160–0.280)	12 (8.7–16)
	1995	2	0.022 (0–0.140)	0.95 (0–6.1)	0.51 (0.220–0.910)	22 (9.2–39)	0.28 (0.200–0.370)	12 (8.7–16)
	2000	3	0.029 (0–0.190)	0.95 (0–6.1)	0.65 (0.280–1.2)	22 (9.3–39)	0.36 (0.260–0.480)	12 (8.7–16)
	2005	4	0.02 (0–0.150)	0.49 (0–3.6)	0.44 (0.190–0.800)	11 (4.5–19)	0.21 (0.150–0.270)	5 (3.6–6.5)
	2010	8	0.022 (0–0.150)	0.26 (0–1.8)	0.52 (0.230–0.930)	6.2 (2.7–11)	0.26 (0.190–0.340)	3.1 (2.3–4.1)
	2011	9	0.015 (0–0.097)	0.17 (0–1.1)	0.37 (0.160–0.660)	4.2 (1.8–7.4)	0.21 (0.150–0.270)	2.3 (1.7–3.0)
	2012	9	<0.01 (<0.01–0.045)	0.1 (0–0.49)	0.22 (0.077–0.440)	2.4 (0.84–4.8)	0.16 (0.120–0.210)	1.7 (1.2–2.3)
West Bank and Gaza Strip	1990	2	<0.01 (<0.01–<0.01)	0.45 (0.43–0.46)	0.18 (0.091–0.320)	8.6 (4.4–15)	0.12 (0.110–0.140)	6 (5.2–6.8)
	1995	3	0.035 (0.034–0.036)	1.3 (1.3–1.4)	0.27 (0.230–0.800)	10 (8.7–31)	0.22 (0.200–0.250)	8.6 (7.5–9.7)
	2000	3	0.018 (0.018–0.019)	0.57 (0.56–0.58)	0.45 (0.340–1.3)	14 (11–41)	0.33 (0.290–0.370)	10 (9.0–12)
	2005	4	0.012 (0.012–0.012)	0.34 (0.33–0.35)	0.29 (0.240–0.910)	8.1 (6.8–26)	0.23 (0.200–0.260)	6.5 (5.7–7.3)
	2010	4	<0.01 (<0.01–<0.01)	0.23 (0.23–0.24)	0.25 (0.240–0.870)	6.1 (6.0–22)	0.21 (0.190–0.240)	5.3 (4.6–6.0)
	2011	4	<0.01 (<0.01–<0.01)	0.23 (0.22–0.23)	0.34 (0.290–1.1)	8.3 (7.1–26)	0.26 (0.230–0.290)	6.3 (5.5–7.1)
	2012	4	<0.01 (<0.01–<0.01)	0.23 (0.22–0.23)	0.47 (0.370–1.4)	11 (8.7–32)	0.32 (0.280–0.360)	7.6 (6.7–8.6)
Yemen	1990	12	3.8 (1.1–8.2)	32 (9.3–70)	35 (13–66)	293 (112–558)	16 (10–24)	137 (85–202)
	1995	15	3.5 (1.5–6.3)	23 (9.8–42)	36 (18–60)	239 (118–401)	21 (17–25)	137 (112–165)
	2000	18	3.3 (1.4–6.0)	19 (8.1–34)	35 (17–59)	198 (97–335)	20 (17–24)	116 (94–139)
	2005	20	2.8 (1.2–5.2)	14 (5.9–26)	29 (14–48)	142 (71–239)	16 (13–19)	81 (66–97)
	2010	23	1.4 (0.640–2.5)	6.2 (2.8–11)	17 (7.5–29)	73 (33–129)	11 (9.2–13)	49 (40–58)
	2011	23	1.4 (0.630–2.5)	6 (2.7–11)	17 (7.4–30)	72 (32–129)	11 (9.4–14)	49 (40–58)
	2012	24	1.3 (0.600–2.4)	5.6 (2.5–9.9)	17 (7.1–30)	70 (30–127)	12 (9.6–14)	49 (40–58)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Afghanistan	1990	12	22 (14–33)	189 (117–279)	0.041 (0.025–0.060)	0.4 (0.22–0.52)	4 332	37	20 (13–32)
	1995	18	33 (27–40)	189 (155–227)	0.072 (0.040–0.11)	0.4 (0.23–0.65)			
	2000	21	39 (32–47)	189 (155–227)	0.1 (0.058–0.16)	0.5 (0.28–0.77)	7 107	35	18 (15–22)
	2005	25	47 (38–56)	189 (155–227)	0.16 (0.090–0.24)	0.6 (0.36–0.96)	21 844	88	46 (39–57)
	2010	28	54 (44–64)	189 (156–225)	0.25 (0.15–0.38)	0.9 (0.54–1.3)	28 029	99	52 (44–63)
	2011	29	55 (45–66)	189 (156–225)	0.28 (0.17–0.41)	1 (0.58–1.4)	27 983	96	51 (43–62)
	2012	30	56 (47–67)	189 (156–226)	0.31 (0.19–0.46)	1 (0.63–1.5)	29 381	99	52 (44–63)
Bahrain	1990	< 1	0.13 (0.120–0.150)	27 (24–31)			117	24	87 (77–99)
	1995	< 1	0.049 (0.043–0.056)	8.8 (7.7–9.9)			43	7.6	87 (77–99)
	2000	< 1	0.24 (0.210–0.270)	36 (31–40)			207	31	87 (77–99)
	2005	< 1	0.32 (0.280–0.360)	37 (32–41)			280	32	87 (77–99)
	2010	1	0.28 (0.250–0.320)	23 (20–26)	0.011 (<0.01–0.022)	0.8 (0.28–1.7)	246	20	87 (77–99)
	2011	1	0.26 (0.230–0.290)	20 (18–23)	0.012 (<0.01–0.023)	0.9 (0.33–1.8)	225	17	87 (77–99)
	2012	1	0.26 (0.230–0.290)	20 (17–22)	0.012 (<0.01–0.025)	0.9 (0.25–1.9)	225	17	87 (77–99)
Djibouti	1990	< 1	3.7 (2.3–5.3)	619 (395–893)	0.082 (0.052–0.12)	14 (8.9–20)	2 100	356	57 (40–90)
	1995	< 1	4.1 (3.4–4.9)	619 (506–744)	0.43 (0.35–0.52)	65 (53–78)			
	2000	< 1	4.5 (3.8–5.2)	619 (528–718)	0.74 (0.63–0.86)	102 (87–118)	3 971	549	89 (76–100)
	2005	< 1	4.8 (3.9–5.8)	619 (506–744)	0.74 (0.61–0.89)	96 (78–115)	3 109	400	65 (54–79)
	2010	< 1	5.2 (4.3–6.2)	620 (512–738)	0.6 (0.49–0.71)	72 (59–85)	4 172	500	81 (68–98)
	2011	< 1	5.2 (4.3–6.2)	620 (512–738)	0.57 (0.47–0.68)	68 (56–80)	3 686	435	70 (59–85)
	2012	< 1	5.3 (4.4–6.3)	620 (512–738)	0.54 (0.45–0.64)	63 (52–75)	3 474	404	65 (55–79)
Egypt	1990	56	19 (16–23)	34 (29–40)	<0.01 (<0.01–0.012)	<0.1 (<0.1–<0.1)	2 142	3.8	11 (9.4–13)
	1995	61	19 (16–23)	32 (27–37)	0.029 (0.024–0.034)	<0.1 (<0.1–<0.1)	11 145	18	58 (49–68)
	2000	66	17 (14–20)	26 (22–30)	0.1 (0.085–0.12)	0.2 (0.13–0.18)	10 762	16	63 (54–75)
	2005	72	15 (13–18)	21 (18–25)	0.18 (0.15–0.21)	0.3 (0.21–0.29)	11 446	16	75 (64–89)
	2010	78	14 (12–16)	18 (15–21)	0.14 (0.12–0.17)	0.2 (0.16–0.21)	9 260	12	66 (57–78)
	2011	79	14 (12–16)	17 (15–20)	0.14 (0.12–0.16)	0.2 (0.15–0.20)	8 974	11	65 (56–76)
	2012	81	14 (12–16)	17 (14–19)	0.13 (0.11–0.16)	0.2 (0.14–0.19)	8 453	10	62 (54–73)
Iran (Islamic Republic of)	1990	56	18 (13–23)	31 (23–41)	0.011 (<0.01–0.014)	<0.1 (<0.1–<0.1)	9 255	16	53 (40–72)
	1995	60	21 (16–28)	35 (26–46)	0.051 (0.037–0.067)	<0.1 (<0.1–0.11)	15 936	26	75 (57–100)
	2000	66	17 (12–22)	26 (19–34)	0.15 (0.11–0.20)	0.2 (0.16–0.30)	11 850	18	70 (53–96)
	2005	70	14 (10–19)	20 (15–27)	0.21 (0.15–0.27)	0.3 (0.21–0.39)	9 212	13	65 (49–89)
	2010	74	15 (11–19)	20 (14–26)	0.26 (0.19–0.34)	0.4 (0.25–0.46)	10 362	14	70 (53–96)
	2011	75	16 (11–21)	21 (15–27)	0.28 (0.20–0.37)	0.4 (0.27–0.49)	10 980	15	70 (53–96)
	2012	76	16 (11–21)	21 (15–28)	0.29 (0.21–0.39)	0.4 (0.28–0.51)	11 042	14	70 (52–97)
Iraq	1990	18	9.5 (8.3–11)	54 (47–62)	0 (0–0)	0 (0–0)	14 735	84	160 (140–180)
	1995	20	11 (9.4–12)	53 (46–60)	0 (0–0)	0 (0–0)	9 697	48	90 (80–100)
	2000	24	12 (10–14)	50 (44–57)	0 (0–0)	0 (0–0)	9 697	41	81 (71–93)
	2005	27	13 (11–15)	48 (42–54)	0 (0–0)	0 (0–0)	9 454	35	72 (64–82)
	2010	31	14 (12–16)	45 (40–52)	<0.01 (0–0.010)	<0.1 (0–<0.1)	9 707	31	69 (61–79)
	2011	32	14 (13–16)	45 (39–51)	0 (0–0)	0 (0–0)	8 837	28	62 (54–71)
	2012	33	15 (13–17)	45 (39–51)	0 (0–0)	0 (0–0)	8 664	26	59 (52–68)
Jordan	1990	3	0.48 (0.420–0.550)	14 (13–16)			439	13	91 (80–100)
	1995	4	0.51 (0.450–0.580)	12 (10–13)			498	12	97 (86–110)
	2000	5	0.38 (0.340–0.440)	8.1 (7.1–9.1)			306	6.4	80 (70–91)
	2005	5	0.38 (0.330–0.430)	7.2 (6.3–8.1)			367	7	98 (86–110)
	2010	6	0.41 (0.360–0.460)	6.3 (5.5–7.1)			338	5.2	83 (74–95)
	2011	7	0.4 (0.350–0.460)	6 (5.2–6.8)			328	4.9	81 (72–93)
	2012	7	0.4 (0.360–0.460)	5.8 (5.1–6.5)	<0.01 (0–<0.01)	0 (0–0)	331	4.7	82 (72–93)
Kuwait	1990	2	0.32 (0.280–0.360)	15 (14–18)			277	13	87 (77–99)
	1995	2	0.39 (0.340–0.440)	24 (21–28)			336	21	87 (77–99)
	2000	2	0.59 (0.520–0.670)	31 (27–35)	<0.01 (<0.01–<0.01)	0.2 (<0.1–0.49)	513	27	87 (77–99)
	2005	2	0.59 (0.520–0.670)	26 (23–29)	<0.01 (<0.01–<0.01)	0.2 (<0.1–0.41)	517	23	87 (77–99)
	2010	3	1.1 (0.960–1.2)	37 (32–42)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.31)	957	32	87 (77–99)
	2011	3	0.77 (0.680–0.870)	25 (22–28)			672	22	87 (77–99)
	2012	3	0.85 (0.740–0.960)	26 (23–30)	<0.01 (<0.01–<0.01)	<0.1 (0–<0.1)	737	23	87 (77–99)
Lebanon	1990	3	0.94 (0.820–1.1)	35 (31–39)	<0.01 (<0.01–<0.01)	0.3 (0.23–0.30)			
	1995	3	0.88 (0.770–1.0)	29 (26–33)	0.012 (0.011–0.014)	0.4 (0.35–0.45)	983	32	110 (98–130)
	2000	3	0.56 (0.490–0.630)	17 (15–20)	0.014 (0.012–0.015)	0.4 (0.37–0.48)	571	18	100 (90–120)
	2005	4	0.45 (0.400–0.510)	11 (10–13)	0.017 (0.015–0.019)	0.4 (0.37–0.47)	391	9.8	86 (76–98)
	2010	4	0.6 (0.530–0.680)	14 (12–16)	0.031 (0.027–0.035)	0.7 (0.62–0.80)	513	12	85 (75–97)
	2011	4	0.67 (0.590–0.760)	15 (13–17)	0.036 (0.032–0.041)	0.8 (0.71–0.92)	496	11	74 (65–84)
	2012	5	0.73 (0.640–0.830)	16 (14–18)	0.041 (0.036–0.047)	0.9 (0.77–1.0)	630	14	86 (76–99)
Libyan Arab Jamahiriya	1990	4	1.7 (1.4–2.0)	40 (33–48)			442	10	26 (22–32)
	1995	5	1.9 (1.5–2.3)	40 (33–48)			1 440	30	76 (63–93)
	2000	5	2.1 (1.7–2.5)	40 (33–48)			1 341	26	65 (54–79)
	2005	6	2.2 (1.9–2.6)	40 (34–46)			2 098	38	94 (81–110)
	2010	6	2.4 (2.0–2.9)	40 (33–48)					
	2011	6	2.4 (2.0–2.9)	40 (33–48)	0.21 (0.16–0.26)	3.4 (2.6–4.3)	1 518	25	62 (52–76)
	2012	6	2.5 (2.0–2.9)	40 (33–48)			1 549	25	63 (53–77)
Morocco	1990	25	36 (27–47)	147 (110–189)	0.025 (0.019–0.033)	0.1 (<0.1–0.13)	27 658	112	76 (59–100)
	1995	27	41 (33–49)	152 (124–182)	0.094 (0.076–0.11)	0.4 (0.28–0.42)	29 829	111	73 (61–90)
	2000	29	33 (29–38)	117 (102–132)	0.19 (0.16–0.21)	0.7 (0.57–0.74)	28 852	100	86 (76–98)
	2005	30	30 (26–34)	100 (88–113)	0.29 (0.26–0.33)	1 (0.85–1.1)	26 269	87	87 (77–99)
	2010	32	32 (28–36)	100 (88–114)	0.5 (0.43–0.56)	1.6 (1.4–1.8)	28 359	90	89 (79–100)
	2011	32	33 (29–37)	103 (90–117)	0.55 (0.48–0.62)	1.7 (1.5–1.9)	28 640	89	87 (77–99)
	2012	33	33 (29–38)	103 (90–117)	0.59 (0.51–0.67)	1.8 (1.6–2.0)	28 635	88	86 (75–98)
Oman	1990	2	0.55 (0.490–0.630)	31 (27–35)	<0.01 (<0.01–<0.01)	0.1 (0.10–0.14)	482	27	87 (77–99)
	1995	2	0.32 (0.280–0.360)	15 (13–17)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.12)	276	13	87 (77–99)
	2000	2	0.37 (0.320–0.420)	17 (15–19)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.11)	321	15	87 (77–99)
	2005	3	0.3 (0.260–0.340)	12 (10–13)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.12)	261	10	87 (77–99)
	2010	3	0.35 (0.310–0.400)	13 (11–14)	<0.01 (<0.01–<0.01)	0.3 (0.26–0.34)	308	11	87 (77–99)
	2011	3	0.39 (0.340–0.440)	13 (11–15)	0.011 (<0.01–0.012)	0.4 (0.31–0.41)	337	11	87 (77–99)
	2012	3	0.44 (0.380–0.500)	13 (12–15)	0.014 (0.013–0.016)	0.4 (0.38–0.49)	382	12	87 (77–99)
Pakistan	1990	111	260 (160–380)	231 (143–341)	0.026 (0.016–0.038)	<0.1 (<0.1–<0.1)	156 759	141	61 (41–99)
	1995	127	290 (240–350)	231 (189–278)	0.059 (0.048–0.070)	<0.1 (<0.1–<0.1)	13 142	10	4.5 (3.7–5.5)
	2000	144	330 (270–400)	231 (189–278)	0.23 (0.19–0.28)	0.2 (0.13–0.19)	11 050	7.7	3.3 (2.8–4.1)
	2005	158	370 (300–440)	231 (189–278)	0.8 (0.65–0.98)	0.5 (0.41–0.62)	142 017	90	39 (32–48)
	2010	173	400 (330–480)	231 (190–276)	2.4 (2.0–2.9)	1.4 (1.1–1.7)	264 235	153	66 (55–80)
	2011	176	410 (340–490)	231 (190–276)	3.1 (2.5–3.7)	1.7 (1.4–2.1)	264 934	150	65 (54–79)
	2012	179	410 (340–490)	231 (190–276)	3.8 (3.1–4.6)	2.1 (1.7–2.6)	267 475	149	65 (54–78)
Qatar	1990	< 1	0.21 (0.190–0.240)	44 (39–50)			184	39	87 (77–99)
	1995	< 1	0.35 (0.310–0.400)	70 (61–79)			304	61	87 (77–99)
	2000	< 1	0.32 (0.280–0.360)	54 (47–61)			279	47	87 (77–99)
	2005	< 1	0.37 (0.330–0.420)	46 (40–52)			325	40	87 (77–99)
	2010	2	0.67 (0.580–0.750)	38 (33–43)			580	33	87 (77–99)
	2011	2	0.64 (0.560–0.720)	33 (29–38)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.12)	553	29	87 (77–99)
	2012	2	0.84 (0.730–0.950)	41 (36–46)	<0.01 (<0.01–<0.01)	<0.1 (0–0.12)	728	36	87 (77–99)
Saudi Arabia	1990	16	2.8 (2.4–3.1)	17 (15–19)			2 415	15	87 (77–99)
	1995	19	3.1 (2.7–3.5)	17 (15–19)					
	2000	20	4 (3.5–4.5)	20 (17–22)			3 452	17	87 (77–99)
	2005	25	4.1 (3.6–4.6)	16 (14–19)			3 539	14	87 (77–99)
	2010	27	5.1 (4.5–5.8)	19 (17–21)	0.12 (0.092–0.15)	0.4 (0.34–0.56)	4 465	16	87 (77–99)
	2011	28	4.5 (4.0–5.1)	16 (14–18)	0.1 (0.077–0.13)	0.4 (0.28–0.46)	3 932	14	87 (77–99)
	2012	28	4.2 (3.7–4.8)	15 (13–17)			3 690	13	87 (77–99)
Somalia	1990	6	18 (11–27)	285 (176–421)	0.3 (0.19–0.44)	4.8 (2.9–7.0)			
	1995	6	18 (15–22)	285 (233–343)	0.56 (0.46–0.68)	8.9 (7.3–11)	2 504	39	14 (12–17)
	2000	7	21 (17–25)	285 (233–343)	0.77 (0.63–0.93)	10 (8.6–13)	5 686	77	27 (22–33)
	2005	8	24 (20–29)	285 (233–343)	0.85 (0.70–1.0)	10 (8.2–12)	12 904	152	53 (44–65)
	2010	10	28 (23–33)	286 (236–340)	0.85 (0.70–1.0)	8.9 (7.3–11)	10 139	105	37 (31–45)
	2011	10	28 (23–34)	286 (236–340)	0.85 (0.70–1.0)	8.6 (7.1–10)	11 653	118	41 (35–50)
	2012	10	29 (24–35)	286 (236–340)	0.85 (0.70–1.0)	8.3 (6.9–9.9)	11 975	117	41 (34–50)

[a] Rates are per 100 000 population.

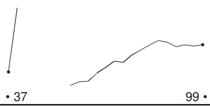
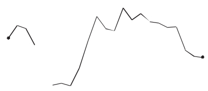
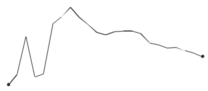
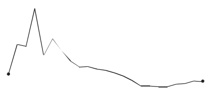
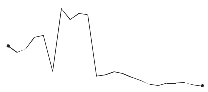
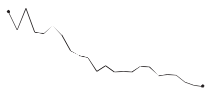
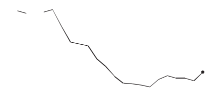
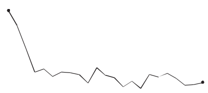
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
South Sudan	2011	10	15 (13–18)	146 (121–174)			7 217	70	48 (40–58)
	2012	11	16 (13–19)	146 (121–174)			8 403	78	53 (45–64)
Sudan	1990	26	44 (36–52)	170 (140–203)	0.4 (0.33–0.48)	1.6 (1.3–1.9)	212	0.82	0.48 (0.41–0.59)
	1995	30	47 (39–56)	158 (130–188)	1.5 (1.2–1.8)	5 (4.1–6.0)	14 320	48	30 (25–37)
	2000	34	50 (41–59)	144 (119–172)	3.5 (2.9–4.2)	10 (8.5–12)	24 807	72	50 (42–61)
	2005	40	53 (43–63)	133 (110–158)	5.2 (4.3–6.2)	13 (11–16)	27 562	70	52 (44–64)
	2010	46	54 (45–65)	119 (98–142)	5.6 (4.6–6.7)	12 (10–15)	26 131	57	48 (40–58)
	2011	36	42 (35–51)	117 (96–139)	4.4 (3.6–5.3)	12 (10–14)	19 348	53	46 (38–55)
	2012	37	42 (35–51)	114 (94–136)	4.3 (3.5–5.1)	12 (9.5–14)	18 775	50	44 (37–54)
Syrian Arab Republic	1990	12	7.5 (5.3–10)	61 (43–82)			6 018	48	80 (59–110)
	1995	14	6.6 (5.4–7.9)	46 (38–55)			4 404	31	67 (56–82)
	2000	16	5.7 (4.9–6.6)	35 (30–40)			5 090	31	89 (77–100)
	2005	18	4.8 (4.0–5.6)	26 (22–31)			4 310	24	90 (77–110)
	2010	22	4.3 (3.5–5.1)	20 (16–24)			3 666	17	86 (72–100)
	2011	22	4.1 (3.4–4.9)	19 (16–22)			3 620	17	88 (74–110)
	2012	22	3.9 (3.2–4.6)	18 (15–21)			3 003	14	77 (65–93)
Tunisia	1990	8	2.3 (2.0–2.6)	29 (25–32)	<0.01 (<0.01–<0.01)	0 (0–0)	2 054	25	89 (78–100)
	1995	9	2.7 (2.4–3.1)	31 (27–35)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 383	27	87 (77–99)
	2000	10	2.4 (2.1–2.7)	25 (22–28)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 038	21	86 (76–98)
	2005	10	2.4 (2.1–2.7)	23 (21–27)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 079	21	88 (78–100)
	2010	11	3 (2.6–3.4)	28 (25–32)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 368	22	79 (70–90)
	2011	11	3.2 (2.8–3.6)	30 (26–34)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 015	28	94 (83–110)
	2012	11	3.4 (3.0–3.8)	31 (27–35)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 239	30	96 (84–110)
United Arab Emirates	1990	2	0.22 (0.160–0.280)	12 (8.7–16)			285	16	130 (100–180)
	1995	2	0.28 (0.200–0.370)	12 (8.7–16)					
	2000	3	0.36 (0.260–0.480)	12 (8.7–16)			115	3.8	32 (24–44)
	2005	4	0.21 (0.150–0.270)	5 (3.6–6.5)			103	2.5	50 (38–69)
	2010	8	0.26 (0.190–0.340)	3.1 (2.3–4.1)	0.012 (<0.01–0.030)	0.2 (<0.1–0.35)	131	1.6	50 (38–69)
	2011	9	0.21 (0.150–0.270)	2.3 (1.7–3.0)	<0.01 (<0.01–0.021)	<0.1 (<0.1–0.23)	103	1.2	50 (38–69)
	2012	9	0.16 (0.120–0.210)	1.7 (1.2–2.3)			79	0.86	50 (38–69)
West Bank and Gaza Strip	1990	2	0.12 (0.110–0.140)	6 (5.2–6.8)			64	3.1	51 (45–59)
	1995	3	0.22 (0.200–0.250)	8.6 (7.5–9.7)			77	3	35 (30–39)
	2000	3	0.33 (0.290–0.370)	10 (9.0–12)			82	2.6	25 (22–28)
	2005	4	0.23 (0.200–0.260)	6.5 (5.7–7.3)			28	0.79	12 (11–14)
	2010	4	0.21 (0.190–0.240)	5.3 (4.6–6.0)			31	0.77	15 (13–17)
	2011	4	0.26 (0.230–0.290)	6.3 (5.5–7.1)			32	0.78	12 (11–14)
	2012	4	0.32 (0.280–0.360)	7.6 (6.7–8.6)			32	0.76	10 (8.8–11)
Yemen	1990	12	16 (10–24)	137 (85–202)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	4 650	39	29 (20–47)
	1995	15	21 (17–25)	137 (112–165)	0.031 (0.022–0.042)	0.2 (0.14–0.28)	14 428	96	70 (58–86)
	2000	18	20 (17–24)	116 (94–139)	0.11 (0.074–0.14)	0.6 (0.42–0.81)	13 651	78	67 (56–83)
	2005	20	16 (13–19)	81 (66–97)	0.18 (0.12–0.25)	0.9 (0.58–1.3)	9 063	45	56 (46–68)
	2010	23	11 (9.2–13)	49 (40–58)	0.15 (0.093–0.21)	0.7 (0.41–0.93)	8 916	39	80 (67–97)
	2011	23	11 (9.4–14)	49 (40–58)	0.15 (0.096–0.22)	0.7 (0.41–0.94)	8 636	37	76 (64–92)
	2012	24	12 (9.6–14)	49 (40–58)	0.16 (0.098–0.23)	0.7 (0.41–0.95)	9 867	41	85 (71–100)

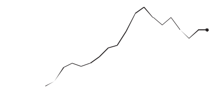
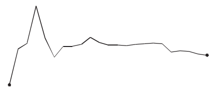
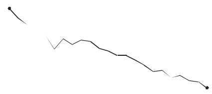
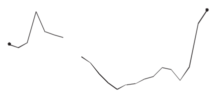
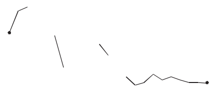
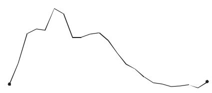
[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES SMEAR-POSITIVE	NEW CASES SMEAR-NEGATIVE/ UNKNOWN	NEW CASES EXTRA-PULMONARY	NEW CASES OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Afghanistan		1990	4 332									–
		1995										–
		2000	7 107	2 892	2 358	1 620		237		237		55
		2005	21 844	9 949	6 085	4 954		856		856		62
		2010	28 029	12 947	7 085	6 248	633	1 116	209	1 325		65
		2011	27 983	13 789	6 155	6 286	623	1 130	184	1 314		69
	• 37 99 •	2012	29 381	13 319	7 405	6 906	702	1 049	197	1 246		64
Bahrain		1990	117									–
		1995	43	17	14	85		0		0		55
		2000	207	23	16	8						59
		2005	280	101	72	107	0	0	0	0	0	58
		2010	246	90	58	98	0	0	0	0	0	61
		2011	225	89	47	89	0	0	0	0	0	65
	• 24 17 •	2012	225	101	47	77	0	0	0	0	0	68
Djibouti		1990	2 100									–
		1995										–
		2000	3 971	1 391	518	1 875		184		184		73
		2005	3 109	1 120	739	1 058	0	192	61	253	0	60
		2010	4 172	1 181	538	2 253	0	200	19	219	0	69
		2011	3 686	1 336	569	1 587	0	194	37	231	0	70
	• 356 404 •	2012	3 474	1 170	547	1 567		190	72	262		68
Egypt		1990	2 142									–
		1995	11 145	4 229	9 204	4 684		753		753		31
		2000	10 762	4 606	2 693	2 843		620		620		63
		2005	11 446	5 217	2 617	3 163	0	449	289	738	0	67
		2010	9 260	4 679	1 158	3 048	0	375	328	703	0	80
		2011	8 974	4 508	1 055	3 074	0	337	333	670	0	81
	• 4 10 •	2012	8 453	4 295	937	2 915	0	306	300	606	0	82
Iran (Islamic Republic of)		1990	9 255									–
		1995	15 936	5 347	6 432	3 779		477		477		45
		2000	11 850	5 361	2 642	3 442		405		405		67
		2005	9 212	4 581	1 807	2 530		274	154	428	20	72
		2010	10 362	5 188	1 985	2 869	0	320	440	760	0	72
		2011	10 980	5 539	1 980	3 076	0	385	515	900	0	74
	• 16 14 •	2012	11 042	5 409	2 191	3 105	0	337	441	778	0	71
Iraq		1990	14 735	1 587	12 394	754						11
		1995	9 697	3 194	13 962	1 367		68		68		19
		2000	9 697	3 194	3 188	2 753		562		562		50
		2005	9 454	3 096	2 887	2 703		768		768		52
		2010	9 707	3 618	2 693	3 009	0	387	390	777	0	57
		2011	8 837	3 059	2 463	2 957	0	358	411	769	0	55
	• 84 26 •	2012	8 664	2 760	2 315	3 261	0	328	435	763	0	54
Jordan		1990	439									–
		1995	498	187	210	101		6		6		47
		2000	306	89	69	145		3		3		56
		2005	367	86	76	187	12	6	4	10	0	53
		2010	338	117	69	150	0	2	16	18	0	63
		2011	328	103	81	128	0	2	16	18	14	56
	• 13 5 •	2012	331	85	73	172	0	1	18	19	0	54
Kuwait		1990	277									–
		1995	336	175	42	115	0	4	0	4	0	81
		2000	513	180	89	244	0	0	0	0	0	67
		2005	517	187	95	234	0	1	0	1	0	66
		2010	957	385	163	407	0	2	0	2	0	70
		2011	672	222	141	309	0	0	0	0	0	61
	• 13 23 •	2012	737	328	140	269	0	0	0	0	0	70
Lebanon		1990										–
		1995	983	197	528	255		3		3		27
		2000	571	202	149	214		6		6		58
		2005	391	131	75	181	0	4	0	4	0	64
		2010	513	194	99	210	0	10	2	12	0	66
		2011	496	188	101	206		1		1		65
	• 0 14 •	2012	630	240	131	250	0	9	0	9	0	65
Libyan Arab Jamahiriya		1990	442									–
		1995	1 440		626	814						–
		2000	1 341	607	82	652						88
		2005	2 098	860	474	762		2	269	271		64
		2010										–
		2011	1 518	731	305	462	0	20	27	47		71
	• 10 25 •	2012	1 549	644	372	533	0					63
Morocco		1990	27 658									–
		1995	29 829	14 171	4 095	11 563						78
		2000	28 852	12 872	2 934	13 046						81
		2005	26 269	12 757	2 142	11 370	0					86
		2010	28 359	12 239	2 174	12 730	0	1 216	429	1 645	0	85
		2011	28 640	11 822	2 272	13 331	0	1 215	1 130	2 345	0	84
	• 112 88 •	2012	28 635	11 572	2 343	13 522	0	1 198	764	1 962	0	83
Oman		1990	482									–
		1995	276	135	60	81		0		0		69
		2000	321	164	37	112		8		8		82
		2005	261	131	37	89		4		4		78
		2010	308	152	28	124	0	4	5	9	0	84
		2011	337	180	32	122	0	3	0	3	0	85
	• 27 12 •	2012	382	205	39	131	0	7	1	8	0	84
Pakistan		1990	156 759									–
		1995	13 142	2 578	3 806	3 037		184		184		40
		2000	11 050	3 285	5 578	1 846		341		341		37
		2005	142 017	48 220	68 337	22 789		2 671	2 754	5 425		41
		2010	264 235	104 263	105 623	45 443	0	5 870	5 055	10 925	3 036	50
		2011	264 934	105 733	103 824	45 537	0	5 947	5 460	11 407	3 893	50
	• 141 149 •	2012	267 475	110 545	109 425	41 410	0	6 095	5 622	11 717	0	50
Qatar		1990	184									–
		1995	304	60	135	109		1		1		31
		2000	279	53	98	128		0		0		35
		2005	325	96	73	156		0	0	0		57
		2010	580	223	101	256	0	0	0	0	0	69
		2011	553	197	120	236	0					62
	• 39 36 •	2012	728	180	331	217	0	0	0	0	0	35
Saudi Arabia		1990	2 415									–
		1995										–
		2000	3 452	1 595	722	1 023		112		112		69
		2005	3 539	1 722	545	1 067	0	205		205		76
		2010	4 465	2 302	687	1 311	0	122	84	206	43	77
		2011	3 932	2 055	586	1 227		64	83	147		78
	• 15 13 •	2012	3 690	2 028	549	1 022		91	143	234		79

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES SMEAR-POSITIVE	NEW CASES SMEAR-NEGATIVE/ UNKNOWN	NEW CASES EXTRA-PULMONARY	NEW CASES OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Somalia		1990										–
		1995	2 504	1 572	692	318		134		134		69
		2000	5 686	3 776	837	722		351		351		82
		2005	12 904	7 068	3 168	2 258	0	410	102	512	0	69
		2010	10 139	5 225	2 654	1 885	0	375	330	705	0	66
		2011	11 653	5 884	3 159	2 261	0	349	368	717	0	65
	• 0 117 •	2012	11 975	6 127	3 188	2 271	0	389	310	699	0	66
South Sudan		2011	7 217	2 797	2 610	1 639		171	366	537		52
		2012	8 403	3 120	3 413	1 685		185	521	706	0	48
Sudan		1990	212									–
		1995	14 320	8 761	2 655	1 675		474		474		77
		2000	24 807	12 311	6 512	3 843		2 141		2 141		65
		2005	27 562	12 730	9 212	5 434	0	186	1 616	1 802		58
		2010	26 131	9 958	9 144	6 217		812	1 110	1 922		52
		2011	19 348	7 266	6 746	4 624	0	712	1 037	1 749	0	52
	• 1 50 •	2012	18 775	6 587	6 948	4 561	0	679	1 056	1 735	0	49
Syrian Arab Republic		1990	6 018									–
		1995	4 404	1 295	1 507	1 574		28		28		46
		2000	5 090	1 584	1 409	2 000		97		97		53
		2005	4 310	1 350	796	2 103	0	61	83	144		63
		2010	3 666	1 122	544	1 948	0	52	161	213	0	67
		2011	3 620	1 027	393	1 915	0	60	55	115	225	72
	• 48 14 •	2012	3 003	809	364	1 702	0	44	32	76	84	69
Tunisia		1990	2 054									–
		1995	2 383	1 243	407	733						75
		2000	2 038	1 099	179	727		61		61		86
		2005	2 079	915	239	874		51		51		79
		2010	2 368	1 091	151	1 090		36		36		88
		2011	3 015	1 031	317	1 616		51		51		76
	• 25 30 •	2012	3 239	1 059	282	1 853	0	45	19	64	0	79
United Arab Emirates		1990	285									–
		1995										–
		2000	115	73	3	41		0		0		96
		2005	103	62	12	25	0	4	2	6	0	84
		2010	131	56	28	47	0	0	1	1	0	67
		2011	103	46	27	30	0	0	3	3	0	63
	• 16 1 •	2012	79	42	15	20	0	2	6	8	0	74
West Bank and Gaza Strip		1990	64									–
		1995	77	9	58	10						13
		2000	82	37								100
		2005	28	7	6	15						54
		2010	31	13	6	12	0	0	0	0	0	68
		2011	32	11	5	13	0	3	0	3	0	69
	• 3 1 •	2012	32	17	6	8	0	1	0	1	0	74
Yemen		1990	4 650									–
		1995	14 428	3 681	7 390	3 082		275		275		33
		2000	13 651	5 565	4 176	3 470		440		440		57
		2005	9 063	3 379	2 780	2 553		351		351		55
		2010	8 916	3 584	2 313	2 715	0	304	134	438	0	61
		2011	8 636	3 135	2 400	2 880	0	221	77	298	0	57
	• 39 41 •	2012	9 867	3 321	2 808	3 486	0	252	83	335		54

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Afghanistan		1995			–						
		2000	2 892	3 136	108	76	9	3	3	6	2
		2005	9 949	10 013	101	83	7	2	1	2	5
		2009	12 497	12 497	100	83	4	2	1	2	9
		2010	12 947	12 947	100	86	3	2	1	2	5
	• 0 91 •	2011	13 789	13 789	100	88	4	2	1	2	5
Bahrain		1995	17		–						
		2000	23	22	96	73	0	27	0	0	0
		2005	101	15	15	93	0	7	0	0	0
		2009	131	192	147	98	0	2	0	0	0
		2010	90	162	180	96	0	4	0	0	0
	• 0 34 •	2011	89	124	139	34	0	1	0	0	65
Djibouti		1995		1 751	–	60	16	3	1	20	1
		2000	1 391	1 391	100	48	14	2	1	21	14
		2005	1 120	1 120	100	71	9	1	1	16	2
		2009	1 377	1 277	93	72	7	1	1	17	3
		2010	1 181	1 177	100	68	12	1	1	16	2
	• 75 82 •	2011	1 336	1 334	100	65	17	1	1	13	3
Egypt		1995	4 229	2 118	50	38	24	2	3	19	14
		2000	4 606	4 611	100	75	12	3	2	5	3
		2005	5 217	5 154	99	66	13	3	2	3	13
		2009	5 201	5 201	100	72	16	3	2	4	3
		2010	4 679	4 682	100	59	27	3	3	4	4
	• 62 88 •	2011	4 508	4 508	100	66	21	3	2	3	5
Iran (Islamic Republic of)		1995	5 347		–						
		2000	5 361	5 866	109	81	4	6	2	3	3
		2005	4 581	4 581	100	78	5	7	3	3	4
		2009	5 152	5 201	101	77	6	7	3	2	5
		2010	5 188	5 269	102	77	6	7	4	3	3
	• 0 85 •	2011	5 539	5 532	100	79	6	8	4	3	1
Iraq		1995	3 194	11 553	362	60	20	0	5	10	5
		2000	3 194	3 194	100	86	5	3	2	3	1
		2005	3 096	3 096	100	76	10	3	2	7	3
		2009	3 347	3 347	100	80	10	2	1	6	1
		2010	3 618	3 618	100	80	9	3	1	6	1
	• 80 89 •	2011	3 059	3 059	100	83	6	3	2	5	1
Jordan		1995	187	193	103	91	1	3	1	2	3
		2000	89	89	100	89	1	2	1	4	2
		2005	86	86	100	71	12	5	7	6	0
		2009	109	109	100	54	21	6	7	11	0
		2010	117	117	100	57	30	1	3	6	3
	• 92 92 •	2011	103	103	100	46	47	3	0	5	0
Kuwait		1995	175	175	100	40	31	3	0	1	25
		2000	180	180	100	54	15	1	0	9	21
		2005	187	187	100	53	10	1	0	7	29
		2009	386	386	100	41	44	0	0	4	11
		2010	385	385	100	63	24	0	0	3	9
	• 71 93 •	2011	222	222	100	84	9	0	0	3	4
Lebanon		1995	197	200	102	35	56	0	0	10	0
		2000	202	190	94	89	3	4	1	3	1
		2005	131	131	100	81	11	2	1	6	0
		2009	179	179	100	65	17	6	1	2	10
		2010	194	192	99	68	12	2	1	18	0
	• 91 80 •	2011	188	188	100	65	15	2		2	16
Libyan Arab Jamahiriya		1995		626	–	65	0	1	1	33	0
		2000	607		–						
		2005	860	860	100	40	29	2	0	27	2
		2009	936		–						
		2010		792	–	43	21	2	0	31	3
	• 65 59 •	2011	731	731	100	42	17	1	0	37	3
Morocco		1995	14 171	14 171	100	75	14	2	1	7	1
		2000	12 872	12 872	100	82	7	3	1	7	1
		2005	12 757	12 683	99	76	5	2	1	9	7
		2009	11 907	11 935	100	77	8	2	2	9	2
		2010	12 239	12 492	102	77	8	2	1	9	2
	• 90 80 •	2011	11 822	11 822	100	73	7	2	1	8	9
Oman		1995	135	93	69	84	0	9	1	1	5
		2000	164	112	68	93	0	4	3	0	0
		2005	131	104	79	90		10			0
		2009	164	334	204	49	49	2	0	0	0
		2010	152	152	100	97	0	3	0	0	0
	• 84 97 •	2011	180	212	118	95	2	3	0	0	0
Pakistan		1995	2 578	802	31	51	20	4	1	20	4
		2000	3 285	4 074	124	58	16	4	1	17	4
		2005	48 220	48 205	100	71	13	3	1	9	4
		2009	101 887	101 809	100	74	17	2	1	4	2
		2010	104 263	104 434	100	75	16	2	1	4	2
	• 70 92 •	2011	105 733	105 733	100	75	16	2	1	4	2
Qatar		1995	60	43	72	81	0	5	0	0	14
		2000	53	53	100	66	0	8	0	0	26
		2005	96	96	100	74	9	1	0	0	16
		2009	220	5	2	80	0	0	0	20	0
		2010	223	219	98	63	3	0	0	0	33
	• 81 49 •	2011	197	294	149	46	2	0	0	32	19
Saudi Arabia		1995			–						
		2000	1 595	1 285	81	62	11	7	0	13	6
		2005	1 722	1 722	100	60	5	7	1	10	17
		2009	2 201	2 201	100	54	11	6	1	10	18
		2010	2 302	2 302	100	52	10	5	1	14	18
	• 0 61 •	2011	2 055	2 055	100	53	9	6	1	16	17
Somalia		1995	1 572	1 278	81	82	4	4	5	5	0
		2000	3 776	3 776	100	81	2	4	2	3	9
		2005	7 068	7 059	100	85	4	4	1	4	2
		2009	6 047	6 047	100	83	2	4	2	3	7
		2010	5 225	5 225	100	87	2	3	2	3	4
	• 86 86 •	2011	5 884	5 884	100	84	2	4	2	3	6
South Sudan		2010		2 114	–	67	8	5	1	15	3
		2011	2 797	2 767	99	62	11	4	1	18	4
Sudan		1995	8 761	8 326	95	44	35	2	7	11	1
		2000	12 311	14 599	119	50	25	4	2	9	11
		2005	12 730	12 730	100	64	18	3	1	9	5
		2009	10 541	10 883	103	62	19	3	1	10	6
		2010	9 958	7 729	78	56	24	2	1	12	5
	• 79 70 •	2011	7 266	7 266	100	47	23	2	1	13	14

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

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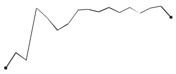
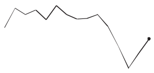
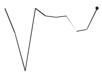
TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT: CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Syrian Arab Republic		1995	1 295	1 295	100	45	16	2	9	24	5
		2000	1 584	1 562	99	69	10	4	3	11	4
		2005	1 350	1 350	100	76	13	3	2	6	1
		2009	1 143	1 144	100	76	12	4	1	4	3
		2010	1 122	1 122	100	75	14	3	2	4	2
	• 61 84 •	2011	1 027	1 009	98	65	19	3	2	10	1
Tunisia		1995	1 243		–						
		2000	1 099	1 099	100	87	4	3	2	2	2
		2005	915	910	99	83	7	2	1	2	4
		2009	931	931	100	72	11	3	2	3	9
		2010	1 091	1 091	100	62	24	3	1	4	6
	• 0 87 •	2011	1 031	1 026	100	63	24	3	1	5	5
United Arab Emirates		1995			–						
		2000	73	73	100	56	18	7	4	5	10
		2005	62	62	100	42	31	6	0	15	6
		2009	71	71	100	21	52	11	1	14	0
		2010	56	55	98	24	45	7	0	24	0
	• 0 73 •	2011	46	60	130	2	72	3	0	23	0
West Bank and Gaza Strip		1995	9	13	144	100					0
		2000	37		–						
		2005	7	12	171	58	42	0	0	0	0
		2009	10	11	110	18	64	9	0	9	0
		2010	13	12	92	8	75	0	17	0	0
	• 100 100 •	2011	11	11	100	18	82	0	0	0	0
Yemen		1995	3 681	3 681	100	43	9	1	1	35	11
		2000	5 565	5 565	100	59	13	3	1	14	10
		2005	3 379	3 566	106	69	11	3	1	6	10
		2009	3 576	3 557	99	79	9	3	1	4	4
		2010	3 584	3 584	100	77	9	3	1	4	7
	• 52 88 •	2011	3 135	3 174	101	79	9	2	1	5	3

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Afghanistan		1995			–						
		2000	237	304	128	73	5	4	4	11	3
		2005	856	856	100	87	2	3	1	2	5
		2009	1 290		–						
		2010	1 325	1 325	100	73	6	3	3	1	14
	• 0 77 •	2011	1 314	1 937	147	58	19	2	2	2	17
Bahrain		1995	0		–						
		2000			–						
		2005	0		–						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Djibouti		1995			–						
		2000	184	268	146	27	9	0	3	22	37
		2005	253	253	100	58	10	3	2	24	2
		2009	210	194	92	67	8	3	2	18	3
		2010	219	213	97	53	17	6	2	19	3
	• 0 63 •	2011	231	227	98	47	16	4	5	22	6
Egypt		1995	753		–						
		2000	620	956	154	52	11	7	12	13	5
		2005	738	738	100	41	17	10	12	8	12
		2009	748	748	100	39	39	6	5	7	4
		2010	703	703	100	38	34	6	8	8	6
	• 0 72 •	2011	670	599	89	35	36	6	6	10	7
Iran (Islamic Republic of)		1995	477		–						
		2000	405	606	150	63	13	6	5	6	7
		2005	428	448	105	68	8	9	3	4	8
		2009	773	708	92	48	25	8	3	5	11
		2010	760	781	103	49	20	8	5	4	15
	• 0 72 •	2011	900	892	99	49	22	9	4	4	12
Iraq		1995	68		–						
		2000	562		–						
		2005	768	953	124	60	12	4	8	12	4
		2009	751	751	100	57	27	3	3	9	1
		2010	777	777	100	36	40	4	5	13	3
	• 0 75 •	2011	769	769	100	39	36	5	7	12	1
Jordan		1995	6		–						
		2000	3	6	200	83	17	0	0	0	0
		2005	10		–						
		2009	20	24	120	17	62	4	0	17	0
		2010	18	5	28	0	60	0	20	0	20
	• 0 80 •	2011	18	15	83	13	67	0	0	20	0
Kuwait		1995	4		–						
		2000	0		–						
		2005	1	1	100	0	100	0	0	0	0
		2009	1	1	100	0	100	0	0	0	0
		2010	2	2	100	0	100	0	0	0	0
	• 0 0 •	2011	0	0	–						
Lebanon		1995	3		–						
		2000	6	5	83	80					20
		2005	4	4	100	75	25	0	0	0	0
		2009	10	10	100	60	20	0	0	0	20
		2010	12	12	100	58	17	8	0	17	0
	• 0 100 •	2011	1	1	100		100				0
Libyan Arab Jamahiriya		1995			–						
		2000			–						
		2005	271		–						
		2009	23		–						
		2010		85	–	11	22	2	0	45	20
	• 0 0 •	2011	47		–						
Morocco		1995		1 469	–	65	12	4	4	10	7
		2000			–						
		2005		1 650	–	55	17	4	5	14	5
		2009	1 605	1 668	104	60	9	4	3	16	8
		2010	1 645	2 899	176	40	24	4	3	21	9
	• 76 66 •	2011	2 345	2 623	112	38	28	3	3	21	8
Oman		1995	0		–						
		2000	8	7	88	86	0	0	14	0	0
		2005	4		–						
		2009	7	7	100	57	43	0	0	0	0
		2010	9	9	100	44	56	0	0	0	0
	• 0 67 •	2011	3	3	100	67	0	33	0	0	0
Pakistan		1995	184	374	203	48	22	2	5	24	0
		2000	341	907	266	37	17	6	3	29	8
		2005	5 425	5 009	92	61	15	5	3	11	5
		2009	9 200	8 801	96	63	18	4	3	8	3
		2010	10 925	8 394	77	68	16	3	3	6	3
	• 70 80 •	2011	11 407	11 407	100	63	17	4	3	8	4
Qatar		1995	1	3	300	67	0	0	0	0	33
		2000	0		–						
		2005	0		–						
		2009	0	0	–						
		2010	0	0	–						
	• 67 0 •	2011		0	–						
Saudi Arabia		1995			–						
		2000	112	139	124	43	15	7	3	13	19
		2005	205	96	47	40	9	9	5	18	19
		2009	144	151	105	45	15	8	1	17	14
		2010	206	249	121	31	19	8	2	22	17
	• 0 63 •	2011	147	147	100	41	22	9	3	10	15
Somalia		1995	134		–						
		2000	351	351	100	53	1	5	5	3	34
		2005	512	524	102	76	5	6	2	5	6
		2009	655	655	100	50	10	6	4	3	27
		2010	705	705	100	48	14	6	5	4	23
	• 0 72 •	2011	717	717	100	43	29	7	6	4	11
South Sudan		2010		434	–	23	34	5	9	23	5
		2011	537	527	98	20	38	7	2	28	5
Sudan		1995	474		–						
		2000	2 141		–						
		2005	1 802	1 828	101	53	29	3	1	9	6
		2009	1 993	2 147	108	33	38	3	1	15	10
		2010	1 922	1 517	79	28	40	2	1	14	16
	• 0 55 •	2011	1 749	1 749	100	22	33	3	1	13	27

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Syrian Arab Republic		1995	28		–						
		2000	97	189	195	44	10	4	20	15	7
		2005	144	144	100	53	14	5	9	19	0
		2009	176	176	100	48	22	9	4	15	3
		2010	213	213	100	23	58	4	3	11	1
	• 0 70 •	2011	115	225	196	20	49	5	5	20	1
Tunisia		1995			–						
		2000	61	42	69	74	0	5	2	10	10
		2005	51		–						
		2009	42		–						
		2010	36		–						
	• 0 79 •	2011	51	52	102	54	25	2	8	10	2
United Arab Emirates		1995			–						
		2000	0		–						
		2005	6	5	83	80	0	0	0	20	0
		2009	0	0	–						
		2010	1	3	300	0	67	33	0	0	0
	• 0 33 •	2011	3	3	100	0	33	0	0	67	0
West Bank and Gaza Strip		1995			–						
		2000			–						
		2005		0	–						
		2009	2	0	0						
		2010	0		–						
	• 0 0 •	2011	3		–						
Yemen		1995	275	14	5	29	14	21	14	14	7
		2000	440	437	99	64	8	7	6	11	4
		2005	351	351	100	48	9	2	3	7	30
		2009	314	291	93	70	7	3	4	7	9
		2010	438		–						
	• 43 67 •	2011	298	298	100	62	5	5	3	6	19

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Afghanistan		2005			21 844					
		2010	18	5 170	28 238	2	<0.1	100	100	
		2011	23	6 445	28 167	5	<0.1	80	80	
	– 25 •	2012	25	7 275	29 578	5	<0.1	100	100	25
Bahrain		2005	46	128	280	6	4.7	0	0	
		2010	65	161	246	6	3.7	0	0	
		2011	66	148	225	7	4.7	0	43	
	• 46 82 •	2012	82	184	225	1	0.54	0	100	
Djibouti		2005	7.1	224	3 170	135	60	15	15	0
		2010	52	2 163	4 191	248	11	0	11	
		2011	19	718	3 723	177	25		22	
	• 7 36 •	2012	36	1 289	3 546	130	10		64	0
Egypt		2005			11 735					
		2010	47	4 483	9 588	7	0.16	100	100	0
		2011	37	3 441	9 307	12	0.35	100	100	
	– 17 •	2012	17	1 514	8 753	17	1.1	100	100	
Iran (Islamic		2005			9 366					
Republic of)		2010	8.4	904	10 802	254	28	16	28	161
		2011	12	1 343	11 495	291	22	20	37	
	– 14 •	2012	14	1 574	11 483	283	18	27	41	155
Iraq		2005			9 454					
		2010	66	6 711	10 097	1	<0.1	100	0	0
		2011	84	7 754	9 248	2	<0.1	100	50	
	– 86 •	2012	86	7 821	9 099	2	<0.1	50	50	
Jordan		2005	23	86	371	0	0			
		2010	99	352	354	0	0			0
		2011	78	267	344	1	0.37	100	100	
	• 23 51 •	2012	51	177	349	0	0			
Kuwait		2005	100	517	517	3	0.58	100	100	
		2010	100	957	957	3	0.31	100	100	
		2011	100	672	672	0	0			
	• 100 100 •	2012	100	737	737	3	0.41	100	100	
Lebanon		2005	0.77	3	391	3	100	0		
		2010	52	269	515	7	2.6	100	100	68
		2011	48	236	496	9	3.8	100	100	
	• 1 67 •	2012	67	424	630	3	0.71	100	100	9
Libyan Arab		2005			2 367					
Jamahiriya		2010		2 128		212	10	1.4		
		2011	97	1 498	1 545	128	8.5	0		
	– 100 •	2012	100	1 549	1 549	105	6.8			
Morocco		2005			26 269					
		2010	0.75	215	28 788	17	7.9	100	100	
		2011	6.2	1 856	29 770	41	2.2	100	68	
	– 20 •	2012	20	5 827	29 399	357	6.1	100	100	
Oman		2005	98	257	261	10	3.9	100	100	
		2010	100	313	313	4	1.3	100	100	0
		2011	100	337	337	8	2.4	88	88	
	• 98 100 •	2012	100	383	383	14	3.7	100	100	
Pakistan		2005	0	0	144 771	0				
		2010	2.3	6 283	269 290	28	0.45	39	43	
		2011	3.1	8 264	270 394	34	0.41	100	56	
	• 0 4 •	2012	3.8	10 419	273 097	30	0.29	100	73	
Qatar		2005	100	325	325	0	0			
		2010	0	0	580	0				
		2011	0	0	553	0				
	• 100 0 •	2012	0.14	1	728	1	100	100	100	
Saudi Arabia		2005			3 539					
		2010	72	3 278	4 549	77	2.3			
		2011	86	3 469	4 015	77	2.2			14
	– 89 •	2012	89	3 420	3 833	79	2.3			
Somalia		2005	0	0	13 006	21		38	0	
		2010	26	2 741	10 469	231	8.4	68	26	
		2011	34	4 140	12 021	206	5	85	20	0
	• 0 44 •	2012	44	5 359	12 285	192	3.6	79	27	
South Sudan		2011	47	3 542	7 583	428	12	82	27	
		2012	51	4 584	8 924	534	12	62	28	
Sudan		2005	0.62	180	29 178	150	83	10	10	
		2010	28	7 532	27 241	247	3.3	160	100	
		2011	15	3 082	20 385	292	9.5	0	25	
	• 1 15 •	2012	15	3 070	19 831	231	7.5	0	17	
Syrian Arab		2005	7.9	345	4 393	0	0			
Republic		2010	2.2	85	3 827	5	5.9	100	0	0
		2011	16	586	3 675	7	1.2	100	100	
	• 8 53 •	2012	53	1 601	3 035	5	0.31	100	100	
Tunisia		2005	6.2	129	2 079	2	1.6	100	100	
		2010	6.6	156	2 368	7	4.5	100	100	24
		2011	12	360	3 015	10	2.8	100	100	38
	• 6 18 •	2012	18	593	3 258	14	2.4	100	100	54
United Arab		2005			105					
Emirates		2010	64	84	132	4	4.8	100	100	
		2011	76	81	106	3	3.7	100	100	
	– 62 •	2012	62	53	85	4	7.5			
West Bank		2005	0	0	28	0				
and Gaza Strip		2010	100	31	31	0	0			
		2011	100	32	32	0	0			
	• 0 100 •	2012	100	32	32	0	0			
Yemen		2005	0	0	9 063	0				
		2010	0	0	9 050	0				0
		2011	0	0	8 713	0				0
	• 0 6 •	2012	6.2	612	9 950	26	4.2		62	0

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TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Afghanistan	2005					–			–
	2010	19			238	1.8		34	2.6
	2011	19				–			–
	2012	31	1 100 (0–2 900)	750 (21–2 600)		–	400 (93–700)	38	3.0
Bahrain	2005	4			2	2.0		0	–
	2010	0			162	70		0	–
	2011	9			154	99		0	–
	2012	4	2.8 (0.57–8.0)	2.8 (0.57–8.0)	160	110	0 (0–0)	1	–
Djibouti	2005	39			0	0		0	0
	2010					–			–
	2011	0				–			–
	2012	96	81 (40–120)	31 (1.7–58)		–	50 (19–81)		–
Egypt	2005					–			–
	2010					–			–
	2011	134			39	0.70		497	74
	2012	116	330 (270–390)	180 (99–260)	31	0.59	150 (130–180)	438	72
Iran (Islamic Republic of)	2005	27			205	4.5		41	9.6
	2010	58			271	4.7		169	22
	2011	43			717	13		322	36
	2012	50	750 (590–910)	380 (260–530)	411	6.8	380 (270–480)	207	27
Iraq	2005					–			–
	2010	110			0	0		185	24
	2011	84				–		224	29
	2012	62	420 (0–870)	180 (5.1–610)	69	2.5	240 (57–430)	159	21
Jordan	2005	19			98	97		33	330
	2010	10			74	63		7	39
	2011	4			55	30		6	33
	2012	13	15 (5.4–25)	10 (3.7–21)	77	91	5.4 (0.70–13)	6	32
Kuwait	2005	6			516	280		1	100
	2010	5			437	100		0	0
	2011	0			282	100		0	–
	2012	4	0 (0–6.1)	0 (0–6.1)		–	0 (0–0)		–
Lebanon	2005	3			48	37		4	100
	2010	7			4	2.1		14	120
	2011	3			18	9.6		1	100
	2012	6	9.9 (3.5–16)	3.9 (0.47–14)	10	4.2	6.0 (2.0–8.6)	6	67
Libyan Arab Jamahiriya	2005	8			4	0.47			–
	2010					–			–
	2011	1				–			–
	2012		36 (1.0–120)	36 (1.0–120)		–	–		–
Morocco	2005	180			180	1.4			–
	2010	54			47	0.38		403	24
	2011	45			61	0.50		229	9.8
	2012	80	300 (190–410)	66 (22–150)	103	0.85	240 (150–350)	416	21
Oman	2005	5			125	95		11	280
	2010	1			185	59		8	89
	2011	4			219	100		3	100
	2012	6	5.9 (1.2–11)	5.9 (2.2–13)	248	100	0 (0–3.0)	8	100
Pakistan	2005					–			–
	2010	444			9	<0.1		306	2.8
	2011	344				–			–
	2012	1602	11 000 (0–29 000)	7 700 (220–27 000)	461	0.42	3 700 (880–6 600)	154	1.3
Qatar	2005	2			264	190		0	–
	2010	4			324	100		0	–
	2011	4			9	1.6		0	–
	2012	2	6.3 (1.7–16)	6.3 (1.7–16)	10	2.0	0 (0–0)		–
Saudi Arabia	2005					–			–
	2010	14				–			–
	2011	22				–			–
	2012	20	84 (64–100)	46 (36–62)		–	37 (28–48)		–
Somalia	2005					–			–
	2010	57			488	9.3		79	11
	2011	20			261	4.4		14	2.0
	2012	0	770 (600–930)	480 (250–720)	0	0	280 (160–410)	0	0
South Sudan	2011	6				–		8	1.5
	2012	3	250 (120–390)	120 (6.5–220)		–	140 (52–220)		–
Sudan	2005	45				–		4	0.22
	2010	49				–			–
	2011	62			36	0.29		82	4.7
	2012	116	580 (280–870)	240 (14–460)	43	0.65	330 (130–540)	129	7.4
Syrian Arab Republic	2005	7			0	0		0	0
	2010	25			63	1.7		12	5.6
	2011	24			408	12		70	61
	2012	13	97 (65–130)	73 (46–110)	155	13	24 (16–33)	23	30
Tunisia	2005					–			–
	2010	12			6	0.55		6	17
	2011	12			2	0.19		10	20
	2012	15	19 (7.0–30)	11 (0–23)	3	0.28	7.6 (2.9–12)	12	19
United Arab Emirates	2005	4				–			–
	2010	0				–			–
	2011	1			3	5.0		0	0
	2012	2	2.0 (1.5–2.5)	1.0 (0.51–1.5)	26	52	0.95 (0.74–1.2)	3	38
West Bank and Gaza Strip	2005					–			–
	2010	0			0	0		0	–
	2011	0			0	0		0	0
	2012	0	1.1 (0–3.0)	0.81 (<0.1–2.8)	0	0	0.32 (<0.1–0.56)	0	0
Yemen	2005	1				–			–
	2010	4			89	1.5		34	7.8
	2011					–			–
	2012	8	150 (100–210)	110 (31–180)	183	5.5	49 (27–73)	17	5.1

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Afghanistan	1995																	–
	2000	52	228	183	149	129	94	80		93	414	565	339	205	99	36		0.52
	2005	151	606	560	472	453	470	419		320	1 651	1 959	1 302	869	471	246		0.46
	2010	197	986	819	491	490	641	622	0	445	2 107	2 263	1 455	1 112	831	488	0	0.49
	2011	204	1 010	895	613	570	700	692		465	2 167	2 325	1 564	1 146	903	535		0.51
	2012	188	1 116	801	586	521	585	651	0	400	2 280	2 204	1 482	1 150	850	505	0	0.50
Bahrain	1995	0	0	1	2	3	1	3		0	1	1	2	0	1	1		1.7
	2000	0	0	3	2	5	3	4		0	1	2	0	1	1	1		2.8
	2005	0	0	0	2	3	0	4		1	1	0	3	1	0	0		1.5
	2010	0	10	16	11	12	4	4	0	0	8	15	7	1	1	1		1.7
	2011	1	5	19	13	14	8	2	0	0	9	5	6	6	0	1	0	2.3
	2012	0	9	28	16	11	8	2	0	1	2	11	8	4	1	0	0	2.7
Djibouti	1995																	–
	2000	17	302	347	139	67	60	42		12	147	156	47	31	17	10		2.3
	2005	18	220	252	119	62	47	29		23	123	117	66	23	13	8		2.0
	2010	28	211	243	151	67	49	20	0	20	104	120	89	36	24	19	0	1.9
	2011	35	212	265	149	97	45	33	0	31	139	118	104	57	30	21	0	1.7
	2012	22	208	240	147	81	47	26		20	132	94	73	36	26	18		1.9
Egypt	1995	223	542	665	460	408	463	160		134	288	367	274	256	160	75		1.9
	2000	21	641	827	667	476	307	158		55	457	343	257	211	112	48		2.1
	2005	25	524	606	421	414	243	123		48	431	298	205	218	132	42		1.7
	2010	9	358	617	783	725	407	217	0	8	199	352	423	292	192	97	0	2.0
	2011	23	382	611	596	715	387	168	0	7	192	355	387	280	198	94	0	1.9
	2012	23	373	597	582	698	379	164	0	8	187	346	379	274	193	92	0	1.9
Iran (Islamic Republic of)	1995	118	751	754	636	494	737	921		234	1 039	890	664	613	685	788		0.90
	2000	29	438	467	387	295	344	642		77	593	410	322	320	407	647		0.94
	2005	16	352	531	338	281	260	630		45	394	205	186	260	382	701		1.1
	2010	18	292	487	354	296	310	760	0	54	433	288	208	276	398	1 014	0	0.94
	2011	13	289	543	398	315	351	877	0	37	473	313	184	296	441	1 009	0	1.0
	2012	16	288	601	442	303	317	850	0	43	434	318	206	252	374	965	0	1.1
Iraq	1995	1 125	862	1 409	1 085	863	900	271		725	304	1 208	915	800	886	200		1.3
	2000	21	627	317	297	205	135	101		37	338	241	136	134	103	87		1.6
	2005	13	424	644	261	245	189	148		44	305	260	151	197	135	80		1.6
	2010	42	370	482	384	276	286	228		73	394	294	198	205	220	166		1.3
	2011	35	304	395	313	237	223	183	0	66	368	258	164	159	201	153	0	1.2
	2012	27	283	317	263	203	203	180		36	340	225	154	186	174	169		1.1
Jordan	1995	0	19	37	17	20	26	11		1	15	4	10	14	12	7		2.1
	2000	0	8	16	13	9	14	2		0	8	9	1	2	2	5		2.3
	2005	0	8	17	9	4	6	5		1	6	6	6	5	8	5		1.3
	2010	2	5	14	10	12	12	6	0	3	14	24	4	3	5	3	0	1.1
	2011	0	9	10	13	8	13	5	0	0	8	11	8	4	8	6	0	1.3
	2012	0	8	12	8	5	7	7	0	1	9	12	7	1	3	5	0	1.2
Kuwait	1995	0	15	51	32	17	9	0		0	8	24	9	4	4	2		2.4
	2000	0	10	44	32	21	11	5		1	11	24	12	5	3	1		2.2
	2005	0	12	45	29	26	8	3		0	13	31	11	3	1	5		1.9
	2010	1	16	67	50	48	10	11	0	4	41	78	30	10	11	8	0	1.1
	2011	0	13	41	36	35	11	5	0	0	23	30	15	9	2	2	0	1.7
	2012	0	14	59	49	35	15	3	0	3	40	73	15	12	6	4	0	1.1
Lebanon	1995	3	26	32	30	16	16	10		1	16	18	13	8	5	3		2.1
	2000	5	16	28	20	15	17	14		4	31	26	9	7	4	6		1.3
	2005	0	12	19	15	10	12	8		1	25	14	8	3	3	1		1.4
	2010	1	8	21	15	12	12	10	0	0	36	48	17	7	4	3	0	0.69
	2011	1	14	18	13	15	6	8		0	37	51	12	9	1	3		0.66
	2012	2	18	21	13	14	12	6		2	48	72	16	9	4	3		0.56
Libyan Arab Jamahiriya	1995	2	112	212	78	46	22	21		5	34	31	19	20	13	11		3.7
	2000	5	101	239	86	36	29	32		6	43	35	24	24	16	22		3.1
	2005	2	114	293	168	52	19	35		8	36	36	35	21	21	20		3.9
	2010																	–
	2011	5	85	173	148	54	18	21	0	8	59	47	37	22	25	29	0	2.2
	2012	2	86	136	136	63	31	22	0	10	47	37	19	24	18	13	0	2.8
Morocco	1995	142	2 508	2 872	1 737	819	573	553		191	1 708	1 288	703	461	317	299		1.9
	2000	99	2 061	2 423	1 705	855	485	595		170	1 530	1 121	672	398	406	352		1.8
	2005	79	2 222	2 515	1 583	1 057	580	591		167	1 330	943	546	403	343	398		2.1
	2010	51	1 982	2 553	1 611	1 273	712	515	0	117	1 098	841	426	386	310	364	0	2.5
	2011	79	1 929	2 450	1 479	1 175	682	518	0	100	1 153	794	433	371	324	335	0	2.4
	2012	54	1 840	2 426	1 423	1 183	672	561	0	77	1 162	832	408	306	286	342	0	2.4
Oman	1995	1	7	12	7	7	10	11		2	18	13	5	5	6	3		1.1
	2000	1	8	9	11	12	9	11		2	17	5	7	5	11	6		1.2
	2005	1	21	11	24	15	19	5		2	13	5	3	4	5	3		2.7
	2010	2	12	27	15	16	8	10	0	3	18	22	6	4	4	5	0	1.5
	2011	1	17	25	12	23	10	11	0	5	20	21	9	13	7	6	0	1.2
	2012	0	18	33	23	12	8	19	0	0	20	37	10	10	9	6	0	1.2
Pakistan	1995	29	274	230	178	140	124	95		85	375	381	267	178	143	79		0.71
	2000	55	498	387	256	232	153	130		130	591	416	274	163	103	56		0.99
	2005	621	5 278	4 759	4 263	3 834	3 332	2 453		1 447	6 463	5 611	3 987	2 866	2 060	1 338		1.0
	2010	1 548	11 860	10 462	8 320	7 969	6 934	6 066		3 212	14 481	10 513	7 749	6 410	4 879	4 338		1.0
	2011	1 216	12 143	10 515	8 435	8 608	7 320	6 323		2 679	14 652	10 684	7 880	6 590	4 977	3 711		1.1
	2012	1 317	12 605	10 838	8 848	9 026	7 753	6 492	0	2 630	15 445	10 902	8 263	6 876	5 494	4 056	0	1.1
Qatar	1995	0	8	12	11	13	4	4		1	2	3	1	0	0	1		6.5
	2000	0	7	19	9	7	2	1		0	0	4	3	1	0	0		5.6
	2005		19	15	17	19	5	1			5	10	2	1	2	0		3.8
	2010	0	59	72	38	22	5	0	0	0	7	16	2	1	1	0	0	7.3
	2011	0	36	64	36	14	10	3		0	9	15	6	1	2	1		4.8
	2012	0	34	52	45	21	8	0	160	2	6	9	1	1	0	1	20	8.0
Saudi Arabia	1995																	–
	2000	0	131	268	213	158	86	107		28	172	182	79	51	50	70		1.5
	2005	8	182	276	201	175	70	107		31	205	184	98	73	51	61		1.4
	2010	14	335	458	242	210	116	102	0	33	239	271	105	70	49	58	0	1.8
	2011	4	227	406	225	225	113	106	0	35	200	245	110	64	49	46	0	1.7
	2012	13	228	394	214	210	133	96	0	28	207	236	107	50	49	63	0	1.7
Somalia	1995	46	334	730	201	127	278	109		38	158	139	97	40	25	16		3.6
	2000	113	740	724	408	254	195	142		85	354	319	219	110	72	41		2.1
	2005	125	1 343	1 114	725	458	330	319		169	752	636	436	292	212	157		1.7
	2010	109	1 036	886	496	355	266	277	0	91	467	444	341	188	137	132	0	1.9
	2011	113	1 147	1 047	587	398	330	277	0	114	495	465	348	260	168	135	0	2.0
	2012	129	1 147	1 014	560	449	296	307	0	121	553	554	396	267	165	169	0	1.8
South Sudan	2011	39	251	599	402	259	135	57	0	60	181	318	239	172	59	26	0	1.7
	2012	42	356	753	462	267	135	87		58	212	302	221	139	62	24		2.1
Sudan	1995	250	604	796	634	486	362	337		359	490	613	299	403	342	305		1.2
	2000	785	1 028	1 511	1 351	1 119	638	677		817	925	1 134	905	771	327	323		1.4
	2005	425	1 358	1 990	1 541	1 151	724	493		381	1 102	1 203	978	729	411	244		1.5
	2010	209	1 185	1 781	1 335	863	497	391		195	761	979	772	520	279	191		1.7
	2011	107	899	1 359	981	689	386	372	0	113	512	620	513	352	188	175	0	1.9
	2012	117	869	1 274	802	466	404	331	0	115	536	562	470	299	170	172	0	1.8

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Syrian Arab Republic	1995	13	332	255	111	70	59	50		22	158	97	53	44	37	20		2.1
	2000	8	359	289	125	86	76	55		23	195	101	53	46	38	28		2.1
	2005	9	266	237	111	112	62	63		27	182	108	59	59	32	23		1.8
	2010	7	170	212	101	80	65	49	0	16	164	105	47	41	38	27	0	1.6
	2011	8	139	195	116	81	49	45	0	20	113	97	56	35	36	37	0	1.6
	2012	7	91	146	90	85	46	41		5	104	75	35	33	32	19		1.7
Tunisia	1995																	–
	2000	16	139	208	156	109	65	101		7	68	59	43	21	21	58		2.9
	2005	5	103	172	133	115	53	81		7	66	61	39	36	16	28		2.6
	2010	9	115	194	170	125	93	88		4	64	64	39	34	40	52		2.7
	2011	6	110	194	118	126	108	63	0	10	60	60	50	44	35	47	0	2.4
	2012	10	88	191	149	114	93	88	0	7	51	56	46	48	46	72	0	2.2
United Arab Emirates	1995																	–
	2000	2	4	4	6	5	12	10		3	16	1	3	0	0	4		1.6
	2005																	–
	2010	1	7	13	7	3	4	4	0	1	2	4	1	5	1	3	0	2.3
	2011	0	3	7	3	5	1	3	0	4	6	6	3	2	1	2	0	0.92
	2012	0	2	4	4	5	5	2	0	0	5	2	2	3	4	4	0	1.1
West Bank and Gaza Strip	1995	1	2	0	0	1	0	3		0	1	0	0	1	0	0		3.5
	2000																	–
	2005		1			1	3					1		1				2.5
	2010	0	2	0	2	1	1	3	0	0	0	1	0	1	2	0	0	2.2
	2011	1	0	1	1	1	0	3	0	0	0	1	1	0	2	0	0	1.8
	2012	0	2	2	1	2	4	2	0	0	1	1	0	0	1	1	0	3.2
Yemen	1995	57	400	605	256	201	148	45		83	420	720	348	200	106	92		0.87
	2000	110	789	689	493	314	255	127		161	799	627	517	345	247	92		1.0
	2005	48	493	553	366	242	149	78		44	426	410	265	181	85	39		1.3
	2010	68	507	569	322	231	164	138	0	98	471	409	264	174	106	63	0	1.3
	2011	33	406	471	297	193	143	96	0	85	446	375	251	168	113	58	0	1.1
	2012	30	436	472	315	232	172	122		75	437	381	246	207	115	81		1.2

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2012**

	LABORATORIES								FREE THROUGH NTP		RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS		
Afghanistan	2.0	2	0.3	0	0	1	Out of country	Yes	Yes (all suspects)	Yes	No	
Bahrain	1.4	11	7.6	3.8	7.6	1	Out of country	No	Yes (all suspects)	Yes	Yes	
Djibouti	2.1	0	5.8	5.8	5.8	1	In country	Yes	Yes (all suspects)	Yes	Yes	
Egypt	0.2	0	1.1	<0.1	0	0	In country	Yes	Yes (all suspects)	Yes	Yes	0
Iran (Islamic Republic of)	0.5	0	3.6	0.5	0	0	In country	Yes	Yes (all suspects)	Yes	Yes	
Iraq	0.8	0	1.5	0.2	0	5	Out of country	Yes	Yes (all suspects)	Yes	Yes	1
Jordan	0.2	0	0.7	0.7	0	1	No	Yes	Yes (all suspects)	Yes	Yes	0
Kuwait	0.4	0	1.5	1.5	0	0	No	Yes	Yes (all suspects)	Yes	Yes	0
Lebanon	6.0	0	3.2	1.1	2.2	3	Out of country	Yes	Yes (all suspects)	Yes	Yes	0
Libya	0.4	–	6.5	1.6			No	Yes	Yes (all suspects)	Yes	Yes	
Morocco	0.5	13	2.2	0.3	0	0	No	Yes	Yes (all suspects)	Yes	Yes	
Oman	7.5	0	13.6	1.5	1.5	0	In country	Yes	Yes (all suspects)	Yes	Yes	8
Pakistan	0.8	0	0.2	0.1	<0.1	15		Yes	Yes (all suspects)	Yes	Yes	
Qatar	<0.1	0	2.4	2.4	2.4	1		Yes	Yes (all suspects)	Yes	Yes	0
Saudi Arabia	0.3	1	2.1	2.1	0.4	8	No	Yes	Yes (all suspects)	Yes	Yes	
Somalia	0.6	0	0	0	0	3	No	No	Yes (all suspects)	Yes	Yes	
South Sudan	0.6	–					Out of country	No	Yes (all suspects)	Yes	Yes	
Sudan	0.8	0	0.1	0.1	0	0	No	Yes	Yes (if TB is confirmed)	Yes	Yes	
Syrian Arab Republic	1.4	–	0.2	0.2	0.2	0	No	Yes	Yes (all suspects)	Yes	Yes	30 508
Tunisia	0.7	0	5.1	2.3	0.5	2	In country	Yes	Yes (all suspects)	Yes	Yes	
United Arab Emirates		–						No	Yes (all suspects)	Yes	Yes	
West Bank and Gaza Strip	1.5	0	1.2	0	0	0	No	Yes	Yes (all suspects)	Yes	Yes	204
Yemen	1.0	–	0.8	0.4			No	Yes	Yes (if TB is confirmed)	Yes	Yes	36

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

TABLE A4.10 **Measured percentage of TB cases with MDR-TB[a], most recent year available**

	New TB cases				Previously treated TB cases			
	Year	Source	Coverage	Percentage	Year	Source	Coverage	Percentage
Afghanistan								
Bahrain	2012	Surveillance	National	1.9 (0.39–5.4)	2012	Surveillance	National	100 (2.5–100)
Djibouti								
Egypt	2011	Survey	National	3.4 (1.9–4.9)	2012	Surveillance	National	25 (21–29)
Iran (Islamic Republic of)	1998	Survey	National	5 (3.4–7.0)	1998	Survey	National	48 (35–62)
Iraq								
Jordan	2009	Surveillance	National	6.3 (2.4–13)	2009	Surveillance	National	29 (3.7–71)
Kuwait	2011	Surveillance	National	0 (0–1.3)	2011	Surveillance	National	0 (0–98)
Lebanon	2003	Survey	National	1.1 (0.13–3.8)	2012	Surveillance	National	67 (22–96)
Libya								
Morocco	2006	Survey	National	0.48 (0.15–1.1)	2006	Survey	National	12 (7.8–18)
Oman	2012	Surveillance	National	2.4 (0.89–5.2)	2012	Surveillance	National	0 (0–37)
Pakistan								
Qatar	2010	Surveillance	National	1.2 (0.34–3.1)	2010	Surveillance	National	0 (0–98)
Saudi Arabia	2010	Survey	National	1.8 (1.4–2.4)	2010	Survey	National	16 (12–21)
Somalia	2011	Survey	National	5.2 (2.7–7.7)	2011	Survey	National	41 (23–58)
South Sudan								
Sudan								
Syrian Arab Republic	2003	Survey	National	6.2 (3.9–9.3)	2011	Surveillance	National	31 (21–44)
Tunisia	2012	Survey	National	0.82 (0–1.7)	2012	Survey	National	12 (4.5–19)
United Arab Emirates								
West Bank and Gaza Strip								
Yemen	2011	Survey	National	1.7 (0.50–3.0)	2011	Survey	National	15 (8.1–22)

[a] Empty rows indicate an absence of high-quality survey or surveillance data. In the absence of high-quality national data, high-quality sub-national data are used.

EUROPEAN REGION

Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See **ANNEX 1** for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. The main updates implemented in this report are explained in Box 2.1 of Chapter 2. *Estimates published in previous global TB control reports should no longer be used*.

Data source

Data shown in this annex are taken from the WHO global TB database on 1 October 2013. Data shown in the main part of the report were taken from the database in July 2013. As a result, data in this annex may differ slightly from those in the main part of the report.

Data for all years can be downloaded from www.who.int/tb/data.

Country notes

EU/EEA countries

Notification and treatment outcome data for European Union and European Economic Area countries are provisional.

Denmark

Data for Denmark exclude Greenland.

France

Data from France include data from 5 overseas departments (French Guiana, Guadeloupe, Martinique, Mayotte and Réunion).

Russian Federation

The reported number of TB patients with known HIV status in 2010–2012 (**Table A4.6**) is for new TB patients in the civilian sector only. It was not possible to calculate the percentage of all TB patients with known HIV status.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
			NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Albania	1990	3	0.11 (0.081–0.130)	3.1 (2.3–3.9)	1.2 (0.440–2.4)	36 (13–70)	0.84 (0.600–1.1)	24 (18–32)
	1995	3	0.023 (0.018–0.028)	0.68 (0.55–0.83)	1.1 (0.420–2.1)	32 (12–61)	0.82 (0.680–0.970)	24 (20–29)
	2000	3	0.027 (0.019–0.037)	0.82 (0.57–1.1)	0.98 (0.380–1.8)	30 (12–56)	0.75 (0.630–0.870)	23 (19–26)
	2005	3	0.018 (0.013–0.025)	0.57 (0.39–0.79)	0.87 (0.370–1.6)	27 (11–49)	0.63 (0.530–0.730)	20 (17–23)
	2010	3	0.012 (<0.01–0.018)	0.38 (0.23–0.58)	0.74 (0.320–1.3)	24 (10–43)	0.53 (0.450–0.620)	17 (14–20)
	2011	3	0.011 (<0.01–0.017)	0.34 (0.20–0.53)	0.72 (0.310–1.3)	23 (9.7–42)	0.52 (0.440–0.610)	17 (14–19)
	2012	3	<0.01 (<0.01–0.016)	0.31 (0.16–0.49)	0.68 (0.280–1.3)	22 (8.9–40)	0.51 (0.430–0.590)	16 (14–19)
Andorra	1990	< 1	<0.01 (<0.01–<0.01)	2.4 (0.16–7.6)	0.034 (0.013–0.064)	62 (24–118)	0.026 (0.023–0.030)	49 (43–55)
	1995	< 1	<0.01 (<0.01–<0.01)	2.1 (<0.1–8.5)	0.033 (0.015–0.058)	51 (23–91)	0.023 (0.020–0.026)	37 (32–41)
	2000	< 1	<0.01 (0–<0.01)	1.3 (0–6.2)	0.021 (<0.01–0.035)	31 (15–54)	0.014 (0.012–0.016)	21 (18–24)
	2005	< 1	<0.01 (0–<0.01)	0.86 (0–3.9)	0.017 (<0.01–0.029)	21 (9.8–36)	0.012 (0.010–0.013)	14 (12–16)
	2010	< 1	<0.01 (<0.01–<0.01)	0.58 (<0.1–2.3)	0.011 (<0.01–0.020)	14 (6.3–26)	<0.01 (<0.01–<0.01)	10 (9.1–12)
	2011	< 1	<0.01 (<0.01–<0.01)	0.32 (0.16–0.54)	<0.01 (<0.01–0.015)	9 (2.7–19)	<0.01 (<0.01–<0.01)	4.4 (3.9–5.0)
	2012	< 1	<0.01 (0–<0.01)	0.91 (0–4.9)	0.017 (<0.01–0.028)	21 (11–36)	0.01 (<0.01–0.012)	13 (12–15)
Armenia	1990	4	0.16 (0.110–0.200)	4.4 (3.2–5.8)	1 (0.420–1.8)	28 (12–52)	0.63 (0.470–0.810)	18 (13–23)
	1995	3	0.19 (0.160–0.230)	6 (4.9–7.2)	1.9 (0.890–3.3)	59 (28–101)	1.2 (1.0–1.4)	38 (32–44)
	2000	3	0.19 (0.170–0.220)	6.3 (5.6–7.0)	2.9 (1.4–4.8)	93 (46–158)	1.9 (1.6–2.1)	61 (53–68)
	2005	3	0.26 (0.190–0.320)	8.5 (6.5–11)	3.5 (1.7–6.0)	118 (58–198)	2.3 (2.1–2.6)	77 (68–87)
	2010	3	0.23 (0.180–0.280)	7.7 (6.1–9.5)	2.7 (1.2–4.8)	92 (42–161)	1.8 (1.6–2.2)	62 (53–73)
	2011	3	0.17 (0.130–0.210)	5.6 (4.5–6.9)	2.3 (1.0–4.2)	79 (34–142)	1.6 (1.3–1.9)	55 (45–65)
	2012	3	0.19 (0.150–0.230)	6.3 (5.1–7.6)	2.4 (1.1–4.1)	79 (37–137)	1.5 (1.3–1.8)	52 (43–61)
Austria	1990	8	0.14 (0.140–0.140)	1.8 (1.8–1.9)	2.5 (1.1–4.5)	33 (15–58)	1.7 (1.5–2.0)	23 (20–26)
	1995	8	0.074 (0.074–0.074)	0.93 (0.92–0.93)	2.5 (1.2–4.4)	32 (15–55)	1.7 (1.5–1.9)	21 (19–24)
	2000	8	0.069 (0.069–0.069)	0.86 (0.86–0.86)	2 (0.890–3.5)	25 (11–43)	1.4 (1.2–1.5)	17 (15–19)
	2005	8	0.05 (0.050–0.051)	0.61 (0.61–0.61)	1.5 (0.690–2.7)	19 (8.4–33)	1.1 (0.940–1.2)	13 (11–15)
	2010	8	0.032 (0.032–0.033)	0.38 (0.38–0.39)	1 (0.420–1.9)	12 (5.0–23)	0.76 (0.660–0.860)	9 (7.9–10)
	2011	8	0.04 (0.040–0.041)	0.48 (0.47–0.49)	1.1 (0.510–2.0)	13 (6.0–23)	0.77 (0.680–0.870)	9.2 (8.0–10)
	2012	8	0.035 (0.035–0.036)	0.42 (0.41–0.42)	0.91 (0.370–1.7)	11 (4.4–20)	0.67 (0.590–0.760)	7.9 (6.9–8.9)
Azerbaijan	1990	7	0.82 (0.610–1.1)	11 (8.5–15)	54 (25–94)	744 (343–1 300)	22 (18–26)	305 (252–363)
	1995	8	1.8 (1.3–2.3)	23 (17–29)	120 (56–220)	1 600 (717–2 820)	49 (41–59)	637 (526–759)
	2000	8	1.8 (1.4–2.2)	22 (17–27)	140 (62–240)	1 690 (768–2 970)	55 (46–66)	682 (563–813)
	2005	9	0.82 (0.660–1.0)	9.6 (7.7–12)	66 (31–110)	776 (366–1 340)	29 (24–34)	335 (276–398)
	2010	9	0.39 (0.330–0.440)	4.2 (3.7–4.9)	20 (9.9–34)	221 (109–371)	12 (9.8–14)	131 (108–156)
	2011	9	0.39 (0.340–0.450)	4.2 (3.7–4.9)	16 (7.3–28)	172 (79–302)	10 (8.6–12)	113 (93–135)
	2012	9	0.39 (0.340–0.450)	4.2 (3.7–4.9)	12 (4.1–23)	124 (44–245)	8.9 (7.3–11)	95 (78–114)
Belarus	1990	10	0.5 (0.470–0.540)	4.9 (4.6–5.2)	5.2 (2.2–9.5)	51 (22–93)	3.5 (2.8–4.3)	34 (27–42)
	1995	10	0.76 (0.700–0.830)	7.5 (6.9–8.1)	11 (5.1–19)	106 (51–182)	6.9 (5.9–8.1)	68 (58–80)
	2000	10	0.8 (0.760–0.850)	8.1 (7.6–8.5)	13 (6.0–23)	130 (60–225)	8.4 (6.9–9.9)	84 (69–100)
	2005	10	1.1 (0.990–1.1)	11 (10–12)	11 (4.4–19)	109 (46–199)	6.9 (5.3–8.8)	72 (55–91)
	2010	9	0.76 (0.700–0.820)	8 (7.3–8.6)	10 (4.6–18)	107 (48–189)	6.7 (5.3–8.1)	70 (56–86)
	2011	9	0.66 (0.600–0.720)	7 (6.3–7.7)	10 (4.6–18)	107 (49–188)	6.6 (5.4–8.0)	70 (57–85)
	2012	9	0.57 (0.510–0.630)	6 (5.4–6.7)	10 (4.7–18)	108 (50–188)	6.6 (5.4–8.0)	70 (57–85)
Belgium	1990	10	0.1 (0.097–0.100)	1 (0.97–1.0)	2.6 (1.1–4.6)	26 (11–46)	1.8 (1.6–2.1)	18 (16–21)
	1995	10	0.13 (0.130–0.130)	1.3 (1.3–1.3)	2.2 (0.930–3.9)	21 (9.1–39)	1.6 (1.4–1.8)	16 (14–18)
	2000	10	0.081 (0.080–0.083)	0.79 (0.78–0.81)	2.1 (0.920–3.7)	20 (9.0–36)	1.5 (1.3–1.7)	14 (13–16)
	2005	11	0.062 (0.062–0.063)	0.59 (0.59–0.60)	1.7 (0.690–3.0)	16 (6.6–29)	1.2 (1.1–1.4)	12 (10–13)
	2010	11	0.043 (0.043–0.044)	0.4 (0.39–0.40)	1.7 (0.740–2.9)	15 (6.8–27)	1.2 (1.0–1.3)	11 (9.5–12)
	2011	11	0.041 (0.041–0.042)	0.38 (0.37–0.38)	1.5 (0.660–2.8)	14 (6.0–25)	1.1 (0.990–1.3)	10 (9.0–12)
	2012	11	0.04 (0.039–0.040)	0.36 (0.35–0.36)	1.4 (0.560–2.6)	13 (5.1–24)	1.1 (0.940–1.2)	9.7 (8.5–11)
Bosnia and Herzegovina	1990	5	0.46 (0.440–0.480)	10 (9.7–11)	6.5 (1.9–14)	145 (43–307)	4.2 (2.6–6.2)	94 (58–138)
	1995	4	0.22 (0.210–0.230)	6.3 (5.9–6.6)	4.6 (2.1–8.1)	131 (59–229)	3 (2.4–3.6)	84 (69–101)
	2000	4	0.23 (0.210–0.240)	5.9 (5.5–6.3)	2.8 (0.830–5.9)	73 (22–154)	2.4 (2.0–2.9)	63 (51–75)
	2005	4	0.21 (0.200–0.230)	5.5 (5.0–6.0)	2.3 (0.640–5.0)	59 (17–129)	2 (1.7–2.4)	52 (43–63)
	2010	4	0.2 (0.180–0.220)	5.2 (4.6–5.7)	2.6 (1.1–4.7)	67 (28–123)	1.9 (1.6–2.2)	50 (43–57)
	2011	4	0.2 (0.170–0.220)	5.1 (4.6–5.7)	2.7 (1.2–4.8)	70 (31–124)	1.9 (1.6–2.2)	49 (42–56)
	2012	4	0.2 (0.180–0.220)	5.2 (4.6–5.8)	2.8 (1.3–4.8)	73 (35–126)	1.9 (1.6–2.1)	49 (42–56)
Bulgaria	1990	9	0.22 (0.210–0.220)	2.4 (2.4–2.5)	4.2 (1.9–7.5)	48 (21–85)	2.9 (2.5–3.3)	33 (29–37)
	1995	8	0.34 (0.340–0.350)	4.1 (4.0–4.2)	8.4 (4.2–14)	101 (51–169)	5.2 (4.5–5.9)	62 (54–71)
	2000	8	0.59 (0.570–0.600)	7.3 (7.2–7.5)	7 (3.3–12)	88 (42–151)	4.6 (4.0–5.3)	58 (50–66)
	2005	8	0.26 (0.260–0.270)	3.4 (3.4–3.5)	6.2 (3.0–11)	81 (39–139)	4.1 (3.6–4.6)	53 (46–61)
	2010	7	0.19 (0.190–0.190)	2.6 (2.5–2.6)	3.9 (1.6–7.1)	53 (22–97)	2.8 (2.5–3.2)	38 (33–43)
	2011	7	0.16 (0.160–0.160)	2.2 (2.2–2.2)	3.5 (1.4–6.4)	48 (20–88)	2.6 (2.2–2.9)	35 (30–40)
	2012	7	0.15 (0.150–0.150)	2 (2.0–2.1)	3.1 (1.3–5.8)	43 (17–80)	2.3 (2.0–2.6)	32 (28–36)
Croatia	1990	5	0.39 (0.380–0.410)	8.2 (8.0–8.5)	4.4 (2.1–7.7)	92 (43–160)	3 (2.6–3.4)	62 (54–70)
	1995	5	0.25 (0.240–0.270)	5.4 (5.0–5.7)	3.3 (1.3–6.1)	70 (28–130)	2.4 (2.1–2.8)	52 (45–59)
	2000	4	0.19 (0.180–0.200)	4.2 (4.0–4.4)	2.5 (1.0–4.7)	57 (23–105)	1.9 (1.6–2.1)	42 (37–47)
	2005	4	0.11 (0.110–0.110)	2.5 (2.5–2.5)	1.6 (0.620–3.0)	36 (14–69)	1.2 (1.1–1.4)	28 (24–31)
	2010	4	0.082 (0.082–0.083)	1.9 (1.9–1.9)	1.1 (0.420–2.0)	24 (9.7–46)	0.79 (0.690–0.900)	18 (16–21)
	2011	4	0.066 (0.066–0.067)	1.5 (1.5–1.5)	0.96 (0.390–1.8)	22 (9.1–41)	0.71 (0.620–0.810)	16 (14–19)
	2012	4	0.061 (0.060–0.062)	1.4 (1.4–1.4)	0.84 (0.340–1.6)	20 (7.9–36)	0.62 (0.540–0.700)	14 (13–16)
Cyprus	1990	< 1	<0.01 (<0.01–<0.01)	0.2 (0.16–0.25)	0.038 (0.011–0.080)	5 (1.5–10)	0.033 (0.029–0.038)	4.4 (3.8–4.9)
	1995	< 1	<0.01 (<0.01–<0.01)	0.2 (0.16–0.25)	0.05 (0.017–0.100)	5.8 (2.0–12)	0.041 (0.036–0.047)	4.8 (4.2–5.5)
	2000	< 1	0 (0–0)	0 (0–0)	0.045 (0.015–0.091)	4.8 (1.6–9.6)	0.038 (0.033–0.043)	4 (3.5–4.6)
	2005	1	<0.01 (<0.01–<0.01)	0.37 (0.32–0.41)	0.051 (0.020–0.095)	4.9 (2.0–9.2)	0.039 (0.034–0.044)	3.8 (3.3–4.3)
	2010	1	<0.01 (<0.01–<0.01)	0.11 (0.10–0.13)	0.1 (0.049–0.180)	9.4 (4.4–16)	0.07 (0.061–0.079)	6.4 (5.6–7.2)
	2011	1	<0.01 (<0.01–<0.01)	0.21 (0.19–0.23)	0.069 (0.023–0.140)	6.2 (2.1–13)	0.059 (0.051–0.066)	5.3 (4.6–5.9)
	2012	1	<0.01 (<0.01–<0.01)	0.2 (0.16–0.25)	0.069 (0.021–0.150)	6.1 (1.8–13)	0.061 (0.053–0.069)	5.4 (4.7–6.1)
Czech Republic	1990	10	0.19 (0.190–0.190)	1.8 (1.8–1.8)	3.1 (1.3–5.6)	30 (12–54)	2.2 (2.0–2.5)	22 (19–24)
	1995	10	0.092 (0.091–0.092)	0.89 (0.88–0.89)	2.8 (1.1–5.3)	27 (11–51)	2.1 (1.8–2.4)	20 (18–23)
	2000	10	0.12 (0.120–0.120)	1.2 (1.2–1.2)	2.2 (0.880–4.1)	21 (8.6–40)	1.6 (1.4–1.8)	16 (14–18)
	2005	10	0.065 (0.064–0.065)	0.63 (0.63–0.63)	1.6 (0.690–2.8)	15 (6.7–28)	1.1 (0.980–1.3)	11 (9.6–12)
	2010	11	0.035 (0.035–0.035)	0.33 (0.33–0.34)	0.99 (0.420–1.8)	9.4 (4.0–17)	0.72 (0.630–0.820)	6.8 (6.0–7.7)
	2011	11	0.051 (0.050–0.051)	0.48 (0.47–0.48)	0.9 (0.380–1.6)	8.5 (3.6–16)	0.65 (0.570–0.740)	6.2 (5.4–7.0)
	2012	11	0.037 (0.037–0.037)	0.35 (0.35–0.35)	0.77 (0.310–1.4)	7.2 (2.9–13)	0.57 (0.500–0.640)	5.3 (4.7–6.0)
Denmark	1990	5	0.054 (0.053–0.056)	1.1 (1.0–1.1)	0.61 (0.300–1.0)	12 (5.8–20)	0.4 (0.350–0.460)	7.8 (6.9–8.9)
	1995	5	0.024 (0.023–0.025)	0.47 (0.45–0.48)	0.64 (0.220–1.3)	12 (4.3–24)	0.52 (0.450–0.580)	9.8 (8.6–11)
	2000	5	0.021 (0.020–0.021)	0.38 (0.38–0.39)	1 (0.490–1.7)	19 (9.1–33)	0.68 (0.590–0.760)	13 (11–14)
	2005	5	0.019 (0.019–0.020)	0.36 (0.35–0.36)	0.67 (0.310–1.2)	12 (5.7–21)	0.45 (0.400–0.510)	8.4 (7.3–9.5)
	2010	6	0.035 (0.034–0.036)	0.63 (0.61–0.66)	0.46 (0.170–0.880)	8.3 (3.1–16)	0.36 (0.320–0.410)	6.5 (5.7–7.3)
	2011	6	0.017 (0.016–0.018)	0.3 (0.28–0.32)	0.58 (0.260–1.0)	10 (4.6–19)	0.41 (0.360–0.470)	7.4 (6.5–8.4)
	2012	6	0.022 (0.021–0.023)	0.4 (0.38–0.42)	0.56 (0.240–1.0)	10 (4.2–18)	0.41 (0.360–0.470)	7.4 (6.5–8.4)
Estonia	1990	2	0.071 (0.070–0.072)	4.5 (4.5–4.6)	0.81 (0.410–1.3)	52 (26–85)	0.49 (0.430–0.550)	31 (27–35)
	1995	1	0.15 (0.140–0.150)	10 (9.9–10)	0.93 (0.350–1.8)	65 (24–125)	0.72 (0.630–0.810)	50 (44–57)
	2000	1	0.11 (0.110–0.110)	8 (7.9–8.2)	1.3 (0.610–2.3)	97 (45–168)	0.91 (0.800–1.0)	67 (58–75)
	2005	1	0.049 (0.048–0.050)	3.7 (3.6–3.8)	0.7 (0.280–1.3)	53 (21–98)	0.55 (0.480–0.620)	42 (36–47)
	2010	1	0.036 (0.035–0.036)	2.7 (2.7–2.8)	0.37 (0.130–0.740)	29 (10–57)	0.33 (0.290–0.370)	25 (22–28)
	2011	1	0.036 (0.036–0.037)	2.8 (2.8–2.8)	0.44 (0.200–0.780)	34 (15–60)	0.34 (0.300–0.390)	26 (23–30)
	2012	1	0.036 (0.036–0.036)	2.8 (2.8–2.8)	0.38 (0.160–0.680)	29 (13–52)	0.3 (0.260–0.340)	23 (20–26)
Finland	1990	5	0.13 (0.130–0.130)	2.5 (2.5–2.5)	1.3 (0.550–2.3)	25 (11–45)	0.89 (0.780–1.0)	18 (16–20)
	1995	5	0.092 (0.092–0.092)	1.8 (1.8–1.8)	1.1 (0.500–1.9)	22 (9.8–38)	0.76 (0.670–0.860)	15 (13–17)
	2000	5	0.083 (0.083–0.084)	1.6 (1.6–1.6)	0.85 (0.370–1.5)	16 (7.2–30)	0.61 (0.530–0.690)	12 (10–13)
	2005	5	0.037 (0.037–0.037)	0.71 (0.71–0.71)	0.55 (0.240–0.980)	10 (4.5–19)	0.39 (0.340–0.440)	7.4 (6.5–8.4)
	2010	5	0.016 (0.016–0.016)	0.3 (0.30–0.30)	0.48 (0.190–0.900)	9 (3.6–17)	0.36 (0.310–0.410)	6.7 (5.9–7.6)
	2011	5	0.021 (0.021–0.021)	0.39 (0.39–0.39)	0.48 (0.190–0.900)	8.9 (3.6–17)	0.36 (0.310–0.410)	6.7 (5.8–7.5)
	2012	5	0.015 (0.015–0.015)	0.29 (0.28–0.29)	0.39 (0.130–0.790)	7.2 (2.4–15)	0.3 (0.260–0.340)	5.5 (4.9–6.3)
France	1990	57	1 (0.980–1.0)	1.8 (1.7–1.8)	16 (7.7–26)	28 (14–47)	11 (11–12)	20 (19–21)
	1995	58	0.79 (0.760–0.810)	1.4 (1.3–1.4)	16 (8.5–27)	28 (15–46)	11 (10–12)	19 (18–20)
	2000	59	0.65 (0.630–0.670)	1.1 (1.1–1.1)	11 (5.6–19)	19 (9.4–31)	7.7 (7.2–8.1)	13 (12–14)
	2005	61	0.43 (0.410–0.440)	0.7 (0.68–0.72)	8.5 (4.0–15)	14 (6.4–24)	6.3 (5.9–6.7)	10 (9.5–11)
	2010	63	0.33 (0.320–0.350)	0.53 (0.51–0.55)	8.9 (4.6–15)	14 (7.3–23)	6 (5.6–6.4)	9.5 (8.9–10)
	2011	64	0.31 (0.300–0.330)	0.5 (0.47–0.52)	8.7 (4.5–14)	14 (7.1–22)	5.9 (5.5–6.2)	9.2 (8.6–9.8)
	2012	64	0.3 (0.280–0.310)	0.46 (0.44–0.49)	7.4 (3.7–12)	12 (5.7–20)	5.3 (4.9–5.6)	8.2 (7.7–8.7)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Georgia	1990	5	0.48 (0.430–0.550)	8.9 (7.8–10)	38 (18–67)	704 (326–1 220)	15 (14–17)	280 (250–312)
	1995	5	0.42 (0.360–0.470)	8.2 (7.2–9.3)	29 (15–48)	571 (290–944)	13 (12–15)	263 (234–293)
	2000	5	0.37 (0.320–0.420)	7.7 (6.7–8.8)	24 (13–40)	516 (270–840)	12 (11–14)	256 (228–285)
	2005	4	0.17 (0.150–0.200)	3.8 (3.3–4.5)	14 (7.5–23)	315 (168–508)	7.8 (7.0–8.7)	175 (156–195)
	2010	4	0.67 (0.370–1.1)	15 (8.4–24)	8.2 (3.8–14)	186 (87–323)	5.6 (5.0–6.2)	128 (114–142)
	2011	4	0.2 (0.160–0.240)	4.5 (3.7–5.5)	7.9 (3.7–14)	182 (84–316)	5.5 (4.9–6.1)	125 (112–140)
	2012	4	0.2 (0.160–0.240)	4.5 (3.7–5.5)	6.9 (2.9–13)	158 (67–288)	5 (4.5–5.6)	116 (103–130)
Germany	1990	80	1.1 (1.0–1.1)	1.3 (1.3–1.3)	23 (10–42)	29 (13–53)	17 (15–19)	21 (18–24)
	1995	83	1.2 (1.2–1.2)	1.4 (1.4–1.5)	19 (7.8–35)	23 (9.3–42)	14 (12–16)	17 (15–19)
	2000	84	0.49 (0.490–0.500)	0.59 (0.58–0.60)	15 (6.6–26)	18 (8.0–32)	10 (9.1–12)	12 (11–14)
	2005	84	0.32 (0.320–0.330)	0.39 (0.38–0.39)	9.3 (4.1–17)	11 (4.9–20)	6.6 (5.7–7.4)	7.8 (6.9–8.8)
	2010	83	0.3 (0.290–0.300)	0.36 (0.35–0.36)	6.4 (2.7–12)	7.7 (3.2–14)	4.7 (4.1–5.3)	5.6 (4.9–6.4)
	2011	83	0.29 (0.280–0.290)	0.35 (0.34–0.35)	6.6 (2.9–12)	7.9 (3.5–14)	4.7 (4.1–5.3)	5.7 (5.0–6.4)
	2012	83	0.29 (0.280–0.290)	0.35 (0.34–0.35)	6.4 (2.8–12)	7.8 (3.3–14)	4.6 (4.1–5.3)	5.6 (4.9–6.4)
Greece	1990	10	0.16 (0.160–0.170)	1.6 (1.5–1.7)	1.5 (0.690–2.6)	15 (6.8–25)	1 (0.880–1.1)	9.9 (8.7–11)
	1995	11	0.16 (0.150–0.170)	1.5 (1.4–1.6)	1.5 (0.620–2.7)	14 (5.8–25)	1.1 (0.950–1.2)	10 (8.9–11)
	2000	11	0.089 (0.085–0.092)	0.81 (0.77–0.84)	1 (0.390–2.0)	9.5 (3.6–18)	0.81 (0.710–0.920)	7.4 (6.4–8.3)
	2005	11	0.094 (0.090–0.098)	0.85 (0.81–0.89)	1.2 (0.590–2.1)	11 (5.3–19)	0.8 (0.700–0.900)	7.2 (6.3–8.2)
	2010	11	0.074 (0.070–0.078)	0.66 (0.63–0.70)	0.62 (0.200–1.3)	5.6 (1.8–11)	0.51 (0.450–0.580)	4.6 (4.0–5.2)
	2011	11	0.078 (0.075–0.082)	0.7 (0.67–0.74)	0.7 (0.280–1.3)	6.3 (2.6–12)	0.52 (0.460–0.590)	4.7 (4.1–5.3)
	2012	11	0.076 (0.073–0.080)	0.69 (0.65–0.72)	0.71 (0.310–1.3)	6.3 (2.8–11)	0.5 (0.440–0.570)	4.5 (3.9–5.1)
Greenland	1990	< 1	<0.01 (<0.01–0.017)	9.5 (0.61–30)	0.14 (0.053–0.260)	245 (96–462)	0.11 (0.093–0.120)	191 (167–216)
	1995	< 1	<0.01 (<0.01–0.017)	9.5 (0.61–30)	0.14 (0.054–0.260)	245 (96–463)	0.11 (0.093–0.120)	191 (167–216)
	2000	< 1	<0.01 (<0.01–0.017)	9.5 (0.61–30)	0.14 (0.053–0.260)	245 (95–464)	0.11 (0.094–0.120)	191 (167–216)
	2005	< 1	<0.01 (<0.01–0.018)	9.6 (0.54–31)	0.14 (0.056–0.260)	247 (98–463)	0.11 (0.095–0.120)	191 (167–216)
	2010	< 1	<0.01 (<0.01–0.038)	14 (<0.1–66)	0.2 (0.092–0.340)	345 (163–595)	0.13 (0.110–0.150)	232 (203–262)
	2011	< 1	<0.01 (<0.01–0.038)	14 (<0.1–66)	0.2 (0.092–0.340)	346 (163–596)	0.13 (0.120–0.150)	234 (205–264)
	2012	< 1	<0.01 (<0.01–<0.01)	6.7 (1.8–15)	0.11 (0.032–0.230)	190 (57–401)	0.097 (0.085–0.110)	170 (149–193)
Hungary	1990	10	0.55 (0.550–0.550)	5.3 (5.3–5.3)	5.5 (2.3–10)	53 (22–96)	4 (3.5–4.5)	39 (34–44)
	1995	10	0.57 (0.570–0.580)	5.5 (5.5–5.6)	6.9 (3.0–12)	67 (29–120)	4.9 (4.3–5.6)	48 (42–54)
	2000	10	0.36 (0.350–0.360)	3.5 (3.5–3.5)	5.2 (2.2–9.6)	51 (22–94)	3.8 (3.3–4.3)	37 (33–42)
	2005	10	0.18 (0.180–0.180)	1.8 (1.8–1.8)	3 (1.2–5.5)	29 (12–55)	2.2 (1.9–2.5)	22 (19–25)
	2010	10	0.1 (0.100–0.100)	1 (1.0–1.0)	2.6 (1.3–4.5)	26 (13–45)	1.7 (1.5–2.0)	17 (15–19)
	2011	10	0.075 (0.075–0.075)	0.75 (0.75–0.75)	2.9 (1.4–4.8)	29 (14–48)	1.8 (1.6–2.0)	18 (16–20)
	2012	10	0.073 (0.073–0.073)	0.73 (0.73–0.73)	2.9 (1.4–4.8)	29 (14–48)	1.8 (1.6–2.0)	18 (16–20)
Iceland	1990	< 1	<0.01 (<0.01–<0.01)	0.4 (0.40–0.40)	0.03 (0.014–0.053)	12 (5.5–21)	0.021 (0.018–0.023)	8.1 (7.1–9.2)
	1995	< 1	<0.01 (<0.01–<0.01)	0.71 (0.71–0.71)	0.017 (<0.01–0.034)	6.3 (2.2–13)	0.014 (0.012–0.016)	5.2 (4.5–5.8)
	2000	< 1	<0.01 (<0.01–<0.01)	0.36 (0.36–0.37)	0.023 (0.011–0.038)	8.1 (4.0–14)	0.015 (0.013–0.017)	5.3 (4.7–6.0)
	2005	< 1	<0.01 (<0.01–<0.01)	0.33 (0.33–0.33)	0.016 (<0.01–0.028)	5.3 (2.4–9.3)	0.012 (0.010–0.013)	3.9 (3.4–4.4)
	2010	< 1	<0.01 (<0.01–<0.01)	0.29 (0.29–0.29)	0.046 (0.024–0.075)	14 (7.5–24)	0.025 (0.022–0.029)	8 (7.0–9.0)
	2011	< 1	<0.01 (<0.01–<0.01)	0.28 (0.28–0.28)	0.013 (<0.01–0.027)	4.1 (1.4–8.4)	<0.01 (<0.01–0.010)	2.9 (2.5–3.2)
	2012	< 1	<0.01 (<0.01–<0.01)	0.27 (0.27–0.27)	0.014 (<0.01–0.028)	4.3 (1.5–8.5)	0.012 (0.010–0.013)	3.5 (3.1–4.0)
Ireland	1990	4	0.051 (0.051–0.052)	1.5 (1.4–1.5)	0.94 (0.360–1.8)	27 (10–51)	0.72 (0.630–0.810)	20 (18–23)
	1995	4	0.036 (0.036–0.036)	1 (1.0–1.0)	0.68 (0.260–1.3)	19 (7.1–36)	0.53 (0.460–0.600)	15 (13–17)
	2000	4	0.059 (0.058–0.059)	1.5 (1.5–1.5)	0.59 (0.240–1.1)	16 (6.2–29)	0.44 (0.390–0.500)	12 (10–13)
	2005	4	0.015 (0.015–0.015)	0.37 (0.37–0.37)	0.68 (0.290–1.2)	16 (7.1–29)	0.49 (0.430–0.550)	12 (10–13)
	2010	4	0.027 (0.027–0.027)	0.61 (0.61–0.61)	0.61 (0.250–1.1)	14 (5.5–25)	0.46 (0.400–0.520)	10 (8.9–12)
	2011	5	0.02 (0.019–0.020)	0.43 (0.43–0.43)	0.64 (0.280–1.1)	14 (6.2–25)	0.46 (0.400–0.520)	10 (8.9–11)
	2012	5	0.018 (0.018–0.018)	0.39 (0.38–0.39)	0.5 (0.180–0.970)	11 (4.0–21)	0.39 (0.340–0.440)	8.6 (7.5–9.7)
Israel	1990	4	0.02 (0.020–0.021)	0.45 (0.43–0.46)	0.39 (0.130–0.780)	8.6 (2.9–17)	0.27 (0.240–0.300)	6 (5.2–6.8)
	1995	5	0.072 (0.069–0.074)	1.3 (1.3–1.4)	0.56 (0.190–1.1)	10 (3.6–21)	0.46 (0.400–0.520)	8.6 (7.5–9.7)
	2000	6	0.034 (0.034–0.035)	0.57 (0.56–0.58)	0.85 (0.370–1.5)	14 (6.1–25)	0.62 (0.540–0.700)	10 (9.0–12)
	2005	7	0.022 (0.022–0.023)	0.34 (0.33–0.35)	0.54 (0.200–1.0)	8.1 (3.1–16)	0.43 (0.370–0.480)	6.5 (5.7–7.3)
	2010	7	0.017 (0.017–0.018)	0.23 (0.23–0.24)	0.46 (0.150–0.940)	6.1 (2.0–13)	0.39 (0.340–0.440)	5.3 (4.6–6.0)
	2011	8	0.017 (0.017–0.018)	0.23 (0.22–0.23)	0.63 (0.260–1.2)	8.3 (3.5–15)	0.47 (0.420–0.540)	6.3 (5.5–7.1)
	2012	8	0.017 (0.017–0.018)	0.23 (0.22–0.23)	0.85 (0.400–1.5)	11 (5.2–19)	0.58 (0.510–0.660)	7.6 (6.7–8.6)
Italy	1990	57	0.61 (0.590–0.630)	1.1 (1.0–1.1)	7 (3.2–12)	12 (5.6–22)	4.9 (4.3–5.5)	8.6 (7.5–9.7)
	1995	57	0.68 (0.660–0.690)	1.2 (1.2–1.2)	9.7 (4.6–17)	17 (8.1–29)	6.5 (5.7–7.3)	11 (10–13)
	2000	57	0.5 (0.480–0.520)	0.87 (0.84–0.91)	5.1 (1.7–10)	9 (3.0–18)	4 (3.5–4.6)	7.1 (6.2–8.0)
	2005	59	0.37 (0.370–0.370)	0.63 (0.63–0.64)	6.1 (2.6–11)	10 (4.4–19)	4.4 (3.9–5.0)	7.5 (6.6–8.5)
	2010	61	0.3 (0.300–0.300)	0.49 (0.49–0.50)	4.5 (1.6–9.0)	7.5 (2.6–15)	3.7 (3.2–4.1)	6 (5.3–6.8)
	2011	61	0.28 (0.280–0.280)	0.46 (0.46–0.47)	5.3 (2.2–9.8)	8.8 (3.6–16)	3.9 (3.4–4.5)	6.5 (5.7–7.3)
	2012	61	0.26 (0.260–0.270)	0.43 (0.43–0.44)	5.7 (2.5–10)	9.4 (4.1–17)	4.1 (3.6–4.6)	6.7 (5.8–7.5)
Kazakhstan	1990	16	2.1 (1.9–2.3)	13 (11–14)	19 (8.3–33)	116 (51–207)	13 (11–15)	79 (66–92)
	1995	16	5.2 (4.8–5.6)	33 (31–36)	110 (54–180)	706 (347–1 190)	50 (42–58)	318 (269–372)
	2000	15	4.8 (4.3–5.3)	33 (29–37)	97 (50–160)	668 (344–1 100)	51 (43–60)	351 (297–411)
	2005	15	4.2 (3.8–4.5)	28 (25–30)	51 (23–92)	340 (149–608)	35 (30–41)	235 (199–275)
	2010	16	2.1 (1.9–2.4)	13 (12–15)	42 (19–75)	266 (118–472)	29 (24–34)	182 (154–213)
	2011	16	1.7 (1.5–1.9)	11 (9.1–12)	50 (25–85)	312 (154–526)	31 (26–36)	193 (163–225)
	2012	16	1.3 (1.0–1.5)	7.8 (6.3–9.3)	31 (12–57)	189 (77–350)	22 (19–26)	137 (116–160)
Kyrgyzstan	1990	4	0.4 (0.340–0.470)	9.1 (7.6–11)	7.5 (3.8–12)	170 (86–283)	4 (3.3–4.8)	92 (76–109)
	1995	5	0.72 (0.620–0.830)	16 (13–18)	15 (7.5–25)	326 (164–542)	7.7 (6.4–9.2)	168 (138–200)
	2000	5	1.3 (1.1–1.4)	25 (23–28)	22 (11–37)	449 (227–747)	12 (10–15)	249 (205–296)
	2005	5	0.82 (0.810–0.830)	16 (16–16)	17 (8.0–29)	334 (159–571)	10 (8.6–12)	208 (171–248)
	2010	5	0.61 (0.610–0.610)	11 (11–12)	11 (4.7–20)	204 (89–367)	7.5 (6.2–9.0)	141 (116–168)
	2011	5	0.57 (0.560–0.570)	10 (10–11)	11 (5.2–20)	211 (96–370)	7.6 (6.3–9.1)	141 (116–168)
	2012	5	0.52 (0.510–0.530)	9.5 (9.3–9.8)	12 (5.5–21)	217 (101–376)	7.7 (6.4–9.2)	141 (116–168)
Latvia	1990	3	0.19 (0.190–0.190)	7.2 (7.1–7.3)	3 (1.6–4.9)	114 (60–186)	1.5 (1.3–1.7)	57 (50–65)
	1995	2	0.34 (0.340–0.350)	14 (14–14)	5.9 (3.1–9.6)	237 (125–385)	3.1 (2.7–3.5)	126 (111–142)
	2000	2	0.3 (0.290–0.310)	13 (12–13)	4.6 (2.3–7.6)	194 (99–321)	2.9 (2.5–3.2)	121 (106–137)
	2005	2	0.18 (0.180–0.190)	8.1 (7.9–8.3)	2.3 (0.990–4.1)	102 (45–185)	1.7 (1.5–1.9)	75 (66–85)
	2010	2	0.083 (0.080–0.086)	4 (3.8–4.1)	1.3 (0.540–2.4)	63 (26–117)	1 (0.930–1.2)	50 (45–56)
	2011	2	0.068 (0.066–0.070)	3.3 (3.2–3.4)	1.2 (0.520–2.3)	60 (25–111)	0.99 (0.890–1.1)	48 (43–53)
	2012	2	0.053 (0.052–0.054)	2.6 (2.5–2.6)	1.6 (0.780–2.6)	76 (38–127)	1.1 (1.0–1.2)	53 (49–58)
Lithuania	1990	4	0.26 (0.260–0.260)	7 (7.0–7.0)	2.5 (1.2–4.4)	69 (32–118)	1.6 (1.4–1.9)	44 (37–52)
	1995	4	0.49 (0.490–0.500)	14 (13–14)	4.9 (2.4–8.5)	136 (65–234)	3.2 (2.8–3.7)	89 (77–102)
	2000	3	0.37 (0.360–0.370)	11 (10–11)	5.5 (2.7–9.3)	157 (78–265)	3.6 (3.2–4.0)	103 (92–114)
	2005	3	0.36 (0.360–0.360)	11 (11–11)	4.2 (2.0–7.2)	127 (60–219)	2.8 (2.5–3.2)	87 (76–97)
	2010	3	0.21 (0.210–0.210)	6.9 (6.8–6.9)	3.1 (1.4–5.6)	103 (46–181)	2.2 (1.9–2.5)	73 (63–82)
	2011	3	0.15 (0.150–0.150)	5 (4.9–5.0)	3 (1.3–5.2)	97 (44–171)	2.1 (1.8–2.4)	69 (61–78)
	2012	3	0.09 (0.088–0.091)	3 (2.9–3.0)	2.8 (1.3–5.0)	93 (42–164)	2 (1.8–2.3)	66 (58–75)
Luxembourg	1990	< 1	<0.01 (<0.01–<0.01)	0.55 (0.54–0.56)	0.083 (0.039–0.140)	22 (10–37)	0.055 (0.048–0.062)	14 (13–16)
	1995	< 1	0 (0–0)	0 (0–0)	0.045 (0.015–0.091)	11 (3.7–22)	0.037 (0.032–0.042)	9 (7.9–10)
	2000	< 1	<0.01 (<0.01–<0.01)	0.24 (0.23–0.24)	0.076 (0.036–0.130)	17 (8.4–30)	0.051 (0.044–0.057)	12 (10–13)
	2005	< 1	<0.01 (<0.01–<0.01)	0.22 (0.21–0.22)	0.06 (0.026–0.110)	13 (5.7–23)	0.043 (0.037–0.048)	9.3 (8.1–11)
	2010	< 1	<0.01 (<0.01–<0.01)	0.19 (0.19–0.20)	0.045 (0.019–0.083)	8.9 (3.8–16)	0.033 (0.029–0.038)	6.6 (5.8–7.4)
	2011	< 1	<0.01 (<0.01–<0.01)	0.19 (0.19–0.19)	0.036 (0.013–0.071)	7 (2.5–14)	0.029 (0.025–0.033)	5.6 (4.9–6.3)
	2012	< 1	<0.01 (<0.01–<0.01)	0.42 (0.41–0.43)	0.053 (0.026–0.089)	10 (4.9–17)	0.034 (0.030–0.039)	6.5 (5.7–7.4)
Malta	1990	< 1	<0.01 (<0.01–<0.01)	0.28 (0.27–0.29)	0.025 (<0.01–0.052)	6.8 (2.2–14)	0.015 (0.013–0.017)	4 (3.5–4.5)
	1995	< 1	<0.01 (<0.01–<0.01)	0.27 (0.26–0.28)	0.024 (<0.01–0.049)	6.1 (2.0–12)	0.013 (0.011–0.014)	3.2 (2.8–3.6)
	2000	< 1	<0.01 (<0.01–<0.01)	0.25 (0.25–0.25)	0.025 (0.011–0.046)	6.2 (2.7–11)	0.018 (0.016–0.021)	4.5 (4.0–5.1)
	2005	< 1	<0.01 (<0.01–<0.01)	0.23 (0.23–0.23)	0.031 (0.011–0.061)	7.5 (2.6–15)	0.025 (0.022–0.029)	6.1 (5.3–6.9)
	2010	< 1	<0.01 (<0.01–<0.01)	0.25 (0.24–0.25)	0.043 (0.014–0.087)	10 (3.4–20)	0.033 (0.029–0.038)	7.9 (6.9–8.9)
	2011	< 1	<0.01 (<0.01–<0.01)	0.69 (0.69–0.69)	0.044 (0.015–0.089)	10 (3.4–21)	0.035 (0.030–0.039)	8.1 (7.1–9.2)
	2012	< 1	<0.01 (<0.01–<0.01)	0.37 (0.36–0.37)	0.069 (0.032–0.120)	16 (7.5–28)	0.048 (0.042–0.055)	11 (9.9–13)
Monaco	1990	< 1	<0.01 (0–<0.01)	0.27 (0–1.5)	<0.01 (<0.01–<0.01)	6.4 (3.2–11)	<0.01 (<0.01–<0.01)	3.9 (3.4–4.4)
	1995	< 1	<0.01 (0–<0.01)	0.26 (0–1.4)	<0.01 (<0.01–<0.01)	6 (3.0–10)	<0.01 (<0.01–<0.01)	3.7 (3.3–4.2)
	2000	< 1	<0.01 (0–<0.01)	<0.1 (<0.1–0.17)	<0.01 (<0.01–<0.01)	1.7 (0.50–3.6)	0 (0–0)	0 (0–0)
	2005	< 1	<0.01 (0–<0.01)	<0.1 (0–0.54)	<0.01 (<0.01–<0.01)	2 (1.0–3.3)	<0.01 (<0.01–<0.01)	1.2 (1.0–1.3)
	2010	< 1	<0.01 (0–<0.01)	0.21 (0–1.1)	<0.01 (<0.01–<0.01)	5 (2.5–8.4)	<0.01 (<0.01–<0.01)	3.1 (2.7–3.5)
	2011	< 1	<0.01 (0–<0.01)	<0.1 (<0.1–0.24)	<0.01 (<0.01–<0.01)	2.4 (0.73–5.2)	<0.01 (<0.01–<0.01)	2.1 (1.8–2.4)
	2012	< 1	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.24)	<0.01 (<0.01–<0.01)	2.7 (0.81–5.7)	<0.01 (<0.01–<0.01)	2.1 (1.8–2.4)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Montenegro	2005	< 1	<0.01 (<0.01–<0.01)	0.57 (0.52–0.62)	0.23 (0.086–0.430)	37 (14–70)	0.18 (0.160–0.200)	29 (26–33)
	2010	< 1	<0.01 (<0.01–<0.01)	0.19 (0.13–0.25)	0.17 (0.073–0.320)	28 (12–51)	0.13 (0.110–0.140)	20 (18–23)
	2011	< 1	<0.01 (<0.01–<0.01)	0.19 (0.13–0.25)	0.18 (0.082–0.320)	29 (13–51)	0.13 (0.110–0.140)	20 (18–23)
	2012	< 1	<0.01 (<0.01–<0.01)	0.19 (0.13–0.25)	0.15 (0.065–0.280)	25 (10–45)	0.11 (0.100–0.130)	18 (16–20)
Netherlands	1990	15	0.034 (0.033–0.035)	0.23 (0.22–0.23)	2.2 (0.920–3.9)	15 (6.2–26)	1.6 (1.4–1.8)	11 (9.3–12)
	1995	15	0.044 (0.043–0.045)	0.29 (0.28–0.29)	2.6 (1.1–4.6)	17 (7.4–30)	1.9 (1.6–2.1)	12 (11–14)
	2000	16	0.034 (0.033–0.035)	0.21 (0.21–0.22)	1.8 (0.620–3.5)	11 (3.9–22)	1.4 (1.3–1.6)	9 (7.9–10)
	2005	16	0.033 (0.032–0.034)	0.2 (0.20–0.21)	1.7 (0.700–3.2)	10 (4.3–19)	1.3 (1.1–1.5)	8 (7.0–9.0)
	2010	17	0.032 (0.031–0.032)	0.19 (0.19–0.20)	1.7 (0.780–3.0)	10 (4.7–18)	1.2 (1.1–1.4)	7.2 (6.3–8.2)
	2011	17	0.019 (0.019–0.019)	0.11 (0.11–0.12)	1.5 (0.670–2.8)	9.2 (4.0–17)	1.1 (0.990–1.3)	6.8 (5.9–7.7)
	2012	17	0.028 (0.028–0.029)	0.17 (0.17–0.17)	1.4 (0.550–2.6)	8.2 (3.3–15)	1.1 (0.930–1.2)	6.3 (5.5–7.2)
Norway	1990	4	0.026 (0.025–0.026)	0.6 (0.59–0.62)	0.43 (0.160–0.820)	10 (3.8–19)	0.33 (0.290–0.370)	7.7 (6.8–8.7)
	1995	4	0.019 (0.019–0.020)	0.44 (0.43–0.45)	0.38 (0.170–0.690)	8.8 (3.8–16)	0.27 (0.240–0.310)	6.2 (5.5–7.0)
	2000	4	0.01 (0.010–0.011)	0.23 (0.22–0.23)	0.32 (0.110–0.630)	7.1 (2.5–14)	0.25 (0.220–0.290)	5.7 (5.0–6.4)
	2005	5	<0.01 (<0.01–0.010)	0.21 (0.21–0.22)	0.42 (0.160–0.790)	9 (3.5–17)	0.32 (0.280–0.360)	6.9 (6.0–7.8)
	2010	5	0.01 (<0.01–0.010)	0.21 (0.20–0.21)	0.44 (0.170–0.850)	9.1 (3.4–17)	0.34 (0.300–0.390)	7 (6.1–7.9)
	2011	5	<0.01 (<0.01–<0.01)	0.12 (0.12–0.13)	0.52 (0.220–0.940)	10 (4.4–19)	0.37 (0.330–0.420)	7.5 (6.6–8.5)
	2012	5	<0.01 (<0.01–<0.01)	0.14 (0.14–0.14)	0.51 (0.220–0.940)	10 (4.3–19)	0.37 (0.330–0.420)	7.5 (6.6–8.5)
Poland	1990	38	1.4 (1.4–1.5)	3.8 (3.6–3.9)	25 (10–47)	66 (27–122)	19 (16–21)	49 (43–55)
	1995	38	1.2 (1.2–1.3)	3.2 (3.0–3.3)	26 (11–46)	67 (29–121)	18 (16–21)	48 (42–54)
	2000	38	1.1 (1.1–1.2)	2.9 (2.8–3.0)	17 (6.6–31)	44 (17–82)	13 (11–14)	33 (29–37)
	2005	38	0.85 (0.820–0.880)	2.2 (2.2–2.3)	13 (5.1–24)	33 (13–62)	9.4 (8.3–11)	25 (22–28)
	2010	38	0.61 (0.580–0.630)	1.6 (1.5–1.6)	11 (4.1–20)	28 (11–53)	8.1 (7.1–9.1)	21 (18–24)
	2011	38	0.7 (0.670–0.730)	1.8 (1.7–1.9)	13 (6.2–23)	35 (16–61)	9.1 (8.0–10)	24 (21–27)
	2012	38	0.67 (0.640–0.700)	1.8 (1.7–1.8)	11 (4.2–20)	28 (11–53)	8.1 (7.1–9.2)	21 (19–24)
Portugal	1990	10	0.31 (0.290–0.330)	3.1 (2.9–3.3)	9.8 (4.2–18)	99 (43–180)	7.1 (6.3–8.1)	72 (63–82)
	1995	10	0.35 (0.330–0.370)	3.5 (3.2–3.7)	8.6 (3.7–15)	85 (37–152)	6.4 (5.6–7.3)	64 (56–72)
	2000	10	0.29 (0.270–0.310)	2.8 (2.6–3.0)	5.9 (2.2–11)	57 (21–110)	4.9 (4.3–5.5)	47 (41–53)
	2005	11	0.18 (0.170–0.190)	1.7 (1.6–1.8)	4.6 (1.8–8.7)	44 (17–83)	3.8 (3.3–4.3)	36 (32–41)
	2010	11	0.13 (0.120–0.130)	1.2 (1.1–1.3)	3.4 (1.4–6.4)	32 (13–61)	2.9 (2.5–3.2)	27 (24–31)
	2011	11	0.15 (0.140–0.160)	1.4 (1.3–1.5)	3.4 (1.4–6.2)	32 (13–59)	2.8 (2.4–3.1)	26 (23–30)
	2012	11	0.14 (0.130–0.140)	1.3 (1.2–1.4)	3.6 (1.6–6.4)	34 (15–61)	2.8 (2.4–3.1)	26 (23–30)
Republic of Moldova	1990	4	0.25 (0.230–0.260)	5.6 (5.2–6.1)	3.5 (1.5–6.2)	79 (34–142)	2.3 (1.9–2.8)	54 (44–64)
	1995	4	0.55 (0.510–0.580)	13 (12–13)	8.9 (4.5–15)	206 (104–342)	4.7 (3.9–5.6)	109 (90–130)
	2000	4	0.72 (0.660–0.780)	17 (16–19)	10 (5.2–17)	254 (126–425)	6 (5.0–7.2)	147 (121–175)
	2005	4	0.75 (0.700–0.790)	20 (19–21)	9.5 (4.1–17)	252 (108–454)	6.6 (5.4–7.9)	175 (144–209)
	2010	4	0.57 (0.550–0.590)	16 (15–16)	8.8 (4.0–15)	245 (112–430)	5.9 (4.9–7.1)	166 (137–198)
	2011	4	0.48 (0.470–0.500)	14 (13–14)	8.6 (4.0–15)	242 (113–419)	5.7 (4.7–6.8)	161 (133–192)
	2012	4	0.63 (0.620–0.640)	18 (18–18)	8.8 (4.2–15)	249 (120–424)	5.6 (4.6–6.7)	160 (132–190)
Romania	1990	23	1.6 (1.6–1.6)	6.9 (6.9–6.9)	67 (34–110)	287 (145–478)	34 (28–41)	146 (120–174)
	1995	23	2.6 (2.6–2.6)	11 (11–11)	81 (41–130)	351 (177–583)	43 (36–52)	189 (155–226)
	2000	22	2.1 (2.1–2.1)	9.5 (9.5–9.5)	66 (32–110)	295 (142–504)	41 (33–48)	181 (149–216)
	2005	22	1.7 (1.7–1.7)	7.8 (7.8–7.8)	46 (20–84)	209 (88–380)	32 (27–39)	147 (121–175)
	2010	22	1.4 (1.4–1.4)	6.5 (6.5–6.5)	34 (15–62)	158 (69–282)	24 (20–28)	109 (89–130)
	2011	22	1.3 (1.3–1.3)	5.9 (5.9–6.0)	33 (15–58)	151 (68–266)	22 (18–26)	101 (83–121)
	2012	22	1.2 (1.2–1.2)	5.6 (5.5–5.6)	31 (15–55)	144 (67–251)	20 (17–24)	94 (77–112)
Russian Federation	1990	148	12 (12–12)	8.2 (8.1–8.3)	120 (59–200)	81 (40–136)	70 (59–81)	47 (40–55)
	1995	149	24 (24–25)	16 (16–17)	240 (120–400)	163 (82–271)	140 (120–170)	96 (81–112)
	2000	147	31 (31–32)	21 (21–22)	300 (150–510)	206 (101–348)	190 (160–220)	127 (108–149)
	2005	144	32 (31–33)	22 (22–23)	320 (160–540)	223 (112–372)	190 (160–230)	135 (114–158)
	2010	144	23 (22–24)	16 (16–16)	220 (100–380)	152 (69–266)	150 (130–180)	106 (89–123)
	2011	143	21 (21–22)	15 (14–15)	190 (85–340)	135 (59–240)	140 (120–160)	97 (82–114)
	2012	143	19 (18–20)	13 (13–14)	170 (73–320)	121 (51–221)	130 (110–150)	91 (77–106)
San Marino	1990	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	7 (2.1–15)	<0.01 (<0.01–<0.01)	4.8 (4.2–5.4)
	1995	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	15 (7.7–25)	<0.01 (<0.01–<0.01)	9 (7.8–10)
	2000	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	8.5 (4.2–14)	<0.01 (<0.01–<0.01)	4.3 (3.7–4.8)
	2005	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	1.8 (0.55–3.9)	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)
	2010	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	2 (0.82–3.7)	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)
	2011	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	2 (0.83–3.7)	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)
	2012	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	2 (0.79–3.7)	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)
Serbia	2005	10	0.28 (0.250–0.300)	2.8 (2.5–3.1)	5.1 (2.1–9.3)	51 (21–93)	3.7 (3.2–4.2)	37 (32–42)
	2010	10	0.16 (0.150–0.180)	1.7 (1.5–1.9)	3.7 (1.5–6.8)	38 (16–70)	2.7 (2.3–3.0)	28 (24–32)
	2011	10	0.16 (0.140–0.170)	1.6 (1.4–1.8)	3.5 (1.5–6.3)	36 (16–66)	2.5 (2.2–2.8)	26 (23–30)
	2012	10	0.14 (0.120–0.160)	1.5 (1.3–1.6)	3 (1.2–5.4)	31 (13–57)	2.2 (1.9–2.4)	23 (20–26)
Serbia & Montenegro	1990	10	0.6 (0.580–0.620)	5.8 (5.6–5.9)	11 (4.5–22)	111 (43–209)	7 (5.0–9.4)	68 (48–91)
	1995	11	0.5 (0.480–0.520)	4.5 (4.4–4.7)	12 (5.8–20)	108 (53–183)	6.7 (5.7–7.9)	61 (52–72)
	2000	11	0.41 (0.400–0.430)	3.8 (3.6–4.0)	7.7 (3.6–13)	71 (33–123)	5 (4.2–5.8)	46 (38–54)
Slovakia	1990	5	0.11 (0.110–0.110)	2.1 (2.1–2.1)	1.9 (0.600–4.0)	36 (11–75)	1.7 (1.5–1.9)	32 (28–36)
	1995	5	0.084 (0.084–0.085)	1.6 (1.6–1.6)	2.4 (1.0–4.5)	46 (19–83)	1.8 (1.6–2.0)	33 (29–37)
	2000	5	0.054 (0.053–0.054)	0.99 (0.99–1.0)	1.5 (0.590–2.9)	28 (11–54)	1.2 (1.0–1.3)	22 (19–24)
	2005	5	0.046 (0.045–0.046)	0.85 (0.84–0.85)	1.1 (0.450–2.1)	21 (8.3–38)	0.82 (0.720–0.920)	15 (13–17)
	2010	5	0.033 (0.033–0.033)	0.61 (0.61–0.62)	0.62 (0.250–1.2)	11 (4.5–22)	0.47 (0.410–0.530)	8.7 (7.6–9.8)
	2011	5	0.034 (0.034–0.035)	0.63 (0.63–0.63)	0.61 (0.260–1.1)	11 (4.9–20)	0.43 (0.380–0.490)	8 (7.0–9.0)
	2012	5	0.034 (0.034–0.035)	0.63 (0.63–0.63)	0.52 (0.220–0.930)	9.5 (4.1–17)	0.37 (0.320–0.420)	6.8 (5.9–7.7)
Slovenia	1990	2	0.05 (0.049–0.051)	2.5 (2.5–2.5)	1.2 (0.550–2.1)	60 (27–106)	0.83 (0.730–0.940)	41 (36–47)
	1995	2	0.032 (0.032–0.033)	1.6 (1.6–1.6)	0.81 (0.330–1.5)	41 (16–76)	0.6 (0.530–0.680)	30 (27–34)
	2000	2	0.017 (0.017–0.017)	0.86 (0.85–0.88)	0.56 (0.220–1.1)	28 (11–53)	0.42 (0.370–0.480)	21 (19–24)
	2005	2	0.017 (0.016–0.017)	0.83 (0.82–0.84)	0.46 (0.210–0.790)	23 (11–40)	0.31 (0.270–0.350)	15 (14–18)
	2010	2	0.019 (0.018–0.019)	0.9 (0.90–0.91)	0.27 (0.110–0.490)	13 (5.4–24)	0.19 (0.170–0.220)	9.5 (8.3–11)
	2011	2	0.02 (0.020–0.020)	0.97 (0.96–0.97)	0.31 (0.150–0.540)	15 (7.3–26)	0.21 (0.180–0.240)	10 (8.8–11)
	2012	2	0.02 (0.020–0.020)	0.97 (0.96–0.97)	0.19 (0.061–0.380)	9 (3.0–18)	0.15 (0.140–0.170)	7.5 (6.5–8.4)
Spain	1990	39	0.89 (0.870–0.900)	2.3 (2.2–2.3)	11 (3.8–21)	28 (9.8–54)	8.7 (7.7–9.9)	22 (20–25)
	1995	39	0.62 (0.610–0.620)	1.6 (1.5–1.6)	13 (5.3–24)	33 (13–60)	10 (8.8–11)	26 (22–29)
	2000	40	0.4 (0.400–0.410)	1 (0.99–1.0)	12 (5.1–22)	30 (13–54)	9.2 (8.1–10)	23 (20–26)
	2005	43	0.35 (0.350–0.360)	0.81 (0.80–0.82)	11 (4.4–20)	25 (10–45)	8.4 (7.3–9.5)	19 (17–22)
	2010	46	0.3 (0.300–0.310)	0.66 (0.65–0.67)	10 (4.4–18)	22 (9.5–40)	7.8 (6.8–8.8)	17 (15–19)
	2011	47	0.23 (0.230–0.230)	0.49 (0.49–0.50)	9.6 (4.1–17)	21 (8.8–37)	7.4 (6.4–8.3)	16 (14–18)
	2012	47	0.27 (0.260–0.270)	0.57 (0.57–0.58)	8.1 (3.2–15)	17 (6.8–33)	6.5 (5.7–7.4)	14 (12–16)
Sweden	1990	9	0.06 (0.060–0.061)	0.7 (0.70–0.71)	0.87 (0.350–1.6)	10 (4.1–19)	0.64 (0.560–0.720)	7.5 (6.6–8.5)
	1995	9	0.024 (0.024–0.024)	0.27 (0.27–0.28)	0.94 (0.430–1.7)	11 (4.9–19)	0.65 (0.570–0.730)	7.3 (6.4–8.3)
	2000	9	0.018 (0.018–0.018)	0.2 (0.20–0.21)	0.66 (0.280–1.2)	7.5 (3.2–14)	0.48 (0.420–0.540)	5.4 (4.7–6.1)
	2005	9	0.015 (0.015–0.015)	0.17 (0.16–0.17)	0.97 (0.480–1.6)	11 (5.3–18)	0.62 (0.540–0.700)	6.9 (6.0–7.8)
	2010	9	0.014 (0.014–0.014)	0.15 (0.14–0.15)	1.1 (0.490–1.8)	11 (5.2–20)	0.72 (0.630–0.810)	7.6 (6.7–8.6)
	2011	9	0.014 (0.013–0.014)	0.14 (0.14–0.15)	0.79 (0.280–1.6)	8.4 (3.0–16)	0.63 (0.550–0.710)	6.6 (5.8–7.5)
	2012	10	0.013 (0.013–0.013)	0.14 (0.13–0.14)	0.92 (0.370–1.7)	9.6 (3.9–18)	0.68 (0.600–0.770)	7.2 (6.3–8.1)
Switzerland	1990	7	0.086 (0.085–0.087)	1.3 (1.3–1.3)	2.1 (0.940–3.7)	31 (14–56)	1.5 (1.3–1.7)	22 (19–25)
	1995	7	0.047 (0.046–0.047)	0.67 (0.66–0.68)	1.3 (0.530–2.4)	18 (7.5–34)	0.95 (0.840–1.1)	14 (12–15)
	2000	7	0.034 (0.034–0.035)	0.48 (0.47–0.49)	0.83 (0.290–1.6)	12 (4.1–23)	0.66 (0.580–0.750)	9.3 (8.1–10)
	2005	7	0.022 (0.021–0.022)	0.29 (0.29–0.30)	0.82 (0.360–1.5)	11 (4.8–20)	0.59 (0.520–0.670)	8 (7.0–9.0)
	2010	8	0.019 (0.019–0.020)	0.25 (0.24–0.25)	0.85 (0.390–1.5)	11 (5.0–19)	0.58 (0.510–0.660)	7.5 (6.5–8.4)
	2011	8	0.018 (0.017–0.018)	0.22 (0.22–0.23)	0.9 (0.420–1.5)	11 (5.4–19)	0.6 (0.530–0.680)	7.6 (6.7–8.6)
	2012	8	0.017 (0.017–0.018)	0.22 (0.21–0.22)	0.57 (0.190–1.2)	7.1 (2.3–15)	0.48 (0.420–0.540)	6 (5.2–6.8)
Tajikistan	1990	5	0.34 (0.240–0.460)	6.4 (4.5–8.6)	6.4 (3.2–11)	121 (60–203)	3.7 (3.0–4.4)	70 (58–83)
	1995	6	0.69 (0.490–0.930)	12 (8.4–16)	20 (9.5–35)	350 (164–604)	8.6 (7.1–10)	148 (122–176)
	2000	6	1.2 (0.690–1.9)	20 (11–31)	30 (15–52)	493 (238–839)	14 (11–16)	220 (182–263)
	2005	7	0.96 (0.720–1.2)	14 (11–18)	27 (13–44)	393 (198–654)	14 (11–16)	200 (165–238)
	2010	8	0.69 (0.520–0.880)	9 (6.8–12)	16 (7.6–27)	206 (99–352)	9.8 (8.1–12)	129 (106–153)
	2011	8	0.65 (0.490–0.830)	8.3 (6.2–11)	14 (6.6–25)	181 (85–315)	9.2 (7.6–11)	118 (97–140)
	2012	8	0.61 (0.460–0.780)	7.6 (5.7–9.7)	13 (5.8–23)	160 (72–283)	8.6 (7.1–10)	108 (89–128)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
The Former Yugoslav Republic of Macedonia	1990	2	0.17 (0.160–0.180)	8.4 (7.9–9.0)	3.3 (0.990–7.1)	167 (49–354)	1.6 (1.0–2.4)	81 (50–119)
	1995	2	0.1 (0.094–0.110)	5.1 (4.8–5.4)	1.6 (0.650–2.9)	81 (33–150)	1.1 (0.930–1.4)	58 (47–69)
	2000	2	0.21 (0.200–0.230)	10 (9.6–11)	1.2 (0.540–2.2)	61 (26–109)	0.85 (0.690–1.0)	41 (34–50)
	2005	2	0.066 (0.064–0.069)	3.2 (3.1–3.3)	0.69 (0.200–1.5)	33 (9.8–70)	0.62 (0.560–0.680)	30 (27–33)
	2010	2	0.034 (0.033–0.035)	1.6 (1.6–1.7)	0.54 (0.190–1.1)	26 (9.0–51)	0.44 (0.380–0.510)	21 (18–24)
	2011	2	0.024 (0.023–0.025)	1.1 (1.1–1.2)	0.54 (0.210–1.0)	25 (10–48)	0.41 (0.360–0.480)	20 (17–23)
	2012	2	0.017 (0.016–0.018)	0.82 (0.77–0.87)	0.54 (0.240–0.970)	26 (11–46)	0.39 (0.330–0.450)	18 (16–21)
Turkey	1990	54	3.4 (0.780–7.8)	6.2 (1.4–14)	27 (11–51)	51 (20–95)	28 (25–32)	52 (46–59)
	1995	59	2.4 (0.860–4.6)	4 (1.5–7.8)	34 (16–57)	58 (28–98)	26 (23–30)	45 (40–51)
	2000	63	2 (0.840–3.7)	3.2 (1.3–5.8)	28 (14–48)	45 (22–76)	21 (18–23)	33 (29–37)
	2005	68	0.99 (0.590–1.5)	1.5 (0.86–2.2)	19 (8.6–33)	28 (13–48)	23 (20–26)	34 (29–38)
	2010	72	0.55 (0.390–0.740)	0.76 (0.53–1.0)	17 (8.1–30)	24 (11–42)	18 (16–21)	25 (22–29)
	2011	73	0.47 (0.340–0.610)	0.64 (0.47–0.83)	17 (8.0–30)	24 (11–41)	17 (15–20)	24 (21–27)
	2012	74	0.39 (0.300–0.480)	0.52 (0.41–0.65)	17 (7.9–30)	23 (11–40)	16 (14–18)	22 (19–25)
Turkmenistan	1990	4	0.49 (0.400–0.590)	13 (11–16)	5.6 (2.5–9.7)	152 (69–265)	3.5 (2.8–4.2)	95 (76–115)
	1995	4	0.83 (0.720–0.950)	20 (17–23)	13 (6.1–22)	302 (145–515)	6.6 (5.4–7.8)	157 (129–187)
	2000	5	1.3 (0.820–1.8)	28 (18–40)	18 (8.6–31)	400 (191–685)	9.4 (7.6–11)	209 (170–252)
	2005	5	1.1 (0.700–1.6)	23 (15–33)	16 (7.6–27)	333 (160–569)	8.3 (6.8–10)	175 (144–210)
	2010	5	0.6 (0.390–0.860)	12 (7.7–17)	8.4 (4.0–14)	166 (79–283)	5.2 (4.3–6.1)	103 (86–121)
	2011	5	0.5 (0.330–0.720)	9.9 (6.4–14)	6.8 (3.0–12)	133 (58–238)	4.5 (3.7–5.5)	89 (73–107)
	2012	5	0.43 (0.260–0.660)	8.4 (5.0–13)	5.1 (1.8–10)	99 (35–196)	3.9 (3.1–4.8)	75 (59–94)
Ukraine	1990	52	5 (4.7–5.2)	9.6 (9.2–10)	33 (15–60)	65 (28–116)	23 (19–27)	45 (37–53)
	1995	51	7.8 (7.5–8.0)	15 (15–16)	69 (35–110)	135 (68–223)	38 (31–45)	74 (62–88)
	2000	49	11 (11–11)	23 (23–23)	81 (38–140)	164 (77–284)	53 (44–63)	108 (90–129)
	2005	47	12 (12–12)	25 (25–26)	75 (31–140)	159 (65–293)	57 (48–68)	121 (101–144)
	2010	46	7.4 (7.3–7.5)	16 (16–16)	68 (32–120)	149 (70–257)	48 (41–57)	105 (88–123)
	2011	46	7.1 (7.0–7.2)	16 (15–16)	66 (31–110)	144 (68–248)	46 (38–54)	99 (83–118)
	2012	46	6.1 (6.0–6.2)	13 (13–14)	62 (29–110)	137 (65–236)	42 (35–51)	93 (77–112)
United Kingdom of Great Britain and Northern Ireland	1990	57	0.44 (0.440–0.450)	0.78 (0.77–0.78)	8.6 (3.5–16)	15 (6.0–28)	6.6 (6.2–7.1)	12 (11–12)
	1995	58	0.51 (0.510–0.520)	0.88 (0.87–0.89)	9.3 (3.9–17)	16 (6.8–29)	6.9 (6.5–7.4)	12 (11–13)
	2000	59	0.43 (0.420–0.440)	0.73 (0.72–0.74)	9.2 (3.9–17)	16 (6.6–29)	7 (6.5–7.4)	12 (11–13)
	2005	60	0.39 (0.380–0.390)	0.64 (0.63–0.65)	13 (6.0–22)	21 (10–37)	9.2 (8.6–9.8)	15 (14–16)
	2010	62	0.32 (0.320–0.330)	0.52 (0.52–0.53)	11 (4.2–21)	18 (6.8–34)	8.9 (8.3–9.4)	14 (13–15)
	2011	62	0.34 (0.340–0.340)	0.54 (0.54–0.55)	13 (5.4–23)	20 (8.6–36)	9.5 (8.8–10)	15 (14–16)
	2012	63	0.34 (0.340–0.340)	0.54 (0.54–0.55)	13 (5.4–23)	20 (8.7–36)	9.4 (8.8–10)	15 (14–16)
Uzbekistan	1990	21	1.7 (1.5–1.9)	8.3 (7.2–9.4)	54 (27–90)	262 (130–438)	26 (21–31)	125 (103–149)
	1995	23	2.7 (2.4–3.1)	12 (10–13)	100 (50–170)	447 (216–760)	46 (38–55)	200 (165–238)
	2000	25	4.3 (3.7–5.0)	17 (15–20)	160 (77–270)	647 (310–1 100)	71 (59–85)	287 (237–342)
	2005	26	3.5 (3.1–4.0)	14 (12–15)	130 (63–210)	485 (240–814)	61 (50–72)	233 (193–278)
	2010	28	1.5 (0.850–2.3)	5.3 (3.1–8.3)	63 (32–100)	227 (115–376)	34 (28–40)	122 (101–146)
	2011	28	1.1 (0.600–1.6)	3.7 (2.1–5.8)	52 (26–86)	183 (92–304)	29 (24–34)	101 (84–121)
	2012	29	0.6 (0.350–0.930)	2.1 (1.2–3.3)	39 (19–65)	135 (67–227)	22 (18–27)	78 (65–93)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Albania	1990	3	0.84 (0.600–1.1)	24 (18–32)			653	19	78 (59–110)
	1995	3	0.82 (0.680–0.970)	24 (20–29)			641	19	78 (66–94)
	2000	3	0.75 (0.630–0.870)	23 (19–26)			604	18	81 (69–95)
	2005	3	0.63 (0.530–0.730)	20 (17–23)			506	16	81 (69–95)
	2010	3	0.53 (0.450–0.620)	17 (14–20)			431	14	81 (69–95)
	2011	3	0.52 (0.440–0.610)	17 (14–19)			422	13	81 (69–95)
	2012	3	0.51 (0.430–0.590)	16 (14–19)			408	13	81 (69–95)
Andorra	1990	< 1	0.026 (0.023–0.030)	49 (43–55)			23	42	87 (77–99)
	1995	< 1	0.023 (0.020–0.026)	37 (32–41)					
	2000	< 1	0.014 (0.012–0.016)	21 (18–24)			12	18	87 (77–99)
	2005	< 1	0.012 (0.010–0.013)	14 (12–16)			10	12	87 (77–99)
	2010	< 1	<0.01 (<0.01–<0.01)	10 (9.1–12)			7	9	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	4.4 (3.9–5.0)			3	3.9	87 (77–99)
	2012	< 1	0.01 (<0.01–0.012)	13 (12–15)			9	11	87 (77–99)
Armenia	1990	4	0.63 (0.470–0.810)	18 (13–23)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	590	17	94 (73–130)
	1995	3	1.2 (1.0–1.4)	38 (32–44)	<0.01 (<0.01–<0.01)	0.2 (0.17–0.24)	1 000	31	82 (70–98)
	2000	3	1.9 (1.6–2.1)	61 (53–68)	0.028 (0.025–0.032)	0.9 (0.81–1.0)	1 333	43	71 (63–81)
	2005	3	2.3 (2.1–2.6)	77 (68–87)	0.06 (0.053–0.068)	2 (1.8–2.2)	2 206	73	95 (84–110)
	2010	3	1.8 (1.6–2.2)	62 (53–73)	0.048 (0.040–0.056)	1.6 (1.4–1.9)	1 410	48	76 (65–90)
	2011	3	1.6 (1.3–1.9)	55 (45–65)	0.041 (0.034–0.049)	1.4 (1.1–1.6)	1 261	43	78 (65–94)
	2012	3	1.5 (1.3–1.8)	52 (43–61)	0.038 (0.032–0.045)	1.3 (1.1–1.5)	1 213	41	79 (67–95)
Austria	1990	8	1.7 (1.5–2.0)	23 (20–26)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 521	20	87 (77–99)
	1995	8	1.7 (1.5–1.9)	21 (19–24)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 481	19	87 (77–99)
	2000	8	1.4 (1.2–1.5)	17 (15–19)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 185	15	87 (77–99)
	2005	8	1.1 (0.940–1.2)	13 (11–15)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	928	11	87 (77–99)
	2010	8	0.76 (0.660–0.860)	9 (7.9–10)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	659	7.8	87 (77–99)
	2011	8	0.77 (0.680–0.870)	9.2 (8.0–10)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	671	8	87 (77–99)
	2012	8	0.67 (0.590–0.760)	7.9 (6.9–8.9)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	620	7.3	93 (82–110)
Azerbaijan	1990	7	22 (18–26)	305 (252–363)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 620	36	12 (10–14)
	1995	8	49 (41–59)	637 (526–759)	0.035 (0.029–0.041)	0.5 (0.37–0.53)	1 630	21	3.3 (2.8–4.0)
	2000	8	55 (46–66)	682 (563–813)	0.19 (0.16–0.22)	2.3 (1.9–2.8)	5 187	64	9.4 (7.9–11)
	2005	9	29 (24–34)	335 (276–398)	0.22 (0.18–0.26)	2.5 (2.1–3.0)	6 034	70	21 (18–26)
	2010	9	12 (9.8–14)	131 (108–156)	0.12 (0.10–0.14)	1.3 (1.1–1.6)	7 550	83	64 (53–77)
	2011	9	10 (8.6–12)	113 (93–135)	0.11 (0.089–0.13)	1.2 (0.97–1.4)	9 146	99	88 (74–110)
	2012	9	8.9 (7.3–11)	95 (78–114)	0.094 (0.077–0.11)	1 (0.83–1.2)	6 363	68	72 (60–87)
Belarus	1990	10	3.5 (2.8–4.3)	34 (27–42)			3 039	30	86 (70–110)
	1995	10	6.9 (5.9–8.1)	68 (58–80)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	4 854	48	70 (60–82)
	2000	10	8.4 (6.9–9.9)	84 (69–100)	0.017 (0.014–0.020)	0.2 (0.14–0.20)	6 799	68	81 (68–98)
	2005	10	6.9 (5.3–8.8)	72 (55–91)	0.13 (0.096–0.16)	1.3 (1.0–1.6)	5 308	55	76 (61–100)
	2010	9	6.7 (5.3–8.1)	70 (56–86)	0.26 (0.20–0.31)	2.7 (2.2–3.3)	5 098	54	76 (63–96)
	2011	9	6.6 (5.4–8.0)	70 (57–85)	0.27 (0.22–0.32)	2.8 (2.3–3.4)	4 697	50	71 (59–87)
	2012	9	6.6 (5.4–8.0)	70 (57–85)	0.28 (0.23–0.34)	3 (2.4–3.6)	4 783	51	72 (60–89)
Belgium	1990	10	1.8 (1.6–2.1)	18 (16–21)	0.01 (<0.01–0.011)	0.1 (<0.1–0.12)	1 577	16	87 (77–99)
	1995	10	1.6 (1.4–1.8)	16 (14–18)	0.038 (0.033–0.043)	0.4 (0.33–0.42)	1 380	14	87 (77–99)
	2000	10	1.5 (1.3–1.7)	14 (13–16)	0.041 (0.036–0.046)	0.4 (0.35–0.45)	1 278	12	87 (77–99)
	2005	11	1.2 (1.1–1.4)	12 (10–13)	0.041 (0.036–0.047)	0.4 (0.34–0.45)	1 076	10	87 (77–99)
	2010	11	1.2 (1.0–1.3)	11 (9.5–12)	0.044 (0.038–0.050)	0.4 (0.35–0.45)	1 028	9.4	87 (77–99)
	2011	11	1.1 (0.990–1.3)	10 (9.0–12)	0.042 (0.037–0.048)	0.4 (0.34–0.44)	985	8.9	87 (77–99)
	2012	11	1.1 (0.940–1.2)	9.7 (8.5–11)	0.041 (0.036–0.046)	0.4 (0.32–0.42)	909	8.2	85 (75–97)
Bosnia and Herzegovina	1990	5	4.2 (2.6–6.2)	94 (58–138)			4 073	90	96 (65–160)
	1995	4	3 (2.4–3.6)	84 (69–101)			2 132	61	72 (60–88)
	2000	4	2.4 (2.0–2.9)	63 (51–75)			2 476	65	100 (86–130)
	2005	4	2 (1.7–2.4)	52 (43–63)			2 111	54	100 (87–130)
	2010	4	1.9 (1.6–2.2)	50 (43–57)			1 321	34	69 (60–81)
	2011	4	1.9 (1.6–2.2)	49 (42–56)			1 360	35	72 (63–84)
	2012	4	1.9 (1.6–2.1)	49 (42–56)			1 409	37	76 (66–88)
Bulgaria	1990	9	2.9 (2.5–3.3)	33 (29–37)	<0.01 (<0.01–<0.01)	0 (0–0)	2 256	26	78 (68–89)
	1995	8	5.2 (4.5–5.9)	62 (54–71)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 245	39	62 (55–71)
	2000	8	4.6 (4.0–5.3)	58 (50–66)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 349	42	72 (64–83)
	2005	8	4.1 (3.6–4.6)	53 (46–61)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 225	42	79 (69–91)
	2010	7	2.8 (2.5–3.2)	38 (33–43)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 412	33	86 (75–98)
	2011	7	2.6 (2.2–2.9)	35 (30–40)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 172	30	85 (74–97)
	2012	7	2.3 (2.0–2.6)	32 (28–36)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 081	29	90 (79–100)
Croatia	1990	5	3 (2.6–3.4)	62 (54–70)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 576	54	87 (77–99)
	1995	5	2.4 (2.1–2.8)	52 (45–59)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 114	45	87 (77–99)
	2000	4	1.9 (1.6–2.1)	42 (37–47)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 630	36	87 (77–99)
	2005	4	1.2 (1.1–1.4)	28 (24–31)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 050	24	87 (77–99)
	2010	4	0.79 (0.690–0.900)	18 (16–21)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	688	16	87 (77–99)
	2011	4	0.71 (0.620–0.810)	16 (14–19)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	619	14	87 (77–99)
	2012	4	0.62 (0.540–0.700)	14 (13–16)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)			
Cyprus	1990	< 1	0.033 (0.029–0.038)	4.4 (3.8–4.9)			29	3.8	87 (77–99)
	1995	< 1	0.041 (0.036–0.047)	4.8 (4.2–5.5)			36	4.2	87 (77–99)
	2000	< 1	0.038 (0.033–0.043)	4 (3.5–4.6)			33	3.5	87 (77–99)
	2005	1	0.039 (0.034–0.044)	3.8 (3.3–4.3)			34	3.3	87 (77–99)
	2010	1	0.07 (0.061–0.079)	6.4 (5.6–7.2)			61	5.5	87 (77–99)
	2011	1	0.059 (0.051–0.066)	5.3 (4.6–5.9)			51	4.6	87 (77–99)
	2012	1	0.061 (0.053–0.069)	5.4 (4.7–6.1)			63	5.6	100 (92–120)
Czech Republic	1990	10	2.2 (2.0–2.5)	22 (19–24)	<0.01 (<0.01–<0.01)	0 (0–0)	1 937	19	87 (77–99)
	1995	10	2.1 (1.8–2.4)	20 (18–23)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 834	18	87 (77–99)
	2000	10	1.6 (1.4–1.8)	16 (14–18)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 414	14	87 (77–99)
	2005	10	1.1 (0.980–1.3)	11 (9.6–12)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	973	9.5	87 (77–99)
	2010	11	0.72 (0.630–0.820)	6.8 (6.0–7.7)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	627	5.9	87 (77–99)
	2011	11	0.65 (0.570–0.740)	6.2 (5.4–7.0)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	569	5.4	87 (77–99)
	2012	11	0.57 (0.500–0.640)	5.3 (4.7–6.0)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	565	5.3	99 (88–110)
Denmark	1990	5	0.4 (0.350–0.460)	7.8 (6.9–8.9)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.12)	350	6.8	87 (77–99)
	1995	5	0.52 (0.450–0.580)	9.8 (8.6–11)	0.011 (<0.01–0.013)	0.2 (0.19–0.24)	448	8.6	87 (77–99)
	2000	5	0.68 (0.590–0.760)	13 (11–14)	<0.01 (<0.01–0.010)	0.2 (0.15–0.20)	587	11	87 (77–99)
	2005	5	0.45 (0.400–0.510)	8.4 (7.3–9.5)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.14)	395	7.3	87 (77–99)
	2010	6	0.36 (0.320–0.410)	6.5 (5.7–7.3)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.12)	313	5.6	87 (77–99)
	2011	6	0.41 (0.360–0.470)	7.4 (6.5–8.4)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.14)	359	6.4	87 (77–99)
	2012	6	0.41 (0.360–0.470)	7.4 (6.5–8.4)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.14)			
Estonia	1990	2	0.49 (0.430–0.550)	31 (27–35)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	423	27	87 (77–99)
	1995	1	0.72 (0.630–0.810)	50 (44–57)	<0.01 (<0.01–<0.01)	0.2 (0.16–0.21)	624	44	87 (77–99)
	2000	1	0.91 (0.800–1.0)	67 (58–75)	0.021 (0.018–0.024)	1.5 (1.4–1.7)	791	58	87 (77–99)
	2005	1	0.55 (0.480–0.620)	42 (36–47)	0.044 (0.038–0.050)	3.3 (2.9–3.7)	479	36	87 (77–99)
	2010	1	0.33 (0.290–0.370)	25 (22–28)	0.04 (0.035–0.045)	3.1 (2.7–3.5)	283	22	87 (77–99)
	2011	1	0.34 (0.300–0.390)	26 (23–30)	0.043 (0.038–0.048)	3.3 (2.9–3.7)	296	23	87 (77–99)
	2012	1	0.3 (0.260–0.340)	23 (20–26)	0.039 (0.034–0.044)	3 (2.7–3.4)	259	20	87 (77–99)
Finland	1990	5	0.89 (0.780–1.0)	18 (16–20)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	772	15	87 (77–99)
	1995	5	0.76 (0.670–0.860)	15 (13–17)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	661	13	87 (77–99)
	2000	5	0.61 (0.530–0.690)	12 (10–13)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	527	10	87 (77–99)
	2005	5	0.39 (0.340–0.440)	7.4 (6.5–8.4)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	339	6.5	87 (77–99)
	2010	5	0.36 (0.310–0.410)	6.7 (5.9–7.6)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	312	5.8	87 (77–99)
	2011	5	0.36 (0.310–0.410)	6.7 (5.8–7.5)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	312	5.8	87 (77–99)
	2012	5	0.3 (0.260–0.340)	5.5 (4.9–6.3)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	261	4.8	87 (77–99)
France	1990	57	11 (11–12)	20 (19–21)	0.87 (0.82–0.93)	1.5 (1.4–1.6)	9 030	16	80 (75–85)
	1995	58	11 (10–12)	19 (18–20)	0.76 (0.72–0.81)	1.3 (1.2–1.4)	8 723	15	80 (75–85)
	2000	59	7.7 (7.2–8.1)	13 (12–14)	0.41 (0.38–0.43)	0.7 (0.64–0.73)	6 122	10	80 (75–85)
	2005	61	6.3 (5.9–6.7)	10 (9.5–11)	0.42 (0.39–0.44)	0.7 (0.63–0.72)	5 003	8.1	80 (75–85)
	2010	63	6 (5.6–6.4)	9.5 (8.9–10)	0.42 (0.40–0.45)	0.7 (0.63–0.71)	4 801	7.6	80 (75–85)
	2011	64	5.9 (5.5–6.2)	9.2 (8.6–9.8)	0.4 (0.38–0.43)	0.6 (0.60–0.68)	4 681	7.4	80 (75–85)
	2012	64	5.3 (4.9–5.6)	8.2 (7.7–8.7)	0.37 (0.34–0.39)	0.6 (0.54–0.61)			

[a] Rates are per 100 000 population.

[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Georgia	1990	5	15 (14–17)	280 (250–312)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 537	28	10 (9.0–11)
	1995	5	13 (12–15)	263 (234–293)	0.012 (0.011–0.013)	0.2 (0.21–0.26)	1 625	32	12 (11–14)
	2000	5	12 (11–14)	256 (228–285)	0.024 (0.022–0.027)	0.5 (0.46–0.57)	4 397	93	36 (32–41)
	2005	4	7.8 (7.0–8.7)	175 (156–195)	0.031 (0.028–0.035)	0.7 (0.62–0.78)	4 503	101	58 (52–65)
	2010	4	5.6 (5.0–6.2)	128 (114–142)	0.043 (0.038–0.048)	1 (0.88–1.1)	4 678	107	83 (75–94)
	2011	4	5.5 (4.9–6.1)	125 (112–140)	0.048 (0.043–0.054)	1.1 (0.98–1.2)	4 547	104	83 (74–93)
	2012	4	5 (4.5–5.6)	116 (103–130)	0.05 (0.045–0.056)	1.2 (1.0–1.3)	3 940	90	78 (70–88)
Germany	1990	80	17 (15–19)	21 (18–24)	0.081 (0.071–0.092)	0.1 (<0.1–0.11)	14 653	18	87 (77–99)
	1995	83	14 (12–16)	17 (15–19)	0.083 (0.073–0.094)	0.1 (<0.1–0.11)	12 198	15	87 (77–99)
	2000	84	10 (9.1–12)	12 (11–14)	0.054 (0.047–0.061)	<0.1 (<0.1–<0.1)	9 064	11	87 (77–99)
	2005	84	6.6 (5.7–7.4)	7.8 (6.9–8.8)	0.043 (0.037–0.048)	<0.1 (<0.1–<0.1)	5 700	6.8	87 (77–99)
	2010	83	4.7 (4.1–5.3)	5.6 (4.9–6.4)	0.034 (0.029–0.038)	<0.1 (<0.1–<0.1)	4 059	4.9	87 (77–99)
	2011	83	4.7 (4.1–5.3)	5.7 (5.0–6.4)	0.034 (0.030–0.038)	<0.1 (<0.1–<0.1)	4 089	4.9	87 (77–99)
	2012	83	4.6 (4.1–5.3)	5.6 (4.9–6.4)	0.034 (0.030–0.039)	<0.1 (<0.1–<0.1)	4 043	4.9	87 (77–99)
Greece	1990	10	1 (0.880–1.1)	9.9 (8.7–11)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	877	8.6	87 (77–99)
	1995	11	1.1 (0.950–1.2)	10 (8.9–11)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	939	8.8	87 (77–99)
	2000	11	0.81 (0.710–0.920)	7.4 (6.4–8.3)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	703	6.4	87 (77–99)
	2005	11	0.8 (0.700–0.900)	7.2 (6.3–8.2)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	693	6.3	87 (77–99)
	2010	11	0.51 (0.450–0.580)	4.6 (4.0–5.2)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	445	4	87 (77–99)
	2011	11	0.52 (0.460–0.590)	4.7 (4.1–5.3)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	454	4.1	87 (77–99)
	2012	11	0.5 (0.440–0.570)	4.5 (3.9–5.1)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)			
Greenland	1990	< 1	0.11 (0.093–0.120)	191 (167–216)					
	1995	< 1	0.11 (0.093–0.120)	191 (167–216)					
	2000	< 1	0.11 (0.094–0.120)	191 (167–216)					
	2005	< 1	0.11 (0.095–0.120)	191 (167–216)					
	2010	< 1	0.13 (0.110–0.150)	232 (203–262)			114	202	87 (77–99)
	2011	< 1	0.13 (0.120–0.150)	234 (205–264)			115	203	87 (77–99)
	2012	< 1	0.097 (0.085–0.110)	170 (149–193)			84	148	87 (77–99)
Hungary	1990	10	4 (3.5–4.5)	39 (34–44)	0.024 (0.021–0.027)	0.2 (0.20–0.26)	3 588	35	90 (79–100)
	1995	10	4.9 (4.3–5.6)	48 (42–54)	0.028 (0.024–0.031)	0.3 (0.23–0.30)	4 339	42	88 (78–100)
	2000	10	3.8 (3.3–4.3)	37 (33–42)	0.015 (0.013–0.017)	0.2 (0.13–0.17)	3 073	30	81 (71–92)
	2005	10	2.2 (1.9–2.5)	22 (19–25)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 808	18	82 (72–93)
	2010	10	1.7 (1.5–2.0)	17 (15–19)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 543	15	90 (79–100)
	2011	10	1.8 (1.6–2.0)	18 (16–20)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 279	13	72 (63–82)
	2012	10	1.8 (1.6–2.0)	18 (16–20)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 159	12	65 (57–75)
Iceland	1990	< 1	0.021 (0.018–0.023)	8.1 (7.1–9.2)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	18	7.1	87 (77–99)
	1995	< 1	0.014 (0.012–0.016)	5.2 (4.5–5.8)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.12)	12	4.5	87 (77–99)
	2000	< 1	0.015 (0.013–0.017)	5.3 (4.7–6.0)	<0.01 (<0.01–<0.01)	0.2 (0.16–0.21)	13	4.6	87 (77–99)
	2005	< 1	0.012 (0.010–0.013)	3.9 (3.4–4.4)	<0.01 (<0.01–<0.01)	0.2 (0.21–0.27)	10	3.4	87 (77–99)
	2010	< 1	0.025 (0.022–0.029)	8 (7.0–9.0)	<0.01 (<0.01–<0.01)	0.6 (0.49–0.63)	22	6.9	87 (77–99)
	2011	< 1	<0.01 (<0.01–0.010)	2.9 (2.5–3.2)	<0.01 (<0.01–<0.01)	0.2 (0.17–0.22)	8	2.5	87 (77–99)
	2012	< 1	0.012 (0.010–0.013)	3.5 (3.1–4.0)	<0.01 (<0.01–<0.01)	0.2 (0.21–0.28)	10	3.1	87 (77–99)
Ireland	1990	4	0.72 (0.630–0.810)	20 (18–23)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	624	18	87 (77–99)
	1995	4	0.53 (0.460–0.600)	15 (13–17)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	458	13	87 (77–99)
	2000	4	0.44 (0.390–0.500)	12 (10–13)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	386	10	87 (77–99)
	2005	4	0.49 (0.430–0.550)	12 (10–13)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.11)	423	10	87 (77–99)
	2010	4	0.46 (0.400–0.520)	10 (8.9–12)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.11)	396	8.9	87 (77–99)
	2011	5	0.46 (0.400–0.520)	10 (8.9–11)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.11)	398	8.8	87 (77–99)
	2012	5	0.39 (0.340–0.440)	8.6 (7.5–9.7)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	341	7.5	87 (77–99)
Israel	1990	4	0.27 (0.240–0.300)	6 (5.2–6.8)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	234	5.2	87 (77–99)
	1995	5	0.46 (0.400–0.520)	8.6 (7.5–9.7)	0.012 (0.010–0.013)	0.2 (0.19–0.25)	398	7.5	87 (77–99)
	2000	6	0.62 (0.540–0.700)	10 (9.0–12)	0.019 (0.017–0.022)	0.3 (0.28–0.37)	537	8.9	87 (77–99)
	2005	7	0.43 (0.370–0.480)	6.5 (5.7–7.3)	0.014 (0.012–0.016)	0.2 (0.19–0.24)	371	5.6	87 (77–99)
	2010	7	0.39 (0.340–0.440)	5.3 (4.6–6.0)	0.014 (0.013–0.016)	0.2 (0.17–0.22)	340	4.6	87 (77–99)
	2011	8	0.47 (0.420–0.540)	6.3 (5.5–7.1)	0.018 (0.016–0.020)	0.2 (0.21–0.27)	412	5.5	87 (77–99)
	2012	8	0.58 (0.510–0.660)	7.6 (6.7–8.6)	0.022 (0.019–0.025)	0.3 (0.25–0.33)	506	6.6	87 (77–99)
Italy	1990	57	4.9 (4.3–5.5)	8.6 (7.5–9.7)	0.052 (0.046–0.059)	<0.1 (<0.1–0.10)	4 246	7.5	87 (77–99)
	1995	57	6.5 (5.7–7.3)	11 (10–13)	0.13 (0.11–0.15)	0.2 (0.20–0.26)	5 627	9.9	87 (77–99)
	2000	57	4 (3.5–4.6)	7.1 (6.2–8.0)	0.056 (0.049–0.064)	0.1 (<0.1–0.11)	3 501	6.1	87 (77–99)
	2005	59	4.4 (3.9–5.0)	7.5 (6.6–8.5)	0.065 (0.057–0.073)	0.1 (0.10–0.12)	3 844	6.6	87 (77–99)
	2010	61	3.7 (3.2–4.1)	6 (5.3–6.8)	0.055 (0.049–0.063)	<0.1 (<0.1–0.10)	3 175	5.2	87 (77–99)
	2011	61	3.9 (3.4–4.5)	6.5 (5.7–7.3)	0.06 (0.053–0.068)	0.1 (<0.1–0.11)	3 421	5.6	87 (77–99)
	2012	61	4.1 (3.6–4.6)	6.7 (5.8–7.5)	0.062 (0.055–0.071)	0.1 (<0.1–0.12)			
Kazakhstan	1990	16	13 (11–15)	79 (66–92)	<0.01 (<0.01–<0.01)	<0.1 (0–<0.1)	10 969	68	86 (74–100)
	1995	16	50 (42–58)	318 (269–372)	0.03 (0.025–0.035)	0.2 (0.16–0.22)	11 310	73	23 (20–27)
	2000	15	51 (43–60)	351 (297–411)	0.23 (0.19–0.27)	1.6 (1.3–1.9)	25 843	177	50 (43–60)
	2005	15	35 (30–41)	235 (199–275)	0.28 (0.24–0.33)	1.9 (1.6–2.2)	28 629	190	81 (69–96)
	2010	16	29 (24–34)	182 (154–213)	0.3 (0.26–0.36)	1.9 (1.6–2.2)	23 399	147	81 (69–96)
	2011	16	31 (26–36)	193 (163–225)	0.35 (0.29–0.41)	2.2 (1.8–2.5)	25 074	156	81 (69–96)
	2012	16	22 (19–26)	137 (116–160)	0.26 (0.22–0.31)	1.6 (1.4–1.9)	18 006	111	81 (69–96)
Kyrgyzstan	1990	4	4 (3.3–4.8)	92 (76–109)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 306	52	57 (48–69)
	1995	5	7.7 (6.4–9.2)	168 (138–200)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 393	74	44 (37–53)
	2000	5	12 (10–15)	249 (205–296)	0.016 (0.013–0.019)	0.3 (0.27–0.38)	6 205	125	50 (42–61)
	2005	5	10 (8.6–12)	208 (171–248)	0.059 (0.048–0.070)	1.2 (0.96–1.4)	6 329	126	60 (51–73)
	2010	5	7.5 (6.2–9.0)	141 (116–168)	0.17 (0.14–0.21)	3.2 (2.7–3.8)	5 652	106	75 (63–91)
	2011	5	7.6 (6.3–9.1)	141 (116–168)	0.22 (0.19–0.27)	4.2 (3.4–5.0)	5 980	111	78 (66–95)
	2012	5	7.7 (6.4–9.2)	141 (116–168)	0.29 (0.24–0.34)	5.3 (4.4–6.3)	6 195	113	80 (67–97)
Latvia	1990	3	1.5 (1.3–1.7)	57 (50–65)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.12)	906	34	59 (52–68)
	1995	2	3.1 (2.7–3.5)	126 (111–142)	0.02 (0.018–0.023)	0.8 (0.71–0.91)	1 541	62	49 (44–56)
	2000	2	2.9 (2.5–3.2)	121 (106–137)	0.06 (0.053–0.068)	2.6 (2.2–2.9)	1 982	84	69 (61–79)
	2005	2	1.7 (1.5–1.9)	75 (66–85)	0.089 (0.078–0.10)	4 (3.5–4.5)	1 409	63	84 (74–96)
	2010	2	1 (0.930–1.2)	50 (45–56)	0.089 (0.079–0.099)	4.3 (3.8–4.8)	913	44	87 (78–98)
	2011	2	0.99 (0.890–1.1)	48 (43–53)	0.089 (0.079–0.099)	4.3 (3.8–4.8)	864	42	87 (78–97)
	2012	2	1.1 (1.0–1.2)	53 (49–58)	0.1 (0.093–0.11)	5 (4.5–5.4)	959	47	87 (80–95)
Lithuania	1990	4	1.6 (1.4–1.9)	44 (37–52)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 471	40	90 (77–110)
	1995	4	3.2 (2.8–3.7)	89 (77–102)	0.013 (0.011–0.015)	0.4 (0.31–0.41)	2 362	65	73 (64–85)
	2000	3	3.6 (3.2–4.0)	103 (92–114)	0.037 (0.033–0.041)	1.1 (0.95–1.2)	2 657	76	74 (66–83)
	2005	3	2.8 (2.5–3.2)	87 (76–97)	0.058 (0.051–0.065)	1.8 (1.6–2.0)	2 114	64	74 (66–84)
	2010	3	2.2 (1.9–2.5)	73 (63–82)	0.067 (0.058–0.076)	2.2 (1.9–2.5)	1 751	57	79 (69–90)
	2011	3	2.1 (1.8–2.4)	69 (61–78)	0.07 (0.061–0.079)	2.3 (2.0–2.6)	1 748	57	83 (73–95)
	2012	3	2 (1.8–2.3)	66 (58–75)	0.071 (0.062–0.080)	2.3 (2.0–2.6)	1 635	54	82 (72–93)
Luxembourg	1990	< 1	0.055 (0.048–0.062)	14 (13–16)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	48	13	87 (77–99)
	1995	< 1	0.037 (0.032–0.042)	9 (7.9–10)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	32	7.8	87 (77–99)
	2000	< 1	0.051 (0.044–0.057)	12 (10–13)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.17)	44	10	87 (77–99)
	2005	< 1	0.043 (0.037–0.048)	9.3 (8.1–11)	<0.01 (<0.01–<0.01)	0.2 (0.10–0.21)	37	8.1	87 (77–99)
	2010	< 1	0.033 (0.029–0.038)	6.6 (5.8–7.4)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.15)	29	5.7	87 (77–99)
	2011	< 1	0.029 (0.025–0.033)	5.6 (4.9–6.3)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.13)	25	4.8	87 (77–99)
	2012	< 1	0.034 (0.030–0.039)	6.5 (5.7–7.4)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.15)	45	8.6	130 (120–150)
Malta	1990	< 1	0.015 (0.013–0.017)	4 (3.5–4.5)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	13	3.5	87 (77–99)
	1995	< 1	0.013 (0.011–0.014)	3.2 (2.8–3.6)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	11	2.8	87 (77–99)
	2000	< 1	0.018 (0.016–0.021)	4.5 (4.0–5.1)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	16	3.9	87 (77–99)
	2005	< 1	0.025 (0.022–0.029)	6.1 (5.3–6.9)	<0.01 (<0.01–<0.01)	0.2 (0.16–0.20)	22	5.3	87 (77–99)
	2010	< 1	0.033 (0.029–0.038)	7.9 (6.9–8.9)	<0.01 (<0.01–<0.01)	0.3 (0.22–0.28)	29	6.8	87 (77–99)
	2011	< 1	0.035 (0.030–0.039)	8.1 (7.1–9.2)	<0.01 (<0.01–<0.01)	0.3 (0.22–0.28)	30	7	87 (77–99)
	2012	< 1	0.048 (0.042–0.055)	11 (9.9–13)	<0.01 (<0.01–<0.01)	0.3 (0.30–0.39)	42	9.8	87 (77–99)
Monaco	1990	< 1	<0.01 (<0.01–<0.01)	3.9 (3.4–4.4)			1	3.4	87 (77–99)
	1995	< 1	<0.01 (<0.01–<0.01)	3.7 (3.3–4.2)			1	3.3	87 (77–99)
	2000	< 1	0 (0–0)	0 (0–0)			0	0	
	2005	< 1	<0.01 (<0.01–<0.01)	1.2 (1.0–1.3)					
	2010	< 1	<0.01 (<0.01–<0.01)	3.1 (2.7–3.5)			1	2.7	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	2.1 (1.8–2.4)					
	2012	< 1	<0.01 (<0.01–<0.01)	2.1 (1.8–2.4)					

[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Montenegro	2005	< 1	0.18 (0.160–0.200)	29 (26–33)			156	25	87 (77–99)
	2010	< 1	0.13 (0.110–0.140)	20 (18–23)	<0.01 (0–<0.01)	0.2 (0–1.2)	110	18	87 (78–98)
	2011	< 1	0.13 (0.110–0.140)	20 (18–23)			110	18	87 (78–97)
	2012	< 1	0.11 (0.100–0.130)	18 (16–20)	<0.01 (0–<0.01)	<0.1 (0–0.54)	98	16	87 (78–97)
Netherlands	1990	15	1.6 (1.4–1.8)	11 (9.3–12)	0.013 (0.012–0.015)	<0.1 (<0.1–0.10)	1 369	9.2	87 (77–99)
	1995	15	1.9 (1.6–2.1)	12 (11–14)	0.058 (0.051–0.065)	0.4 (0.33–0.42)	1 619	10	87 (77–99)
	2000	16	1.4 (1.3–1.6)	9 (7.9–10)	0.05 (0.044–0.057)	0.3 (0.28–0.36)	1 244	7.8	87 (77–99)
	2005	16	1.3 (1.1–1.5)	8 (7.0–9.0)	0.046 (0.040–0.052)	0.3 (0.25–0.32)	1 127	6.9	87 (77–99)
	2010	17	1.2 (1.1–1.4)	7.2 (6.3–8.2)	0.048 (0.042–0.054)	0.3 (0.25–0.33)	1 046	6.3	87 (77–99)
	2011	17	1.1 (0.990–1.3)	6.8 (5.9–7.7)	0.046 (0.040–0.052)	0.3 (0.24–0.31)	981	5.9	87 (77–99)
	2012	17	1.1 (0.930–1.2)	6.3 (5.5–7.2)	0.043 (0.038–0.049)	0.3 (0.23–0.29)	920	5.5	87 (77–99)
Norway	1990	4	0.33 (0.290–0.370)	7.7 (6.8–8.7)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	285	6.7	87 (77–99)
	1995	4	0.27 (0.240–0.310)	6.2 (5.5–7.0)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	236	5.4	87 (77–99)
	2000	4	0.25 (0.220–0.290)	5.7 (5.0–6.4)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	221	4.9	87 (77–99)
	2005	5	0.32 (0.280–0.360)	6.9 (6.0–7.8)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	276	6	87 (77–99)
	2010	5	0.34 (0.300–0.390)	7 (6.1–7.9)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	297	6.1	87 (77–99)
	2011	5	0.37 (0.330–0.420)	7.5 (6.6–8.5)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	324	6.6	87 (77–99)
	2012	5	0.37 (0.330–0.420)	7.5 (6.6–8.5)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)			
Poland	1990	38	19 (16–21)	49 (43–55)	0.019 (0.016–0.021)	<0.1 (<0.1–<0.1)	16 136	42	87 (77–99)
	1995	38	18 (16–21)	48 (42–54)	0.051 (0.045–0.058)	0.1 (0.12–0.15)	15 958	41	87 (77–99)
	2000	38	13 (11–14)	33 (29–37)	0.039 (0.034–0.044)	0.1 (<0.1–0.12)	10 931	29	87 (77–99)
	2005	38	9.4 (8.3–11)	25 (22–28)	0.034 (0.030–0.038)	<0.1 (<0.1–0.10)	8 203	21	87 (77–99)
	2010	38	8.1 (7.1–9.1)	21 (18–24)	0.031 (0.028–0.036)	<0.1 (<0.1–<0.1)	7 002	18	87 (77–99)
	2011	38	9.1 (8.0–10)	24 (21–27)	0.037 (0.032–0.041)	0.1 (<0.1–0.11)	7 946	21	87 (77–99)
	2012	38	8.1 (7.1–9.2)	21 (19–24)	0.032 (0.028–0.037)	<0.1 (<0.1–0.10)	7 054	18	87 (77–99)
Portugal	1990	10	7.1 (6.3–8.1)	72 (63–82)	0.11 (0.094–0.12)	1.1 (0.95–1.2)	6 214	63	87 (77–99)
	1995	10	6.4 (5.6–7.3)	64 (56–72)	0.37 (0.33–0.42)	3.7 (3.2–4.2)	5 577	55	87 (77–99)
	2000	10	4.9 (4.3–5.5)	47 (41–53)	0.35 (0.31–0.40)	3.4 (3.0–3.9)	4 227	41	87 (77–99)
	2005	11	3.8 (3.3–4.3)	36 (32–41)	0.38 (0.33–0.43)	3.6 (3.1–4.1)	3 308	31	87 (77–99)
	2010	11	2.9 (2.5–3.2)	27 (24–31)	0.33 (0.29–0.37)	3.1 (2.7–3.5)	2 487	23	87 (77–99)
	2011	11	2.8 (2.4–3.1)	26 (23–30)	0.32 (0.28–0.36)	3 (2.7–3.4)	2 406	23	87 (77–99)
	2012	11	2.8 (2.4–3.1)	26 (23–30)	0.33 (0.29–0.37)	3.1 (2.7–3.5)	2 490	23	89 (79–100)
Republic of Moldova	1990	4	2.3 (1.9–2.8)	54 (44–64)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.11)	1 728	40	74 (62–89)
	1995	4	4.7 (3.9–5.6)	109 (90–130)	0.018 (0.015–0.022)	0.4 (0.35–0.51)	2 925	67	62 (52–75)
	2000	4	6 (5.0–7.2)	147 (121–175)	0.061 (0.051–0.073)	1.5 (1.2–1.8)	2 935	71	49 (41–59)
	2005	4	6.6 (5.4–7.9)	175 (144–209)	0.18 (0.14–0.21)	4.7 (3.8–5.6)	5 141	136	78 (65–95)
	2010	4	5.9 (4.9–7.1)	166 (137–198)	0.31 (0.26–0.37)	8.7 (7.1–10)	4 135	116	70 (59–85)
	2011	4	5.7 (4.7–6.8)	161 (133–192)	0.33 (0.27–0.40)	9.4 (7.7–11)	4 233	119	74 (62–90)
	2012	4	5.6 (4.6–6.7)	160 (132–190)	0.34 (0.28–0.40)	9.6 (7.9–11)	4 409	125	79 (66–95)
Romania	1990	23	34 (28–41)	146 (120–174)	0.075 (0.062–0.089)	0.3 (0.26–0.38)	16 256	70	48 (40–58)
	1995	23	43 (36–52)	189 (155–226)	0.36 (0.30–0.43)	1.6 (1.3–1.9)	23 271	101	54 (45–65)
	2000	22	41 (33–48)	181 (149–216)	0.47 (0.38–0.56)	2.1 (1.7–2.5)	27 470	123	68 (57–82)
	2005	22	32 (27–39)	147 (121–175)	0.66 (0.55–0.79)	3 (2.5–3.6)	26 106	118	81 (67–98)
	2010	22	24 (20–28)	109 (89–130)	0.76 (0.63–0.91)	3.5 (2.9–4.2)	18 379	84	77 (65–94)
	2011	22	22 (18–26)	101 (83–121)	0.67 (0.55–0.80)	3.1 (2.5–3.7)	16 992	78	77 (64–93)
	2012	22	20 (17–24)	94 (77–112)	0.6 (0.49–0.72)	2.8 (2.3–3.3)	16 036	74	79 (66–95)
Russian Federation	1990	148	70 (59–81)	47 (40–55)			50 641	34	73 (62–86)
	1995	149	140 (120–170)	96 (81–112)	0.014 (0.012–0.017)	<0.1 (<0.1–<0.1)	84 980	57	60 (51–70)
	2000	147	190 (160–220)	127 (108–149)	0.41 (0.35–0.48)	0.3 (0.24–0.33)	140 677	96	75 (65–89)
	2005	144	190 (160–230)	135 (114–158)	5.8 (4.9–6.8)	4 (3.4–4.7)	127 930	89	66 (56–78)
	2010	144	150 (130–180)	106 (89–123)	8.7 (7.4–10)	6.1 (5.1–7.1)	125 310	87	83 (71–98)
	2011	143	140 (120–160)	97 (82–114)	9.1 (7.7–11)	6.3 (5.3–7.4)	112 910	79	81 (69–95)
	2012	143	130 (110–150)	91 (77–106)	9.3 (7.9–11)	6.5 (5.5–7.5)	105 753	74	81 (70–96)
San Marino	1990	< 1	<0.01 (<0.01–<0.01)	4.8 (4.2–5.4)			1	4.1	87 (77–99)
	1995	< 1	<0.01 (<0.01–<0.01)	9 (7.8–10)			2	7.8	87 (77–99)
	2000	< 1	<0.01 (<0.01–<0.01)	4.3 (3.7–4.8)			1	3.7	87 (77–99)
	2005	< 1	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)					
	2010	< 1	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)					
	2011	< 1	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)					
	2012	< 1	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)					
Serbia	2005	10	3.7 (3.2–4.2)	37 (32–42)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 208	32	87 (77–100)
	2010	10	2.7 (2.3–3.0)	28 (24–32)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 333	24	87 (77–100)
	2011	10	2.5 (2.2–2.8)	26 (23–30)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 174	23	87 (77–100)
	2012	10	2.2 (1.9–2.4)	23 (20–26)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 872	20	87 (77–100)
Serbia & Montenegro	1990	10	7 (5.0–9.4)	68 (48–91)			4 194	41	60 (45–84)
	1995	11	6.7 (5.7–7.9)	61 (52–72)			2 798	25	41 (35–49)
	2000	11	5 (4.2–5.8)	46 (38–54)			2 864	26	58 (49–69)
Slovakia	1990	5	1.7 (1.5–1.9)	32 (28–36)			1 448	27	87 (77–99)
	1995	5	1.8 (1.6–2.0)	33 (29–37)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 540	29	87 (77–99)
	2000	5	1.2 (1.0–1.3)	22 (19–24)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 010	19	87 (77–99)
	2005	5	0.82 (0.720–0.920)	15 (13–17)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	710	13	87 (77–99)
	2010	5	0.47 (0.410–0.530)	8.7 (7.6–9.8)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	409	7.5	87 (77–99)
	2011	5	0.43 (0.380–0.490)	8 (7.0–9.0)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	378	6.9	87 (77–99)
	2012	5	0.37 (0.320–0.420)	6.8 (5.9–7.7)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	321	5.9	87 (77–99)
Slovenia	1990	2	0.83 (0.730–0.940)	41 (36–47)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	722	36	87 (77–99)
	1995	2	0.6 (0.530–0.680)	30 (27–34)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	525	26	87 (77–99)
	2000	2	0.42 (0.370–0.480)	21 (19–24)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	368	18	87 (77–99)
	2005	2	0.31 (0.270–0.350)	15 (14–18)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	269	13	87 (77–99)
	2010	2	0.19 (0.170–0.220)	9.5 (8.3–11)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	169	8.2	87 (77–99)
	2011	2	0.21 (0.180–0.240)	10 (8.8–11)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	181	8.8	87 (77–99)
	2012	2	0.15 (0.140–0.170)	7.5 (6.5–8.4)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	134	6.5	87 (77–99)
Spain	1990	39	8.7 (7.7–9.9)	22 (20–25)	0.4 (0.35–0.45)	1 (0.90–1.2)	7 600	20	87 (77–99)
	1995	39	10 (8.8–11)	26 (22–29)	0.84 (0.73–0.95)	2.1 (1.9–2.4)	8 764	22	87 (77–99)
	2000	40	9.2 (8.1–10)	23 (20–26)	0.71 (0.62–0.81)	1.8 (1.5–2.0)	7 993	20	87 (77–99)
	2005	43	8.4 (7.3–9.5)	19 (17–22)	0.77 (0.67–0.87)	1.8 (1.6–2.0)	7 281	17	87 (77–99)
	2010	46	7.8 (6.8–8.8)	17 (15–19)	0.7 (0.61–0.79)	1.5 (1.3–1.7)	6 765	15	87 (77–99)
	2011	47	7.4 (6.4–8.3)	16 (14–18)	0.66 (0.58–0.75)	1.4 (1.2–1.6)	6 392	14	87 (77–99)
	2012	47	6.5 (5.7–7.4)	14 (12–16)	0.58 (0.51–0.66)	1.3 (1.1–1.4)	5 677	12	87 (77–99)
Sweden	1990	9	0.64 (0.560–0.720)	7.5 (6.6–8.5)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	557	6.5	87 (77–99)
	1995	9	0.65 (0.570–0.730)	7.3 (6.4–8.3)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	564	6.4	87 (77–99)
	2000	9	0.48 (0.420–0.540)	5.4 (4.7–6.1)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	417	4.7	87 (77–99)
	2005	9	0.62 (0.540–0.700)	6.9 (6.0–7.8)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	539	6	87 (77–99)
	2010	9	0.72 (0.630–0.810)	7.6 (6.7–8.6)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	623	6.6	87 (77–99)
	2011	9	0.63 (0.550–0.710)	6.6 (5.8–7.5)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	544	5.8	87 (77–99)
	2012	10	0.68 (0.600–0.770)	7.2 (6.3–8.1)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	593	6.2	87 (77–99)
Switzerland	1990	7	1.5 (1.3–1.7)	22 (19–25)	0.011 (<0.01–0.013)	0.2 (0.15–0.19)	1 278	19	87 (77–99)
	1995	7	0.95 (0.840–1.1)	14 (12–15)	0.015 (0.013–0.017)	0.2 (0.18–0.24)	830	12	87 (77–99)
	2000	7	0.66 (0.580–0.750)	9.3 (8.1–10)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.14)	577	8.1	87 (77–99)
	2005	7	0.59 (0.520–0.670)	8 (7.0–9.0)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.12)	514	6.9	87 (77–99)
	2010	8	0.58 (0.510–0.660)	7.5 (6.5–8.4)	<0.01 (<0.01–0.010)	0.1 (0.10–0.13)	508	6.5	87 (77–99)
	2011	8	0.6 (0.530–0.680)	7.6 (6.7–8.6)	<0.01 (<0.01–0.011)	0.1 (0.10–0.13)	524	6.6	87 (77–99)
	2012	8	0.48 (0.420–0.540)	6 (5.2–6.8)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.11)	416	5.2	87 (77–99)
Tajikistan	1990	5	3.7 (3.0–4.4)	70 (58–83)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.12)	2 460	46	67 (56–81)
	1995	6	8.6 (7.1–10)	148 (122–176)	0.03 (0.025–0.036)	0.5 (0.42–0.62)	2 029	35	24 (20–29)
	2000	6	14 (11–16)	220 (182–263)	0.14 (0.11–0.16)	2.2 (1.8–2.7)	2 779	45	20 (17–25)
	2005	7	14 (11–16)	200 (165–238)	0.25 (0.20–0.30)	3.6 (3.0–4.3)	5 460	80	40 (34–49)
	2010	8	9.8 (8.1–12)	129 (106–153)	0.22 (0.18–0.26)	2.8 (2.3–3.4)	6 994	92	71 (60–86)
	2011	8	9.2 (7.6–11)	118 (97–140)	0.21 (0.17–0.25)	2.7 (2.2–3.2)	7 035	90	76 (64–93)
	2012	8	8.6 (7.1–10)	108 (89–128)	0.2 (0.16–0.24)	2.5 (2.0–3.0)	6 508	81	75 (63–91)

[a] Rates are per 100 000 population.

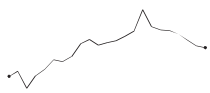
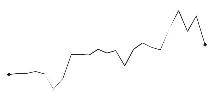
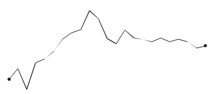
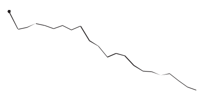
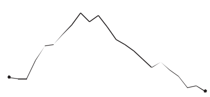
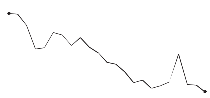
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE[b]		CASE DETECTION
			NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
The Former Yugoslav Republic of Macedonia	1990	2	1.6 (1.0–2.4)	81 (50–119)					
	1995	2	1.1 (0.930–1.4)	58 (47–69)			786	40	69 (58–85)
	2000	2	0.85 (0.690–1.0)	41 (34–50)			641	31	75 (63–92)
	2005	2	0.62 (0.560–0.680)	30 (27–33)			598	29	97 (88–110)
	2010	2	0.44 (0.380–0.510)	21 (18–24)			384	18	87 (75–100)
	2011	2	0.41 (0.360–0.480)	20 (17–23)			335	16	81 (70–94)
	2012	2	0.39 (0.330–0.450)	18 (16–21)			346	16	89 (78–100)
Turkey	1990	54	28 (25–32)	52 (46–59)			24 468	45	87 (77–99)
	1995	59	26 (23–30)	45 (40–51)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	22 981	39	87 (77–99)
	2000	63	21 (18–23)	33 (29–37)	0.019 (0.016–0.021)	<0.1 (<0.1–<0.1)	18 038	29	87 (77–99)
	2005	68	23 (20–26)	34 (29–38)	0.05 (0.044–0.057)	<0.1 (<0.1–<0.1)	19 744	29	87 (77–99)
	2010	72	18 (16–21)	25 (22–29)	0.033 (0.029–0.037)	<0.1 (<0.1–<0.1)	15 879	22	87 (77–99)
	2011	73	17 (15–20)	24 (21–27)	0.033 (0.029–0.037)	<0.1 (<0.1–<0.1)	15 054	21	87 (77–99)
	2012	74	16 (14–18)	22 (19–25)	0.033 (0.028–0.037)	<0.1 (<0.1–<0.1)	14 139	19	87 (77–99)
Turkmenistan	1990	4	3.5 (2.8–4.2)	95 (76–115)			2 325	63	67 (55–83)
	1995	4	6.6 (5.4–7.8)	157 (129–187)			1 939	46	30 (25–36)
	2000	5	9.4 (7.6–11)	209 (170–252)			4 038	90	43 (36–53)
	2005	5	8.3 (6.8–10)	175 (144–210)			3 191	67	38 (32–47)
	2010	5	5.2 (4.3–6.1)	103 (86–121)			3 230	64	62 (53–74)
	2011	5	4.5 (3.7–5.5)	89 (73–107)					
	2012	5	3.9 (3.1–4.8)	75 (59–94)					
Ukraine	1990	52	23 (19–27)	45 (37–53)			16 465	32	71 (60–86)
	1995	51	38 (31–45)	74 (62–88)	0.15 (0.12–0.18)	0.3 (0.24–0.34)	21 459	42	57 (48–68)
	2000	49	53 (44–63)	108 (90–129)	2.5 (2.0–2.9)	5 (4.1–5.9)	32 945	67	62 (52–75)
	2005	47	57 (48–68)	121 (101–144)	5.8 (4.8–6.9)	12 (10–15)	39 608	84	69 (58–83)
	2010	46	48 (41–57)	105 (88–123)	5.7 (4.8–6.7)	12 (10–15)	33 857	74	70 (60–83)
	2011	46	46 (38–54)	99 (83–118)	5.3 (4.4–6.3)	12 (9.6–14)	34 237	75	75 (63–90)
	2012	46	42 (35–51)	93 (77–112)	4.8 (3.9–5.7)	10 (8.6–13)	40 990	90	96 (81–120)
United Kingdom of Great Britain and Northern Ireland	1990	57	6.6 (6.2–7.1)	12 (11–12)	0.071 (0.066–0.077)	0.1 (0.11–0.13)	5 908	10	89 (84–95)
	1995	58	6.9 (6.5–7.4)	12 (11–13)	0.087 (0.061–0.12)	0.2 (0.10–0.20)	6 176	11	89 (84–95)
	2000	59	7 (6.5–7.4)	12 (11–13)	0.12 (0.088–0.16)	0.2 (0.15–0.27)	6 220	11	89 (84–95)
	2005	60	9.2 (8.6–9.8)	15 (14–16)	0.25 (0.19–0.32)	0.4 (0.31–0.53)	8 173	14	89 (84–95)
	2010	62	8.9 (8.3–9.4)	14 (13–15)	0.3 (0.23–0.38)	0.5 (0.37–0.62)	7 907	13	89 (84–95)
	2011	62	9.5 (8.8–10)	15 (14–16)	0.32 (0.25–0.41)	0.5 (0.40–0.66)	8 439	14	89 (84–95)
	2012	63	9.4 (8.8–10)	15 (14–16)	0.33 (0.25–0.41)	0.5 (0.40–0.66)	8 269	13	88 (82–94)
Uzbekistan	1990	21	26 (21–31)	125 (103–149)	0.057 (0.047–0.067)	0.3 (0.23–0.33)	9 414	46	37 (31–44)
	1995	23	46 (38–55)	200 (165–238)	0.22 (0.18–0.26)	1 (0.79–1.1)	9 866	43	22 (18–26)
	2000	25	71 (59–85)	287 (237–342)	0.57 (0.47–0.68)	2.3 (1.9–2.7)	15 750	63	22 (19–27)
	2005	26	61 (50–72)	233 (193–278)	0.69 (0.57–0.82)	2.7 (2.2–3.2)	21 513	83	35 (30–43)
	2010	28	34 (28–40)	122 (101–146)	0.56 (0.46–0.67)	2 (1.7–2.4)	16 883	61	50 (42–60)
	2011	28	29 (24–34)	101 (84–121)	0.51 (0.42–0.61)	1.8 (1.5–2.2)	15 345	55	54 (45–65)
	2012	29	22 (18–27)	78 (65–93)	0.44 (0.37–0.53)	1.6 (1.3–1.9)	14 832	52	66 (56–80)

[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES SMEAR-POSITIVE	NEW CASES SMEAR-NEGATIVE/ UNKNOWN	NEW CASES EXTRA-PULMONARY	NEW CASES OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Albania		1990	653									–
		1995	641	139	223	226		53		53		38
		2000	604	171	188	234		11	8	19		48
		2005	506	196	134	167		9	34	43		59
		2010	431	145	105	165	0	16	14	30	0	58
		2011	422	180	105	128	0	9	9	18	0	63
	• 19 13 •	2012	408	185	100	106	0	17	12	29	0	65
Andorra		1990	23									–
		1995										–
		2000	12	1	9	2		0	0	0		10
		2005	10	5	1	4		0	0	0		83
		2010	7	0	4	3	0	0	0	0	0	0
		2011	3	1	2	0	0	0	1	1	0	33
	• 42 11 •	2012	9	2	3	3	0	0	0	0	1	40
Armenia		1990	590									–
		1995	1 000	436	451	75		38		38		49
		2000	1 333	621	505	153		54	22	76		55
		2005	2 206	581	1 049	365		211	116	327		36
		2010	1 410	339	639	351	0	81	370	451	0	35
		2011	1 261	329	582	289	0	61	321	382	0	36
	• 17 41 •	2012	1 213	315	553	255	0	90	305	395	0	36
Austria		1990	1 521									–
		1995	1 481	467	765	249						38
		2000	1 185	324	652	209		0	30	30		33
		2005	928	234	519	175		0	26	26		31
		2010	659	76	213	69	0	0	29	29	301	26
		2011	671	94	217	85	0	4	16	20	271	30
	• 20 7 •	2012	620	95	218	97	0	12	28	40	198	30
Azerbaijan		1990	2 620									–
		1995	1 630	669	620	93		47		47		52
		2000	5 187	890	3 978	245		74	0	74		18
		2005	6 034	1 561	2 508	651		1 314	1 886	3 200		38
		2010	7 550	1 997	2 275	965	0	1 153	844	1 997	1 160	47
		2011	9 146	1 426	2 740	1 130	0	1 201	954	2 155	2 649	34
	• 36 68 •	2012	6 363	1 301	2 313	1 002		1 747	1 777	3 524		36
Belarus		1990	3 039									–
		1995	4 854	1 845	2 148	518		343		343		46
		2000	6 799	2 547	2 985	442		825	0	825		46
		2005	5 308	1 235	3 710	363			1 049	1 049		25
		2010	5 098	1 269	2 647	429	0	658	456	1 114	95	32
		2011	4 697	1 217	2 439	387		654	421	1 075		33
	• 30 51 •	2012	4 783	1 277	2 184	381		941	463	1 404		37
Belgium		1990	1 577									–
		1995	1 380	400	534	366		80		80		43
		2000	1 278	409	454	326		89	0	89		47
		2005	1 076	380	406	290			68	68		48
		2010	1 028	244	340	230	0		87	87	214	42
		2011	985	240	273	192	0		59	59	280	47
	• 16 8 •	2012	909	235	237	179	0		78	78	258	50
Bosnia and Herzegovina		1990	4 073									–
		1995	2 132	865	997	140		130		130		46
		2000	2 476	759	1 287	261		169	24	193		37
		2005	2 111	640	1 106	258		107	49	156	0	37
		2010	1 321	441	529	161	158	32	69	101	0	45
		2011	1 360	547	611	162	0	40	25	65	0	47
	• 90 37 •	2012	1 409	569	554	176	2	108	11	119	0	51
Bulgaria		1990	2 256									–
		1995	3 245	1 087	1 709	449						39
		2000	3 349	2 524	0	442		383	0	383		100
		2005	3 225	1 214	1 511	376		124	77	201		45
		2010	2 412	806	748	747	0	111	237	348	0	52
		2011	2 172	716	708	628	0	120	235	355	0	50
	• 26 29 •	2012	2 081	741	618	606	1	115	199	314	0	55
Croatia		1990	2 576									–
		1995	2 114	1 204	703	165		42		42		63
		2000	1 630									–
		2005	1 050	372	575	103		0	94	94		39
		2010	688	183	382	87		36	7	43		32
		2011	619	201	343	75						37
	• 54 0 •	2012										–
Cyprus		1990	29									–
		1995	36	6	11	13		0		0		35
		2000	33	4	10	17		0		0		29
		2005	34	9	13	12		0	3	3		41
		2010	61	8	12	13	0	0	0	0	28	40
		2011	51	11	14	5	1	0	3	3	20	44
	• 4 6 •	2012	63	15	28	11	0	0	6	6	9	35
Czech Republic		1990	1 937									–
		1995	1 834	487	1 026	300		21		21		32
		2000	1 414	420	679	290		25	0	25		38
		2005	973	308	461	204		0	34	34		40
		2010	627	200	333	94	0	0	51	51	0	38
		2011	569	188	307	74	0	0	31	31	0	38
	• 19 5 •	2012	565	208	268	89	0	0	40	40	0	44
Denmark		1990	350									–
		1995	448	128	186	128		6		6		41
		2000	587	171	244	144		28	0	28		41
		2005	395	129	145	121		0	29	29		47
		2010	313	115	102	39	57		46	46	0	53
		2011	359	124	100	45	90		22	22	0	55
	• 7 0 •	2012										–
Estonia		1990	423									–
		1995	624	369	124	60		71		71		75
		2000	791	255	320	67		116	0	116		44
		2005	479	162	217	46		54	40	94		43
		2010	283	99	134	17	0	33	46	79	0	42
		2011	296	123	124	18	0	31	45	76	0	50
	• 27 20 •	2012	259	105	110	19	0	25	31	56	0	49
Finland		1990	772									–
		1995	661	244	193	224						56
		2000	527	205	136	157		29	0	29		60
		2005	339	130	114	95		0	22	22	0	53
		2010	312	82	146	84	0	0	15	15	0	36
		2011	312	82	143	87	0	0	13	13	0	36
	• 15 5 •	2012	261	78	104	70	0	5	13	18	4	43

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

EUROPEAN REGION

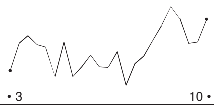
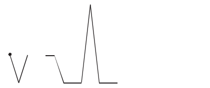
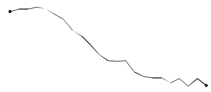
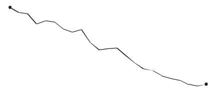
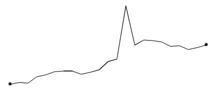
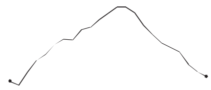
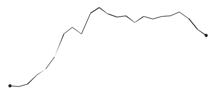
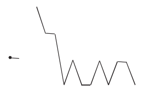
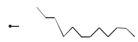
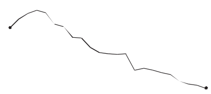
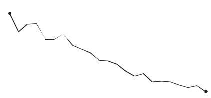
TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
France		1990	9 030									–
		1995	8 723	3 449	2 969	2 305						54
		2000	6 122	1 815	1 364	1 665		0		0		57
		2005	5 003	1 941	1 557	1 389		0	371	371	116	55
		2010	4 801	960	1 015	765	12	0	315	315	2 049	49
		2011	4 681	906	1 016	710	7	0	261	261	2 042	47
	• 16 0 •	2012										–
Georgia		1990	1 537									–
		1995	1 625	221	1 087	121		196		196		17
		2000	4 397	601	2 213	1 324		259	422	681		21
		2005	4 503	1 509	1 524	1 261		207	1 945	2 152	2	50
		2010	4 678	2 140	1 088	1 155	0	291	1 118	1 409	4	66
		2011	4 547	2 026	1 141	1 056	0	324	986	1 310	0	64
	• 28 90 •	2012	3 940	1 648	1 186	944	0	161	1 034	1 195	1	58
Germany		1990	14 653									–
		1995	12 198	3 852	6 473	1 873						37
		2000	9 064									–
		2005	5 700	1 379	2 801	1 211		148	345	493	161	33
		2010	4 059	910	1 713	789	16	96	271	367	535	35
		2011	4 089	951	1 787	735	17	73	227	300	526	35
	• 18 5 •	2012	4 043	928	1 580	812	10	52	195	247	661	37
Greece		1990	877									–
		1995	939									–
		2000	703	235	339	81		48		48		41
		2005	693	197	322	107		0	74	74	67	38
		2010	445	178	129	49	0	0	44	44	89	58
		2011	454	236	156	57	3	0	35	35	2	60
	• 9 0 •	2012										–
Greenland		1990										–
		1995										–
		2000										–
		2005										–
		2010	114	38	59	7		10	2	12		39
		2011	115	34	73	5		3		3		32
	• 0 148 •	2012	84	33	44	5		2		2		43
Hungary		1990	3 588									–
		1995	4 339	796	3 292	251						19
		2000	3 073	412	2 361	221		79	292	371		15
		2005	1 808	423	1 137	117		131	216	347		27
		2010	1 543	270	1 147	70	0	56	198	254	0	19
		2011	1 279	260	910	53	0	55	166	221	1	22
	• 35 12 •	2012	1 159	273	831	35	0	20	64	84	0	25
Iceland		1990	18									–
		1995	12	2	3	7		0		0		40
		2000	13	1	7	4		1	0	1		12
		2005	10	2	3	5		0	1	1		40
		2010	22	6	12	4	0	0	0	0	0	33
		2011	8	1	2	5	0	0	1	1	0	33
	• 7 3 •	2012	10	2	5	3	0	0	1	1	0	29
Ireland		1990	624									–
		1995	458									–
		2000	386	138	150	96		2	20	22		48
		2005	423	130	156	99		2	38	40	36	45
		2010	396	84	122	112	1		31	31	77	41
		2011	398	85	110	82	3		27	27	118	44
	• 18 7 •	2012	341	77	97	75	1		25	25	91	44
Israel		1990	234									–
		1995	398									–
		2000	537	216	213	100	0	8	0	8	0	50
		2005	371	142	168	55	0	6	1	7	0	46
		2010	340	103	162	74	0	1	3	4	0	39
		2011	412	135	207	66	0	4	6	10	0	39
	• 5 7 •	2012	506	142	254	102	0	8	3	11	0	36
Italy		1990	4 246									–
		1995	5 627	1 413	2 700	1 514						34
		2000	3 501	687	891	522		269	356	625		44
		2005	3 844	1 275	1 506	1 047		0	293	293	16	46
		2010	3 175	586	779	328	0	0	74	74	1 482	43
		2011	3 421	587	790	641	0	0	100	100	1 403	43
	• 7 0 •	2012										–
Kazakhstan		1990	10 969									–
		1995	11 310	3 022	5 966	1 002		1 320		1 320		34
		2000	25 843	8 903	11 324	2 555		3 061	2 032	5 093		44
		2005	28 629	6 911	14 472	920		3 209	11 800	15 009	3 117	32
		2010	23 399	4 769	8 745	2 127	0	4 062	5 151	9 213	3 696	35
		2011	25 074	4 157	8 242	1 997	0	4 739	1 230	5 969	5 939	34
	• 68 111 •	2012	18 006	3 884	7 892	1 844	9	4 377	3 517	7 894	0	33
Kyrgyzstan		1990	2 306									–
		1995	3 393	832	1 685	749		127		127		33
		2000	6 205	1 296	2 929	1 683		297	258	555		31
		2005	6 329	1 972	2 141	1 805		411	436	847	0	48
		2010	5 652	1 645	2 028	1 635	0	344	643	987		45
		2011	5 980	1 537	2 125	1 518	0	349	686	1 035	451	42
	• 52 113 •	2012	6 195	1 594	2 448	1 809		344	721	1 065	0	39
Latvia		1990	906									–
		1995	1 541	504	693	226		118		118		42
		2000	1 982	637	793	285		267	108	375		45
		2005	1 409	536	554	148		171	34	205		49
		2010	913	339	400	86	0	88	21	109	0	46
		2011	864	293	410	85	0	76	21	97	0	42
	• 34 47 •	2012	959	342	438	100	0	79	34	113	0	44
Lithuania		1990	1 471									–
		1995	2 362	979	1 049	206		128		128		48
		2000	2 657	776	1 051	503		327	182	509		42
		2005	2 114	964	793	357		0	460	460		55
		2010	1 751	719	633	221	0	177	187	364	1	53
		2011	1 748	681	664	187	0	213	156	369	3	51
	• 40 54 •	2012	1 635	726	548	156	0	204	146	350	1	57
Luxembourg		1990	48									–
		1995	32									–
		2000	44	21	19	0		4		4		52
		2005	37	14	20	3		0	0	0		41
		2010	29	0	18	6	0	0	0	0	5	0
		2011	25	4	4	3	0	0	1	1	14	50
	• 13 9 •	2012	45	0	0	0	0	1	0	1	44	

[a] Rates are per 100 000 population.

[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Malta		1990	13									–
		1995	11	5	4	2		0		0		56
		2000	16	5	9	2		0	0	0		36
		2005	22	5	10	6		0	1	1	1	33
		2010	29	4	6	10	0	0	3	3	9	40
		2011	30	7	8	7	0	0	3	3	8	47
	• 3 10 •	2012	42	9	20	12	0	0	1	1	1	31
Monaco		1990	1									–
		1995	1									–
		2000	0	0	0	0		0	0	0		
		2005										–
		2010	1			1						–
		2011										–
	• 3 0 •	2012										–
Montenegro		2005	156	64	66	13		13	14	27		49
		2010	110	39	49	14	0	8	4	12	0	44
		2011	110	48	40	12	0	10	2	12	0	55
	16 •	2012	98	45	36	13	0	4	9	13	0	56
Netherlands		1990	1 369									–
		1995	1 619	575	1 522	513						27
		2000	1 244	289	528	427		0	70	70		35
		2005	1 127	237	491	385		14	30	44		33
		2010	1 046	176	370	463	4	16	27	43	17	32
		2011	981	177	353	425	3	12	26	38	11	33
	• 9 6 •	2012	920	163	300	444	0	11	38	49	2	35
Norway		1990	285									–
		1995	236	62	57	89		28		28		52
		2000	221	37	103	79		2	10	12		26
		2005	276	48	119	102		0	14	14	7	29
		2010	297	49	110	115	0		42	42	23	31
		2011	324	40	134	139	1		37	37	10	23
	• 7 0 •	2012										–
Poland		1990	16 136									–
		1995	15 958	6 955	7 285	647		1 071		1 071		49
		2000	10 931	3 180	6 392	477		882	0	882		33
		2005	8 203	2 823	4 591	789		0	1 077	1 077		38
		2010	7 002	2 484	3 625	501	0	392	507	899	0	41
		2011	7 946	2 587	4 344	584	0	431	532	963	0	37
	• 42 18 •	2012	7 054	2 433	3 729	503	0	389	488	877	0	39
Portugal		1990	6 214									–
		1995	5 577	2 019	1 531	1 759		268		268		57
		2000	4 227	1 863	1 005	1 178		177	304	481		65
		2005	3 308	1 302	974	905		122	228	350	5	57
		2010	2 487	912	791	679	16	89	139	228	0	54
		2011	2 406	876	813	629	7	81	134	215	0	52
	• 63 23 •	2012	2 490	920	805	670	7	88	100	188	0	53
Republic of Moldova		1990	1 728									–
		1995	2 925	665	1 958	154		148		148		25
		2000	2 935	651	1 788	122		374	0	374		27
		2005	5 141	1 696	2 237	568		640	1 137	1 777		43
		2010	4 135	1 267	2 073	405	0	377	1 312	1 689	13	38
		2011	4 233	1 272	2 140	424	0	372	1 108	1 480	25	37
	• 40 125 •	2012	4 409	1 346	2 062	396	0	559	932	1 491	46	39
Romania		1990	16 256									–
		1995	23 271	10 469	8 303	3 422		1 077		1 077		56
		2000	27 470	10 202	10 180	3 474		3 614	156	3 770		50
		2005	26 106	10 801	8 038	3 568		3 697	3 241	6 938	2	57
		2010	18 379	7 951	5 113	2 899	0	2 416	2 699	5 115	0	61
		2011	16 992	7 386	4 528	2 629	0	2 449	2 220	4 669	0	62
	• 70 74 •	2012	16 036	7 077	4 342	2 481	0	2 136	2 188	4 324	0	62
Russian Federation		1990	50 641									–
		1995	84 980	37 512	42 241	5 227						47
		2000	140 677	27 467	102 228	5 313		5 669	12 478	18 147		21
		2005	127 930	32 605	74 301	12 320		8 704	26 449	35 153		30
		2010	125 310	31 416	67 894	3 513	7 081	8 737	37 243	45 980	6 669	32
		2011	112 910	29 191	65 106	10 023		8 590	46 569	55 159		31
	• 34 74 •	2012	105 753	27 467	60 058	10 017	0	8 211	44 168	52 379	0	31
San Marino		1990	1									–
		1995	2									–
		2000	1	1	0	0		0	0	0		100
		2005										–
		2010										–
		2011										–
	• 4 0 •	2012										–
Serbia		2005	3 208	1 105	1 584	479		40	260	300	0	41
		2010	2 333	977	700	501	0	148	52	200	7	58
		2011	2 174	905	745	401	0	120	42	162	3	55
	20 •	2012	1 872	819	787	130	0	134	45	179	2	51
	Serbia (without Kosovo)	2005	2 146	873	714	245						55
		2010	1 449	690	431	202		119		119		62
		2011	1 299	654	372	155		91		91		64
		2012	1 170	569	369			86		86		61
	Kosovo	2005	1 062	232	596	234						28
		2010	884	287	269	299		29		29		52
		2011	875	251	349	246		29		29		42
		2012	702	250	404			48		48		38
Serbia & Montenegro		1990	4 194									–
		1995	2 798	1 497	930	173		198		198		62
	• 0	2000	2 864	0	2 486	175		203	0	203		0
Slovakia		1990	1 448									–
		1995	1 540	788	555	177		20		20		59
		2000	1 010	236	469	203		102	18	120		33
		2005	710	162	356	134		58	50	108		31
		2010	409	112	190	59	0	25	30	55	23	37
		2011	378	96	170	57	0	29	21	50	26	36
	• 27 6 •	2012	321	96	144	39	0	25	24	49	17	40
Slovenia		1990	722									–
		1995	525	303	83	109		30		30		78
		2000	368	145	133	59		31	16	47		52
		2005	269	109	110	30		20	9	29		50
		2010	169	64	67	30	0	8	3	11	0	49
		2011	181	82	73	26	0		11	11	0	53
	• 36 6 •	2012	134	47	64	13	0	10	4	14	0	42

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

EUROPEAN REGION

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Spain		1990	7 600									–
		1995	8 764	2 605	6 159							30
		2000	7 993	3 423	4 446	124		0	0	0		43
		2005	7 281	2 511	3 880	890		0	1 078	1 078		39
		2010	6 765	2 076	2 621	1 680	0	0	324	324	388	44
		2011	6 392	2 186	2 242	1 616	0	0	370	370	348	49
	• 20 12 •	2012	5 677	1 984	1 855	1 508	0	0	314	314	330	52
Sweden		1990	557									–
		1995	564	102	235	216		11		11		30
		2000	417	118	147	152		0	40	40		45
		2005	539	134	208	197		0	30	30		39
		2010	623	117	226	209	0	0	52	52	71	34
		2011	544	99	182	173	0	3	42	45	87	35
	• 7 6 •	2012	593	101	233	229	0	0	39	39	30	30
Switzerland		1990	1 278									–
		1995	830	185	515	126		5		5		26
		2000	577	86	216	102			63	63	173	28
		2005	514	84	187	110			49	49	133	31
		2010	508	82	149	91			40	40	186	35
		2011	524	90	170	119			54	54	145	35
	• 19 5 •	2012	416	87	124	84			47	47	121	41
Tajikistan		1990	2 460									–
		1995	2 029	1 042	617			370		370		63
		2000	2 779	434	1 918	427						18
		2005	5 460	1 745	2 175	1 417		123	2 066	2 189		45
		2010	6 994	2 290	2 038	1 631	0	338	647	985	697	53
		2011	7 035	2 174	2 148	1 613	0	355	574	929	745	50
	• 46 81 •	2012	6 508	2 041	1 911	1 532	0	327	421	748	697	52
The Former Yugoslav Republic of Macedonia		1990										–
		1995	786	319	376	66		25		25		46
		2000	641	167	308	150		16	0	16		35
		2005	598	178	236	141		43	60	103		43
		2010	384	141	135	92	0	16	36	52	0	51
		2011	335	132	99	76	0	28	27	55	0	57
	• 0 16 •	2012	346	147	95	78	0	22	9	31	4	61
Turkey		1990	24 468									–
		1995	22 981	4 383	17 534	1 064						20
		2000	18 038	4 315	8 544	4 371		808		808		34
		2005	19 744	7 450	5 944	5 359		991	1 559	2 550		56
		2010	15 879	5 375	4 191	5 617	0	696	672	1 368	0	56
		2011	15 054	4 927	3 925	5 565	0	637	625	1 262	0	56
	• 45 19 •	2012	14 139	4 585	3 829	5 121	0	604	552	1 156	0	54
Turkmenistan		1990	2 325									–
		1995	1 939	544	1 327	1		67		67		29
		2000	4 038	1 017	2 709	241		71	1 894	1 965		27
		2005	3 191	995	1 498	656		42	100	142		40
		2010	3 230	1 153	1 248	473	274	82		82		48
		2011										–
	• 63 0 •	2012										–
Ukraine		1990	16 465									–
		1995	21 459	8 263	9 793	1 514		1 889		1 889		46
		2000	32 945	10 738	17 258	1 739		3 210	0	3 210		38
		2005	39 608									–
		2010	33 857	9 976	17 599	3 355	365	2 562	2 552	5 114		36
		2011	34 237	10 502	14 106	3 367	3 213	3 049	8 439	11 488		43
	• 32 90 •	2012	40 990	11 030	17 398	3 344		3 650	4 579	8 229	5 568	39
United Kingdom of Great Britain and Northern Ireland		1990	5 908									–
		1995	6 176		4 162	2 014						–
		2000	6 220	1 204	2 037	2 478		0	0	0		37
		2005	8 173	1 821	2 752	3 600		0	460	460		40
		2010	7 907	1 201	2 551	3 443	24		576	576	688	32
		2011	8 439	1 204	2 827	3 783	36		524	524	589	30
	• 10 13 •	2012	8 269	1 251	2 751	3 676	53		482	482	538	31
Uzbekistan		1990	9 414									–
		1995	9 866	2 735	5 798	1 333						32
		2000	15 750	3 825	10 142	1 760		23	324	347		27
		2005	21 513	5 695	7 857	6 324		1 637	7 378	9 015		42
		2010	16 883	4 711	6 735	4 288	0	1 149	3 447	4 596	0	41
		2011	15 345	4 198	5 958	3 839	0	506	568	1 074	844	41
	• 46 52 •	2012	14 832	4 030	6 137	3 965	0	655	1 978	2 633	45	40

[a] Rates are per 100 000 population.

[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Albania		1995	139		–						
		2000	171		–						
		2005	196	196	100	43	35	4	2	5	11
		2009	171	171	100	64	25	2	1	4	4
		2010	145	145	100	49	42	3	0	3	3
	• 0 … 93 •	2011	180	180	100	65	28	2	0	4	1
Andorra		1995			–						
		2000	1	2	200		50			50	0
		2005	5	5	100	80	0	0	0	0	20
		2009	2	3	150	33	67	0	0	0	0
		2010	0	0	–						
	• 0 … 100 •	2011	1	1	100	0	100	0	0	0	0
Armenia		1995	436	507	116	52	2	8	36	1	0
		2000	621	447	72	81	6	4	3	7	0
		2005	581	581	100	59	13	3	5	14	4
		2009	440	440	100	60	12	7	3	8	10
		2010	339	339	100	55	16	4	15	8	1
	• 55 … 63 •	2011	329	329	100	44	19	6	25	6	0
Austria		1995	467	383	82	2	81	10	0	7	1
		2000	324	298	92	0	73	9	0	6	11
		2005	234	230	98	17	58	7	0	7	11
		2009	90	226	251	8	59	9	0	8	16
		2010	76	206	271	6	59	6	0	6	23
	• 82 … 71 •	2011	94	221	235	7	64	6	0	7	15
Azerbaijan		1995	669	538	80	58	7		12	19	4
		2000	890	890	100	89	0	1	2	3	4
		2005	1 561	1 561	100	48	11	4	4	12	22
		2009	1 487	1 480	100	47	15	3	7	16	12
		2010	1 997	1 919	96	47	30	3	4	10	6
	• 65 … 78 •	2011	1 426	2 208	155	33	44	3	6	10	4
Belarus		1995	1 845		–						
		2000	2 547		–						
		2005	1 235		–						
		2009	1 201	2 160	180	64	0	10	4	1	20
		2010	1 269	2 184	172	66	0	8	22	1	2
	• 0 … 60 •	2011	1 217	2 169	178	59	1	6	31	1	1
Belgium		1995	400		–						
		2000	409	358	88	25	41	10	1	17	6
		2005	380	304	80	21	45	10	0	0	24
		2009	280	485	173	14	62	8	0	11	4
		2010	244	473	194	15	61	7	0	11	7
	• 0 … 77 •	2011	240	405	169	28	50	7	0	10	6
Bosnia and Herzegovina		1995	865	865	100	97	1	0	1	1	1
		2000	759	756	100	77	18	1	1	2	1
		2005	640	1 035	162	93	3	1	0	0	2
		2009	609	852	140	97	2	0	0	0	0
		2010	441	441	100	91	7	1	0	0	0
	• 97 … 70 •	2011	547	693	127	43	27	5	1	1	24
Bulgaria		1995	1 087		–						
		2000	2 524		–						
		2005	1 214	1 342	111	82	3	4	2	7	1
		2009	894	1 055	118	78	7	9	2	4	1
		2010	806	946	117	84	2	8	2	3	1
	• 0 … 86 •	2011	716	853	119	84	2	8	1	3	2
Croatia		1995	1 204		–						
		2000			–						
		2005	372	391	105	40	7	7	0	1	45
		2009	302	234	77	48	15	26	0	3	7
		2010	183	181	99	58	17	14	0	4	7
	• 0 … 0 •	2011	201		–						
Cyprus		1995	6	6	100	100	0	0	0	0	0
		2000	4		–						
		2005	9	8	89	38	25	12	0	0	25
		2009	14	28	200	29	0	0	0	0	71
		2010	8	20	250	25	0	0	0	0	75
	• 100 … 64 •	2011	11	22	200	55	9	14	0	0	23
Czech Republic		1995	487	487	100	57	3	0	3	2	35
		2000	420	396	94	59	11	17	1	1	11
		2005	308	315	102	62	10	6	0	2	20
		2009	218	402	184	66	2	21	0	7	4
		2010	200	361	180	66	3	17	0	7	7
	• 60 … 69 •	2011	188	377	201	66	3	17	0	9	5
Denmark		1995	128		–						
		2000	171	110	64	37	49	5	0	0	9
		2005	129	128	99	44	39	6	1	2	8
		2009	101	175	173	22	31	4	1	1	42
		2010	115	217	189	31	33	11	2	0	22
	• 0 … 0 •	2011	124		–						
Estonia		1995	369		–						
		2000	255	257	101	67	2	11	1	6	12
		2005	162	162	100	70	2	8	1	10	10
		2009	135	240	178	57	1	15	2	6	18
		2010	99	191	193	65	3	10	2	4	17
	• 0 … 59 •	2011	123	202	164	57	2	11	1	5	23
Finland		1995	244		–						
		2000	205		–						
		2005	130		–						
		2009	93	227	244	33	34	17	0	1	14
		2010	82	184	224	48	27	9	0	2	15
	• 0 … 67 •	2011	82	181	221	39	29	18	1	0	14
France		1995	3 449		–						
		2000	1 815		–						
		2005	1 941		–						
		2009	1 019		–						
		2010	960		–						
	• 0 … 0 •	2011	906		–						
Georgia		1995	221	221	100	41	18	8	3	29	2
		2000	601	807	134	38	25	3	9	25	0
		2005	1 509	1 489	99	60	13	3	5	13	7
		2009	2 055	2 352	114	57	19	3	12	7	3
		2010	2 140	2 500	117	59	17	3	12	7	2
	• 58 … 76 •	2011	2 026	2 513	124	57	19	2	15	5	2
Germany		1995	3 852		–						
		2000		454	–	61	16	16	1	2	4
		2005	1 379	1 199	87	39	32	9	0	2	18
		2009	1 025	2 220	217	33	44	12	0	1	9
		2010	910	2 064	227	32	44	12	0	2	9
	• 0 … 70 •	2011	951	2 113	222	29	42	11	0	2	17

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

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TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT: CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Greece		1995			–						
		2000	235		–						
		2005	197		–						
		2009	198		–						
		2010	178		–						
	• 0 0 •	2011	236		–						
Greenland		1995			–						
		2000			–						
		2005			–						
		2009	24		–						
		2010	38		–						
	• 0 0 •	2011	34		–						
Hungary		1995	796		–						
		2000	412	651	158	28	36	10	3	12	11
		2005	423	412	97	32	13	13	12	9	20
		2009	363	597	164	45	12	10	19	7	7
		2010	270	515	191	64	5	12	0	10	9
	• 0 0 •	2011	260	0	0						
Iceland		1995	2	2	100	0	100	0	0	0	0
		2000	1	2	200	0	100	0	0	0	0
		2005	2	2	100	0	100	0	0	0	0
		2009	3	4	133	0	75	0	0	0	25
		2010	6	16	267	0	88	6	0	0	6
	• 100 0 •	2011	1	0	0						
Ireland		1995			–						
		2000	138	73	53	33	51	12	0	4	0
		2005	130	107	82	3	62	9	3	1	22
		2009	95	188	198	5	62	9	0	1	23
		2010	84	164	195	0	73	7	0	1	19
	• 0 64 •	2011	85	153	180	54	10	5	0	3	29
Israel		1995			–						
		2000	216	336	156	65	18	15	0	0	1
		2005	142	227	160	69	15	11	0	3	2
		2009	119	202	170	72	14	10	0	1	3
		2010	103	99	96	69	7	11	0	0	13
	• 0 77 •	2011	135	242	179	69	9	10	0	2	10
Italy		1995	1 413	295	21	73	6	3	2	11	4
		2000	687	223	32	37	36	1	0	9	16
		2005	1 275		–						
		2009	885		–						
		2010	586		–						
	• 80 0 •	2011	587		–						
Kazakhstan		1995	3 022		–						
		2000	8 903	8 781	99	76	3	5	10	3	3
		2005	6 911	6 884	100	70	1	5	12	5	8
		2009	5 213	5 355	103	62	0	4	30	3	2
		2010	4 769	4 919	103	61	0	3	7	2	27
	• 0 61 •	2011	4 157	4 306	104	61	0	4	6	2	27
Kyrgyzstan		1995	832		–						
		2000	1 296	1 233	95	73	9	3	4	5	6
		2005	1 972	1 897	96	81	4	3	5	5	2
		2009	1 609	1 543	96	79	4	3	4	6	4
		2010	1 645		–						
	• 0 78 •	2011	1 537	1 537	100	75	3	3	11	5	3
Latvia		1995	504	475	94	61	0	9	3	21	7
		2000	637	637	100	68	4	12	3	7	7
		2005	536	536	100	72	1	11	1	7	8
		2009	367	592	161	72	3	9	1	5	11
		2010	339	596	176	72	3	8	1	6	10
	• 61 73 •	2011	293	559	191	72	1	10	0	5	11
Lithuania		1995	979		–						
		2000	776	776	100	73		10	4	12	2
		2005	964	958	99	70	0	11	3	11	6
		2009	742	1 033	139	73	0	10	2	9	6
		2010	719	959	133	68	0	11	1	11	8
	• 0 73 •	2011	681	1 000	147	73	0	11	1	8	7
Luxembourg		1995		37	–	100	0	0	0	0	0
		2000	21		–						
		2005	14	0	0						
		2009			–						
		2010	0	14	–	0	0	7	0	0	93
	• 100 0 •	2011	4	6	150	0	0	17	0	0	83
Malta		1995	5	5	100	80	20	0	0	0	0
		2000	5	4	80	0	100	0	0	0	0
		2005	5	5	100	0	100	0	0	0	0
		2009	12	10	83	0	80	0	0	0	20
		2010	4	5	125	0	80	0	0	0	20
	• 100 58 •	2011	7	12	171	0	58	0	0	8	33
Monaco		1995			–						
		2000	0		–						
		2005			–						
		2009			–						
		2010			–						
	• 0 0 •	2011			–						
Montenegro		2005	64	63	98	10	21				70
		2009	53	78	147	49	37	8	0	4	3
		2010	39	39	100	46	41	5	0	3	5
	86 •	2011	48	56	117	25	61	12	0	0	2
Netherlands		1995	575	715	124	17	55	8		5	15
		2000	289	301	104	23	53	6	0	3	15
		2005	237	208	88	9	75	7	0	1	8
		2009	203	454	224	11	69	9	0	3	8
		2010	176	469	266	1	76	7	0	4	12
	• 72 81 •	2011	177	437	247	1	81	5	0	3	11
Norway		1995	62	87	140	43	34	14	1	8	0
		2000	37	37	100	49	22	14	3	3	11
		2005	48	47	98	62	30	2	0	4	2
		2009	42	146	348	45	37	4	1	0	13
		2010	49	139	284	68	24	3	1	0	5
	• 77 0 •	2011	40		–						
Poland		1995	6 955		–						
		2000	3 180	214	7	50	22	11	6	6	5
		2005	2 823	2 823	100	65	12	5	1	9	8
		2009	2 658	4 391	165	48	19	5	0	10	17
		2010	2 484	3 998	161	47	19	6	0	9	19
	• 0 60 •	2011	2 587	4 699	182	43	17	9	0	9	22

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

						% OF COHORT					
	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Portugal		1995	2 019	1 240	61	45	23	4	4	4	19
		2000	1 863	1 924	103	9	71	6	0	5	9
		2005	1 302	1 393	107	13	76	6	0	4	2
		2009	1 043	1 565	150	9	75	6	0	3	7
		2010	912		–						
	• 69 80 •	2011	876	1 387	158	9	72	5	0	3	12
Republic of Moldova		1995	665		–						
		2000	651	651	100	1	62	0	0	0	37
		2005	1 696	1 690	100	60	2	9	11	11	7
		2009	1 318	1 318	100	49	5	10	17	14	5
		2010	1 267	1 267	100	52	5	11	5	13	13
	• 0 62 •	2011	1 272	1 272	100	57	5	9	18	10	1
Romania		1995	10 469	11 597	111	38	13	6	7	6	31
		2000	10 202	10 158	100	28	42	4	8	8	9
		2005	10 801	10 929	101	71	11	5	4	6	4
		2009	8 987	10 737	119	72	14	4	4	6	1
		2010	7 951	9 445	119	70	14	5	4	6	2
	• 51 85 •	2011	7 386	8 886	120	71	14	5	3	5	1
Russian Federation		1995	37 512	54	0	54	11	15	6	11	4
		2000	27 467	3 616	13	64	4	6	13	9	4
		2005	32 605	25 692	79	55	3	13	14	11	4
		2009	33 351	32 316	97	52	3	11	20	8	5
		2010	31 416	30 123	96	50	3	12	23	7	5
	• 65 54 •	2011	29 191	36 747	126	48	5	9	10	7	20
San Marino		1995			–						
		2000	1	1	100	0	0	100	0	0	0
		2005			–						
		2009			–						
		2010			–						
	• 0 0 •	2011			–						
Serbia		2005	1 105	1 154	104	72	13	5	1	5	4
		2009	1 055	1 392	132	80	6	6	1	4	2
		2010	977	988	101	79	8	6	1	4	2
	87 •	2011	905	894	99	80	7	7	0	4	2
Serbia & Montenegro		1995	1 497	1 956	131	34	18	2	3	10	33
		2000	0	267	–	82	7	4	0	6	1
Slovakia		1995	788	807	102	64		16		4	16
		2000	236	238	101	81	0	14	1	2	1
		2005	162	158	98	66	26	6	0	1	1
		2009	121	174	144	82	0	14	0	2	2
		2010	112	177	158	84	0	12	0	3	1
	• 64 91 •	2011	96	138	144	91	1	7	0	0	2
Slovenia		1995	303	270	89	64	26	4	2	1	3
		2000	145	145	100	33	51	8	0	5	3
		2005	109	109	100	47	38	12	0	1	3
		2009	85	149	175	24	63	9	1	1	3
		2010	64	123	192	28	57	11	0	1	3
	• 90 81 •	2011	82	151	184	37	44	18	0	1	1
Spain		1995	2 605		–						
		2000	3 423		–						
		2005	2 511		–						
		2009	2 236		–						
		2010	2 076	3 574	172	39	32	6	0	1	23
	• 0 73 •	2011	2 186	3 335	153	42	31	7	0	1	19
Sweden		1995	102		–						
		2000	118	112	95	0	79	11	0	2	8
		2005	134	133	99	0	74	6	1	1	18
		2009	107	255	238	0	85	6	0	1	8
		2010	117	289	247	70	15	5	0	1	9
	• 0 83 •	2011	99	247	249	51	32	5	1	2	9
Switzerland		1995	185		–						
		2000	86		–						
		2005	84		–						
		2009	74		–						
		2010	82		–						
	• 0 0 •	2011	90		–						
Tajikistan		1995	1 042	348	33	69	18	7	3	2	0
		2000	434	665	153	74	3	15	8	0	0
		2005	1 745	1 729	99	74	9	4	6	7	0
		2009	1 972	1 972	100	75	6	4	8	5	1
		2010	2 290	2 290	100	76	4	5	11	3	1
	• 88 80 •	2011	2 174	2 174	100	74	6	5	11	3	1
The Former Yugoslav Republic of Macedonia		1995	319	222	70	61	9	13	9	9	0
		2000	167	152	91	51	35	4	2	7	1
		2005	178	179	101	62	22	2	0	14	0
		2009	198	199	101	85	5	4	2	5	0
		2010	141	143	101	83	7	4	3	2	1
	• 70 95 •	2011	132	130	98	78	16	3	0	2	0
Turkey		1995	4 383		–						
		2000	4 315	3 461	80	0	73	3	0	6	19
		2005	7 450	7 450	100	45	44	2	0	5	3
		2009	6 007	6 007	100	61	30	3	1	2	3
		2010	5 375	5 375	100	63	29	3	1	3	2
	• 0 90 •	2011	4 927	4 927	100	60	31	3	1	3	3
Turkmenistan		1995	544	544	100	55	18	11	7	2	7
		2000	1 017	1 017	100	79	2	9	6	3	1
		2005	995	995	100	70	14	6	4	5	1
		2009	1 370	1 375	100	83	1	5	6	5	1
		2010	1 153		–						
	• 73 0 •	2011			–						
Ukraine		1995	8 263	9 564	116	83		6	7		4
		2000	10 738		–						
		2005			–						
		2009	13 632	13 111	96	52	7	13	16	8	3
		2010	9 976	13 279	133	51	9	13	17	8	3
	• 83 58 •	2011	10 502	13 714	131	48	10	13	18	7	4
United Kingdom of Great Britain and Northern Ireland		1995			–						
		2000	1 204		–						
		2005	1 821	1 348	74	0	68	7	0	1	24
		2009	1 256	2 569	205	0	82	6	0	5	7
		2010	1 201	2 602	217	0	81	5	0	6	8
	• 0 80 •	2011	1 204	2 952	245	0	80	6	0	6	8
Uzbekistan		1995	2 735	2 598	95	78	0	9	7	4	3
		2000	3 825	1 030	27	27	53	3	6	5	6
		2005	5 695	5 336	94	72	9	6	6	7	1
		2009	4 959	4 959	100	77	5	6	5	5	3
		2010	4 711	4 711	100	76	5	6	6	5	3
	• 78 78 •	2011	4 198	4 198	100	73	5	6	6	6	4

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

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TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Albania		1995	53		–						
		2000	19		–						
		2005	43	30	70	37	37	3	0	10	13
		2009	21	21	100	38	38	10	0	10	5
		2010	30	30	100	43	47	3	0	7	0
	• 0 83 •	2011	18	18	100	28	56	6	0	6	6
Andorra		1995			–						
		2000	0		–						
		2005	0		–						
		2009	2	2	100	0	100	0	0	0	0
		2010	0	0	–						
	• 0 0 •	2011	1	1	100	0	0	0	0	0	100
Armenia		1995	38	6	16	50	0	0	17	33	0
		2000	76	54	71	52	15	7	7	19	0
		2005	327	327	100	13	28	7	12	37	4
		2009	542	542	100	9	54	8	4	15	10
		2010	451	451	100	5	62	6	10	13	4
	• 50 68 •	2011	382	382	100	5	63	4	9	15	3
Austria		1995			–						
		2000	30	10	33	0	80	0	0	0	20
		2005	26	27	104	11	56	11	0	11	11
		2009	25	37	148	3	38	5	0	30	24
		2010	29	29	100	14	45	0	0	0	41
	• 0 43 •	2011	20	21	105	0	43	14	5	5	33
Azerbaijan		1995	47		–						
		2000	74	74	100	59	7	5	11	14	4
		2005	3 200	1 314	41	28	9	6	6	13	38
		2009	2 384	1 687	71	39	14	6	9	19	13
		2010	1 997	4 194	210	14	49	3	4	15	15
	• 0 71 •	2011	2 155	4 005	186	8	63	3	5	12	8
Belarus		1995	343		–						
		2000	825		–						
		2005	1 049		–						
		2009	878	616	70	38	4	13	7	1	37
		2010	1 114	792	71	20	28	10	36	1	5
	• 0 29 •	2011	1 075	1 020	95	21	8	7	59	3	3
Belgium		1995	80		–						
		2000	89	55	62	16	45	13	0	15	11
		2005	68	47	69	17	21	19	0	0	43
		2009		76	–	11	57	9	0	12	12
		2010	87	85	98	8	55	6	0	12	19
	• 0 61 •	2011	59	56	95	16	45	9	0	16	14
Bosnia and Herzegovina		1995	130		–						
		2000	193	122	63	79	15	3	1	2	0
		2005	156	106	68	85	8	4	1	2	1
		2009	113	116	103	52	32	5	3	3	5
		2010	101	101	100	83	12	2	1	1	1
	• 0 63 •	2011	65	104	160	19	43	7	0	3	28
Bulgaria		1995			–						
		2000	383		–						
		2005	201	198	99	57	10	7	11	14	2
		2009	372	384	103	32	38	12	5	8	5
		2010	348	348	100	32	31	13	6	12	5
	• 0 66 •	2011	355	355	100	30	36	9	5	11	8
Croatia		1995	42		–						
		2000			–						
		2005	94	92	98	20	13	9	1	1	57
		2009	62	22	35	27	23	36	5	5	5
		2010	43	37	86	59	16	14		3	8
	• 0 0 •	2011			–						
Cyprus		1995	0		–						
		2000	0		–						
		2005	3	2	67	0	100	0	0	0	0
		2009	3	6	200	17	0	0	0	0	83
		2010	0	0	–						
	• 0 100 •	2011	3	3	100	67	33	0	0	0	0
Czech Republic		1995	21		–						
		2000	25	38	152	53	11	8	3	0	26
		2005	34	31	91	16	39	3	0	3	39
		2009		62	–	34	34	18	0	2	13
		2010	51	49	96	41	33	16	0	0	10
	• 0 75 •	2011	31	32	103	44	31	12	0	9	3
Denmark		1995	6		–						
		2000	28	15	54	27	60	7	0	0	7
		2005	29	22	76	27	64	5	0	5	0
		2009	10	42	420	12	40	2	2	0	43
		2010	46	35	76	20	40	11	3	0	26
	• 0 0 •	2011	22		–						
Estonia		1995	71		–						
		2000	116	59	51	54	2	3	0	3	37
		2005	94	89	95	21	20	3	4	26	25
		2009	80	82	102	34	17	15	6	9	20
		2010	79	81	103	28	11	11	2	15	32
	• 0 31 •	2011	76	75	99	15	16	21	1	11	36
Finland		1995			–						
		2000	29		–						
		2005	22		–						
		2009		14	–	29	7	0	0	0	64
		2010	15	13	87	38	8	0	0	0	54
	• 0 25 •	2011	13	12	92	25	0	8	0	0	67
France		1995			–						
		2000	0		–						
		2005	371		–						
		2009			–						
		2010	315		–						
	• 0 0 •	2011	261		–						
Georgia		1995	196	298	152	8	24	12	9	45	2
		2000	681	470	69	23	31	10	8	29	0
		2005	2 152	2 037	95	19	35	7	10	23	6
		2009	566	1 521	269	26	34	5	17	15	3
		2010	1 409	1 421	101	26	35	5	17	11	4
	• 32 61 •	2011	1 310	1 321	101	27	34	4	23	8	4
Germany		1995			–						
		2000		63	–	51	21	16	3	5	5
		2005	493	432	88	30	36	9	0	7	18
		2009	252	344	137	21	44	12	0	5	17
		2010	367	364	99	25	47	12	1	6	10
	• 0 58 •	2011	300	289	96	17	41	10	0	6	27

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Greece		1995			–						
		2000	48		–						
		2005	74		–						
		2009	3		–						
		2010	44		–						
	• 0 0 •	2011	35		–						
Greenland		1995			–						
		2000			–						
		2005			–						
		2009	6		–						
		2010	12		–						
	• 0 0 •	2011	3		–						
Hungary		1995			–						
		2000	371	122	33	16	20	15	9	11	30
		2005	347	333	96	12	37	13	8	11	18
		2009	211	208	99	35	26	13	12	6	8
		2010	254	254	100	13	49	11	0	17	9
	• 0 0 •	2011	221	0	0						
Iceland		1995	0		–						
		2000	1	1	100	0	100	0	0	0	0
		2005	1		–						
		2009	1	1	100	0	100	0	0	0	0
		2010	0	0	–						
	• 0 100 •	2011	1	1	100	0	100	0	0	0	0
Ireland		1995			–						
		2000	22	10	45	40	0	10	10	40	0
		2005	40	14	35	7	57	7	0	0	29
		2009	16	52	325	4	58	8	0	0	31
		2010	31	33	106	0	55	15	0	3	27
	• 0 54 •	2011	27	26	96	50	4	15	0	0	31
Israel		1995			–						
		2000	8	8	100	12	25	62	0	0	0
		2005	7	7	100	71	14	14	0	0	0
		2009	9	9	100	56	11	11	0	0	22
		2010	4	5	125	80	0	20	0	0	0
	• 0 50 •	2011	10	10	100	40	10	10	0	20	20
Italy		1995		31	–	42	6	26	10	13	3
		2000	625	26	4	31	15	4	12	8	31
		2005	293		–						
		2009			–						
		2010	74		–						
	• 48 0 •	2011	100		–						
Kazakhstan		1995	1 320		–						
		2000	5 093	2 901	57	62	4	10	14	5	5
		2005	15 009	4 085	27	46	1	13	14	6	19
		2009	9 371	9 392	100	22	27	9	34	6	3
		2010	9 213	8 734	95	23	24	9	4	5	35
	• 0 36 •	2011	5 969	5 026	84	36	0	11	4	5	44
Kyrgyzstan		1995	127		–						
		2000	555	278	50	59	15	8	8	6	4
		2005	847	845	100	40	31	8	9	11	1
		2009	758	924	122	28	43	7	6	7	9
		2010	987		–						
	• 0 56 •	2011	1 035	523	51	49	6	9	22	8	5
Latvia		1995	118		–						
		2000	375	205	55	39	2	19	3	8	29
		2005	205	205	100	50	1	10	1	9	29
		2009	147	148	101	43	1	14	0	14	28
		2010	109	110	101	60	2	6	0	12	20
	• 0 51 •	2011	97	97	100	45	5	10	1	12	26
Lithuania		1995	128		–						
		2000	509	282	55	45	0	21	8	22	5
		2005	460	455	99	27	2	25	4	22	19
		2009	404	404	100	30	0	24	5	22	20
		2010	364	364	100	31	1	18	4	22	25
	• 0 33 •	2011	369	369	100	33	0	16	2	23	25
Luxembourg		1995			–						
		2000	4		–						
		2005	0		–						
		2009			–						
		2010	0	0	–						
	• 0 0 •	2011	1	0	0						
Malta		1995	0		–						
		2000	0	1	–	0	100	0	0	0	0
		2005	1	1	100	0	100	0	0	0	0
		2009	2	2	100	0	50	0	0	0	50
		2010	3	3	100	0	67	0	0	0	33
	• 0 100 •	2011	3	3	100	0	100	0	0	0	0
Monaco		1995			–						
		2000	0		–						
		2005			–						
		2009			–						
		2010			–						
	• 0 0 •	2011			–						
Montenegro		2005	27	10	37		20	20			60
		2009	11	11	100	45	27	9	0	0	18
		2010	12	14	117	50	36	0	0	0	14
	83 •	2011	12	12	100	67	17	8	0	0	8
Netherlands		1995			–						
		2000	70	18	26	28	22	6	0	6	39
		2005	44	28	64	11	68	4	0	7	11
		2009	46	49	107	4	67	2	0	4	22
		2010	43	44	102	5	61	9	0	7	18
	• 0 80 •	2011	38	46	121	0	80	0	0	2	17
Norway		1995	28		–						
		2000	12	3	25	33	0	67	0	0	0
		2005	14	9	64	44	33	22	0	0	0
		2009		30	–	33	47	13	0	0	7
		2010	42	40	95	20	52	15	5	0	8
	• 0 0 •	2011	37		–						
Poland		1995	1 071		–						
		2000	882	56	6	64	12	14	0	4	5
		2005	1 077	985	91	22	31	6	0	32	9
		2009	688	942	137	30	32	5	0	14	18
		2010	899	899	100	28	33	8	0	10	21
	• 0 53 •	2011	963	963	100	25	28	10	0	12	24

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

EUROPEAN REGION

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Portugal		1995	268	133	50	38	17	6	6	9	24
		2000	481	209	43	10	66	4	0	7	14
		2005	350	293	84	8	66	10	1	9	6
		2009	271	265	98	7	62	7	0	8	16
		2010	228		–						
	• 55 61 •	2011	215	204	95	3	58	4	0	2	32
Republic of Moldova		1995	148		–						
		2000	374	1	0	0	0	0	100	0	0
		2005	1 777	1 713	96	22	19	13	16	17	13
		2009	1 663	1 663	100	15	20	15	26	20	4
		2010	1 689	1 702	101	15	17	14	5	17	32
	• 0 38 •	2011	1 480	1 500	101	18	20	13	28	17	4
Romania		1995	1 077		–						
		2000	3 770	2 605	69	24	20	9	20	17	11
		2005	6 938	6 737	97	39	13	10	10	14	14
		2009	5 401	5 391	100	38	19	10	12	16	4
		2010	5 115	5 118	100	37	18	11	12	17	6
	• 0 58 •	2011	4 669	4 667	100	39	19	11	11	15	5
Russian Federation		1995		12	–	42	17	25	8	8	0
		2000	18 147	1 694	9	25	24	10	21	9	11
		2005	35 153	10 855	31	33	4	16	26	16	5
		2009	32 569	16 726	51	31	3	13	32	12	9
		2010	45 980	14 609	32	31	4	12	33	12	9
	• 58 42 •	2011	55 159	26 062	47	20	22	10	15	10	23
San Marino		1995			–						
		2000	0		–						
		2005			–						
		2009			–						
		2010			–						
	• 0 0 •	2011			–						
Serbia		2005	300	284	95	46	26	10	2	12	3
		2009	203	244	120	61	13	9	0	12	5
		2010	200	203	101	55	21	9	1	10	3
	78 •	2011	162	164	101	60	18	5	1	8	9
Serbia & Montenegro		1995	198		–						
		2000	203	21	10	67	10	10	0	14	0
Slovakia		1995	20		–						
		2000	120	46	38	78	0	11	2	4	4
		2005	108	101	94	50	38	7	0	3	3
		2009	79	79	100	34	48	14	1	0	3
		2010	55	55	100	44	40	15	0	0	2
	• 0 88 •	2011	50	50	100	48	40	2	4	2	4
Slovenia		1995	30		–						
		2000	47	24	51	29	46	4	0	12	8
		2005	29	27	93	44	41	4	0	4	7
		2009	8	8	100	12	75	0	0	0	12
		2010	11	11	100	18	45	36	0	0	0
	• 0 100 •	2011	11	11	100	27	73	0	0	0	0
Spain		1995			–						
		2000	0		–						
		2005	1 078		–						
		2009			–						
		2010	324	351	108	25	31	9	0	2	33
	• 0 56 •	2011	370	388	105	26	30	13	0	2	28
Sweden		1995	11		–						
		2000	40	9	22	0	78	0	0	11	11
		2005	30	16	53	0	75	0	0	0	25
		2009		45	–	0	69	13	0	7	11
		2010	52	52	100	21	54	2	0	0	23
	• 0 78 •	2011	45	45	100	22	56	2	0	4	16
Switzerland		1995	5		–						
		2000	63		–						
		2005	49		–						
		2009	51		–						
		2010	40		–						
	• 0 0 •	2011	54		–						
Tajikistan		1995	370		–						
		2000			–						
		2005	2 189	1 762	80	29	47	9	8	6	1
		2009	533	1 618	304	29	43	11	10	6	1
		2010	985	1 732	176	33	38	11	11	4	1
	• 0 71 •	2011	929	1 674	180	29	41	10	13	5	1
The Former Yugoslav Republic of Macedonia		1995	25		–						
		2000	16		–						
		2005	103	97	94	24	33	7	2	32	2
		2009	56	56	100	39	39	7	2	11	2
		2010	52	52	100	29	37	17	4	12	2
	• 0 78 •	2011	55	55	100	38	40	9	4	7	2
Turkey		1995			–						
		2000	808		–						
		2005	2 550	1 593	62	24	46	5	2	12	11
		2009	1 445	1 459	101	29	44	3	2	9	13
		2010	1 368	1 368	100	25	43	5	2	7	17
	• 0 68 •	2011	1 262	1 262	100	22	46	4	2	10	16
Turkmenistan		1995	67		–						
		2000	1 965	495	25	66	9	7	11	6	1
		2005	142	142	100	42	26	13	10	9	0
		2009			–						
		2010	82		–						
	• 0 0 •	2011			–						
Ukraine		1995	1 889		–						
		2000	3 210		–						
		2005			–						
		2009	5 477	10 424	190	18	29	14	22	12	5
		2010	5 114	9 812	192	17	29	14	23	10	7
	• 0 34 •	2011	11 488	6 413	56	26	8	16	33	9	7
United Kingdom of Great Britain and Northern Ireland		1995			–						
		2000	0		–						
		2005	460	147	32	0	57	4	0	3	36
		2009		791	–	0	79	7	0	5	9
		2010	576	576	100	0	74	7	0	7	12
	• 0 80 •	2011	524	492	94	0	80	6	0	6	8
Uzbekistan		1995			–						
		2000	347	764	220	20	55	8	8	9	0
		2005	9 015	3 999	44	28	41	9	7	14	1
		2009	2 451	2 451	100	30	39	11	7	9	5
		2010	4 596	4 527	98	25	48	10	5	9	4
	• 0 72 •	2011	1 074	1 074	100	40	32	9	10	8	1

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Albania		2005	15	81	540	1	1.2			
		2010	42	186	445	0	0			5
		2011	39	170	431	2	1.2	100	100	
	• 15 55 •	2012	55	233	420	7	3	100	100	2
Andorra		2005			10					
		2010	0	0	7	0				
		2011	0	0	4	0				
	– 11 •	2012	11	1	9	0	0			
Armenia		2005	12	270	2 322	6	2.2	83	33	
		2010	70	1 242	1 780	17	1.4	47	41	
		2011	95	1 499	1 582	49	3.3	80	80	
	• 12 100 •	2012	100	1 518	1 518	79	5.2	70	70	0
Austria		2005			954					
		2010			688					
		2011			687					
	– –	2012			648					
Azerbaijan		2005			7 920					
		2010	75	6 290	8 394	48	0.76			62
		2011	74	7 448	10 100	36	0.48		61	41
	– 96 •	2012	96	7 849	8 140	129	1.6		49	21
Belarus		2005			6 357	139				
		2010	93	5 153	5 554	190	3.7			257
		2011	100	5 118	5 118	217	4.2		29	32
	– 100 •	2012	100	5 246	5 246	229	4.4		67	258
Belgium		2005	82	937	1 144	52	5.5			
		2010	87	969	1 115	66	6.8			
		2011	81	845	1 044	44	5.2			
	• 82 56 •	2012	56	556	987	43	7.7			
Bosnia and Herzegovina		2005			2 160					
		2010	0	0	1 390	0				
		2011	4.7	65	1 385	0	0			0
	– 4 •	2012	3.9	56	1 420	0	0			
Bulgaria		2005	0.7	23	3 302					
		2010	67	1 773	2 649	2	0.11	0	100	
		2011	71	1 698	2 407	5	0.29	0	100	
	• 1 66 •	2012	66	1 513	2 280	3	0.2	0	100	
Croatia		2005			1 144					
		2010			695	1				1
		2011			619	4				3
	– –	2012								
Cyprus		2005	0	0	37	0				
		2010			61					
		2011			54					1
	• 0 –	2012			69					
Czech Republic		2005	19	189	1 007	2	1.1			
		2010	26	177	678	5	2.8			
		2011	26	153	600	4	2.6			
	• 19 22 •	2012	22	136	605	6	4.4			
Denmark		2005			424	8				
		2010	0	0	359	0				
		2011	73	277	381	10	3.6			
	– –	2012								
Estonia		2005	94	490	519	33	6.7	0		
		2010	91	298	329	34	11		47	
		2011	92	315	341	46	15		61	
	• 94 93 •	2012	93	271	290	45	17		62	
Finland		2005	0.83	3	361	3	100			
		2010	0.92	3	327	3	100			
		2011	0.92	3	325	3	100			
	• 1 –	2012			274					
France		2005			5 374					
		2010	24	1 233	5 116	121	9.8			
		2011	27	1 354	4 942	95	7			
	– –	2012								
Georgia		2005	10	674	6 448	13	1.9	54	100	
		2010	32	1 841	5 796	35	1.9	63	77	
		2011	46	2 550	5 533	50	2	56	76	61
	• 10 38 •	2012	38	1 881	4 974	33	1.8	79	79	97
Germany		2005			6 045					
		2010			4 330					
		2011			4 316					
	– –	2012			4 238					
Greece		2005			767					
		2010			489					
		2011			489					
	– –	2012								
Greenland		2005								
		2010			116					
		2011			115					
	– –	2012			84					
Hungary		2005			2 024					
		2010	<0.1	1	1 741	1	100		100	
		2011	<0.1	1	1 445	1	100		100	
	– –	2012			1 223					
Iceland		2005	91	10	11	1	10	100	100	
		2010	95	21	22	1	4.8	0	0	
		2011	100	9	9	0	0			
	• 91 100 •	2012	100	11	11	0	0			
Ireland		2005	6.1	28	461	11	39			
		2010	23	98	427	15	15			
		2011	30	128	425	21	16			
	• 6 27 •	2012	27	97	366	14	14			
Israel		2005	85	316	372	17	5.4			
		2010	90	308	343	13	4.2			
		2011	92	384	418	24	6.2			
	• 85 99 •	2012	99	503	509	16	3.2			
Italy		2005			4 137					
		2010			3 249					
		2011			3 521					
	– –	2012								
Kazakhstan		2005	77	31 187	40 429	183	0.59	41	7.7	
		2010	84	23 854	28 550	333	1.4	26	7.5	1 063
		2011	85	22 480	26 304	352	1.6	20	9.1	1 329
	• 77 98 •	2012	98	21 184	21 523	441	2.1	16	58	862
Kyrgyzstan		2005			6 765					
		2010	2.9	183	6 295	183	100	68	37	
		2011	100	6 666	6 666	153	2.3	60	86	4
	– 100 •	2012	100	6 916	6 916	151	2.2	67	78	5

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Latvia		2005	85	1 226	1 443	53	4.3		55	
		2010	85	794	934	71	8.9		76	
		2011	85	752	885	71	9.4	41	66	
	• 85 85 •	2012	85	844	993	114	14	39	57	
Lithuania		2005			2 574	7				
		2010			1 938	19				
		2011			1 904					
	– –	2012			1 781					
Luxembourg		2005			37					
		2010			29					
		2011			26					
	– –	2012			45					
Malta		2005	4.3	1	23	0	0			
		2010	81	26	32	3	12			0
		2011	91	30	33	5	17			4
	• 4 98 •	2012	98	42	43	4	9.5			
Monaco		2005								
		2010			1					
		2011								
	– –	2012								
Montenegro		2005	4.7	8	170	0	0			
		2010	74	84	114	1	1.2	0	100	
		2011	82	92	112	0	0			
	• 5 77 •	2012	77	82	107	0	0			
Netherlands		2005	22	252	1 157	61	24			
		2010	38	413	1 073	48	12			21
		2011	49	490	1 007	31	6.3			
	• 22 42 •	2012	42	407	958	28	6.9			
Norway		2005	0	0	290					
		2010			339					
		2011			361					
	• 0 –	2012				3				
Poland		2005			9 280					
		2010	0.29	22	7 509	22	100			
		2011	0.31	26	8 478	26	100			
	– 0 •	2012	0.34	26	7 542					
Portugal		2005	70	2 485	3 536	571	23			
		2010	65	1 720	2 626	303	18	100	100	
		2011	86	2 185	2 540	315	14			
	• 70 65 •	2012	65	1 672	2 590	291	17			
Republic of Moldova		2005	100	6 469	6 278	9	0.14			
		2010	95	5 192	5 447	308	5.9	9.7	31	0
		2011	94	5 017	5 341	285	5.7			
	• 103 100 •	2012	100	5 348	5 341	303	5.7		34	
Romania		2005	37	10 860	29 347	160	1.5			
		2010	37	7 833	21 078	241	3.1	41	89	133
		2011	50	9 608	19 212	244	2.5	59	90	145
	• 37 53 •	2012	53	9 699	18 224	229	2.4	76	90	174
Russian Federation		2005	55	85 537	154 379	3 533	4.1			
		2010		84 669	162 553	3 633			200	
		2011		79 494	159 479	4 104				
	• 55 –	2012		75 995	149 921	4 880				
San Marino		2005								
		2010								
		2011								
	– –	2012								
Serbia		2005	<0.1	3	3 468	3	100	430	400	
		2010	0.67	16	2 385	12	75	0	100	4
		2011	3.2	72	2 216	6	8.3	0	100	
	• 0 2 •	2012	2	39	1 917	6	15	0	100	
Slovakia		2005	95	720	760	1	0.14	0	100	
		2010	100	439	439	1	0.23	100	100	0
		2011	99	395	399	0	0			
	• 95 93 •	2012	93	322	345	0	0			0
Slovenia		2005	38	107	278	0	0			
		2010	76	130	172	1	0.77			
		2011	77	147	192	0	0			
	• 38 75 •	2012	75	104	138	0	0			
Spain		2005			8 359					
		2010	69	4 909	7 089	456	9.3			
		2011	68	4 569	6 762	414	9.1			
	– 70 •	2012	70	4 179	5 991	370	8.9			
Sweden		2005	0	0	569					
		2010			675					
		2011			586					
	• 0 –	2012			632					
Switzerland		2005			563					
		2010			548					
		2011			578					
	– –	2012			463					
Tajikistan		2005	8.9	670	7 526	1	0.15	0	0	
		2010	53	4 049	7 641	100	2.5	73	54	0
		2011	82	6 241	7 609	115	1.8	70	57	315
	• 9 92 •	2012	92	6 375	6 929	88	1.4	80	89	157
The Former Yugoslav Republic of Macedonia		2005	0.3	2	658	2	100	0	100	
		2010	9.3	39	420	0	0			0
		2011	12	45	362	0	0			0
	• 0 41 •	2012	41	145	355	0	0			0
Turkey		2005	0	0	21 303	0				
		2010	3.5	581	16 551	14	2.4	36	64	
		2011	46	7 241	15 679	29	0.4	48	93	
	• 0 59 •	2012	59	8 646	14 691	45	0.52	49	78	
Turkmenistan		2005			3 291					
		2010	100	3 230	3 230	0	0			
		2011								
	– –	2012								
Ukraine		2005			39 608	1 526		0		
		2010	95	34 621	36 409	5 752	17		39	5 029
		2011	74	31 776	42 676	4 157	13		63	
	– 75 •	2012	75	34 181	45 569	4 726	14	72	71	14 352
United Kingdom of Great Britain and Northern Ireland		2005			8 633					
		2010			8 483	378				
		2011			8 963	326				
	– –	2012			8 751					
Uzbekistan		2005	120	35 801	28 891	147	0.41	0	0	
		2010	100	20 330	20 330	427	2.1	92	37	
		2011	100	15 913	15 913	546	3.4	96	32	2 630
	• 124 100 •	2012	100	16 810	16 810	820	4.9	95	13	2 010

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Albania	2005	1			161	75		12	28
	2010	2			186	76		19	63
	2011	5			194	87		11	61
	2012	1	1.7 (0–4.9)	1.7 (<0.1–9.1)	172	76	0 (0–6.3)	15	52
Andorra	2005	0			9	150			–
	2010	0			4	100		0	–
	2011	0			1	100		1	100
	2012	0	0 (0–4.9)	0 (0–4.9)	4	100	0 (0–0)	0	–
Armenia	2005	162			576	99		182	56
	2010	177			361	87		99	22
	2011	79			439	96		90	24
	2012	92	250 (220–280)	82 (61–110)	420	94	170 (150–190)	91	23
Austria	2005	13			570	110		16	62
	2010	15			203	99		15	52
	2011	19			257	95		11	55
	2012	27	18 (6.7–30)	11 (5.1–20)	254	93	7.3 (0.91–21)	25	62
Azerbaijan	2005	800			453	29		366	11
	2010	552			801	19		960	48
	2011	811			569	25		151	7.0
	2012	596	2 800 (2 600–3 000)	810 (670–960)		–	2 000 (1 800–2 200)		–
Belarus	2005					–			–
	2010	1576			1972	90		1697	150
	2011	1594			2084	94		948	88
	2012	1604	2 200 (2 100–2 200)	1 200 (1 100–1 300)	2164	90	960 (920–1 000)	1183	84
Belgium	2005	11			588	89		41	60
	2010	19			466	97		52	60
	2011	15			524	94		35	59
	2012	20	15 (5.8–25)	6.3 (2.5–13)	503	95	8.9 (2.5–21)	53	68
Bosnia and Herzegovina	2005	11			1035	100		106	68
	2010	2			600	100		47	47
	2011	7			704	99		41	63
	2012	7	13 (2.0–24)	1.6 (<0.1–8.9)	724	97	12 (3.2–28)	66	55
Bulgaria	2005	47			482	40		691	340
	2010	56			801	85		165	47
	2011	55			588	62		145	41
	2012	49	100 (78–130)	32 (18–51)	687	71	73 (52–98)	142	45
Croatia	2005	6			586	100		61	65
	2010	0				–			–
	2011	8			353	96		40	–
	2012		–	–		–	–		–
Cyprus	2005	1			16	84		0	0
	2010	0			14	70		0	–
	2011	1			25	96		2	67
	2012	0	1.7 (0–5.0)	1.7 (<0.1–8.8)	40	93	0 (0–5.1)	2	33
Czech Republic	2005	13			562	100		20	59
	2010	9			352	97		28	55
	2011	7			392	96		16	52
	2012	4	9.8 (2.3–17)	7.3 (2.7–16)	371	93	2.5 (<0.1–12)	26	65
Denmark	2005	5			307	140		18	62
	2010	2			209	98		30	65
	2011	3			257	100		14	64
	2012	1	–	–		–	–		–
Estonia	2005	79			316	110		71	76
	2010	63			197	100		61	77
	2011	78			210	100		52	68
	2012	62	70 (56–85)	42 (31–56)	193	100	28 (20–36)	46	82
Finland	2005	3			198	85		22	100
	2010	6			184	96		7	47
	2011	5			237	97		8	62
	2012	3	2.7 (0–5.6)	2.7 (0.55–7.6)	206	99	0 (0–4.2)	14	78
France	2005	24			1291	47		112	30
	2010	23			1187	120		91	29
	2011	40			1232	73		110	42
	2012	39	–	–		–	–		–
Georgia	2005	195			799	53		515	24
	2010	359			1987	80		558	40
	2011	475			2197	83		675	52
	2012	346	630 (570–690)	260 (220–300)	1931	84	370 (330–420)	541	45
Germany	2005	105			3094	98		251	51
	2010	48			2215	110		184	50
	2011	56			2382	91		148	49
	2012	64	62 (44–81)	37 (25–52)	2198	89	26 (13–43)	116	47
Greece	2005	12			497	170		0	0
	2010	2			115	37		15	34
	2011	5			148	44		11	31
	2012		–	–		–	–		–
Greenland	2005					–			–
	2010	1				–			–
	2011					–			–
	2012		1.6 (1.0–2.2)	1.4 (0.69–2.0)		–	0.24 (0.18–0.29)		–
Hungary	2005	26			442	62		88	25
	2010	19			474	92		80	31
	2011	30			411	73		68	31
	2012	12	31 (15–46)	23 (11–42)	411	79	7.3 (3.0–14)	31	37
Iceland	2005	0			7	140		1	100
	2010	0			19	120		0	–
	2011	0			4	80		0	0
	2012	1	1.0 (1.0–1.0)	0 (0–4.2)	4	100	1.0 (<0.1–1.0)	1	100
Ireland	2005	3			200	110		10	25
	2010	2			200	130		22	71
	2011	3			176	85		15	56
	2012	5	1.8 (0–4.4)	1.8 (0.22–6.6)	190	97	0 (0–4.9)	17	68
Israel	2005	16			259	110		6	86
	2010	12			245	120		2	50
	2011	11			275	99		9	90
	2012	17	22 (12–32)	19 (11–30)	318	98	3.7 (0.48–8.5)	6	55
Italy	2005					–			–
	2010					–			–
	2011					–			–
	2012		–	–		–	–		–
Kazakhstan	2005					–			–
	2010	7387			5214	100		4655	51
	2011	7408			5293	83		4790	80
	2012	7608	7 000 (6 900–7 200)	2 700 (2 600–2 800)	8154	140	4 300 (4 300–4 400)	10443	130
Kyrgyzstan	2005	989			837	20		152	18
	2010	566			225	14		264	27
	2011	806				–			–
	2012	958	1 800 (1 600–2 000)	1 100 (910–1 200)	1659	99	730 (690–770)	831	78

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically positive cases.

EUROPEAN REGION

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Latvia	2005	160			873	100		182	89
	2010	87			613	100		102	94
	2011	105			562	96		82	85
	2012	110	120 (100–140)	87 (69–110)	666	97	36 (26–48)	100	88
Lithuania	2005	338			1293	100		440	96
	2010	310			959	100		360	99
	2011	296			1031	100		369	100
	2012	271	300 (270–330)	150 (120–170)	1017	100	150 (140–170)	350	100
Luxembourg	2005	0			36	110			–
	2010	0			17	120		0	–
	2011	2			7	100		1	100
	2012	0	0 (0–0.98)	0 (0–0)	0	–	0 (0–0.98)	1	100
Malta	2005	0			11	140			–
	2010	1			11	220		2	67
	2011	0			17	89		0	0
	2012	0	0 (0–0)	0 (0–7.2)	13	81	0 (0–0.98)	1	100
Monaco	2005					–			–
	2010				1	–			–
	2011					–			–
	2012		–	–		–	–		–
Montenegro	2005	2			82	88		14	52
	2010	0			61	100		12	100
	2011	1			57	100		13	110
	2012	0	0 (0–0)	0 (0–5.0)	58	98	0 (0–6.8)	5	38
Netherlands	2005	7			709	130		30	68
	2010	11			741	160		29	67
	2011	15			695	99		22	58
	2012	11	9.1 (3.5–15)	7.4 (3.5–13)	628	99	1.8 (<0.1–9.0)	28	57
Norway	2005	3			193	150		8	57
	2010	8			139	100		21	50
	2011	4			229	97		22	59
	2012	6	–	–		–	–		–
Poland	2005	72			5409	120			–
	2010	30			3238	81		468	52
	2011	41			4416	88		577	60
	2012	31	48 (31–65)	30 (18–47)	4073	90	18 (9.0–32)	535	61
Portugal	2005	28			1407	77		172	49
	2010	19			982	77		94	41
	2011	22			1155	73		97	45
	2012	17	35 (21–50)	25 (15–41)	1219	72	9.7 (3.2–22)	102	54
Republic of Moldova	2005	338			536	32		652	37
	2010	1082			1381	49		1140	67
	2011	1001			1379	74		1006	68
	2012	894	1 700 (1 600–1 800)	810 (730–890)	1264	67	930 (880–980)	933	63
Romania	2005	530			1594	13		1300	19
	2010	502			3338	39		2011	39
	2011	530			3855	41		2171	46
	2012	500	800 (610–980)	320 (210–480)	3645	40	480 (350–630)	1864	43
Russian Federation	2005					–			–
	2010	13692			35862	72		13405	29
	2011	13785			34007	78		13620	25
	2012	13612	46 000 (43 000–49 000)	20 000 (18 000–22 000)	32647	79	25 000 (23 000–28 000)	12324	24
San Marino	2005					–			–
	2010					–			–
	2011					–			–
	2012		–	–		–	–		–
Serbia	2005	9			1112	76		121	40
	2010	12			811	67		113	56
	2011	9			863	91		100	62
	2012	9	20 (7.0–33)	13 (4.9–29)	716	84	6.5 (1.3–18)	83	46
Slovakia	2005	8			248	82		56	52
	2010	1			185	100		32	58
	2011	5			147	92		29	58
	2012	4	1.8 (0–5.3)	0 (0–6.2)	142	95	1.8 (<0.1–9.3)	27	55
Slovenia	2005	1			217	110		28	97
	2010	0			123	100		9	82
	2011	0			171	100		11	100
	2012	0	0 (0–0)	0 (0–3.5)	114	100	0 (0–3.7)	12	86
Spain	2005					–			–
	2010	49			1009	34		110	34
	2011	41			1013	24		96	26
	2012	37	31 (13–49)	8.5 (1.0–31)	802	21	22 (10–41)	69	22
Sweden	2005	4			425	150		17	57
	2010	18			288	100		24	46
	2011	17			375	100		31	69
	2012	14	11 (5.0–18)	8.1 (4.1–14)	453	100	3.2 (0.40–11)	24	62
Switzerland	2005	5			326	150		30	61
	2010	9			270	130		33	82
	2011	8			304	98		40	74
	2012	8	8.6 (2.4–15)	2.6 (0.53–7.4)	246	98	6.1 (1.7–14)	31	66
Tajikistan	2005					–			–
	2010	333			160	7.0		223	23
	2011	604			161	7.4		415	45
	2012	694	910 (800–1 000)	490 (390–620)	919	45	420 (390–450)	496	66
The Former Yugoslav Republic of Macedonia	2005	4			106	51		19	18
	2010	7			153	110		28	54
	2011	1			130	72		25	45
	2012	4	4.8 (0.47–9.1)	0 (0–5.7)	155	81	4.8 (1.4–11)	26	84
Turkey	2005	191			3237	38		508	20
	2010	250			4342	64		615	45
	2011	262			4221	63		602	48
	2012	291	520 (460–580)	270 (230–310)	4742	71	250 (220–290)	641	55
Turkmenistan	2005					–			–
	2010	38			81	7.0		63	77
	2011	158			306	–		156	–
	2012		–	–		–	–		–
Ukraine	2005					–			–
	2010	5336			9194	66		4840	95
	2011	4305			10352	61		4413	38
	2012	6934	6 800 (6 500–7 000)	4 100 (3 900–4 300)	11185	77	2 600 (2 600–2 700)	5925	72
United Kingdom of Great Britain and Northern Ireland	2005	39			3428	100		271	59
	2010	60			3970	150		247	43
	2011	81			4549	95		234	45
	2012	81	69 (54–85)	54 (42–70)	4570	97	15 (8.1–25)	244	51
Uzbekistan	2005	86			0	0		435	4.8
	2010	1023			2845	60		1180	26
	2011	1385			484	9.5		123	11
	2012	1728	4 000 (3 700–4 300)	2 400 (1 800–3 000)	2703	56	1 600 (1 400–1 900)	798	30

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Albania	1995	0	0	0	0	19	40	30		0	1	0	0	13	20	16		1.8
	2000	2	19	21	14	24	19	16		3	11	10	8	8	5	11		2.1
	2005	0	26	21	16	31	20	37	0	0	3	9	5	5	5	18	0	3.4
	2010	0	28	17	14	16	16	15	0	2	11	7	6	3	2	8	0	2.7
	2011	0	29	26	18	30	9	22	0	1	14	10	6	2	1	12	0	2.9
	2012	0	33	34	16	15	11	23	0	0	17	9	6	3	6	12	0	2.5
Andorra	1995																	–
	2000	0	0	1	0	0	0	0										–
	2005	0	0	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0.67
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	–
	2012	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	–
Armenia	1995	1	18	16	11	10	8	1		1	1	7	2	1	1			5.0
	2000	2	152	130	131	63	26	21		1	24	27	24	8	8	4		5.5
	2005	3	170	104	83	84	30	24	0	3	27	21	10	11	4	7	0	6.0
	2010	0	36	75	49	68	27	15	0	1	24	17	4	7	8	8	0	3.9
	2011	0	28	65	52	71	42	8	0	0	19	16	9	7	7	5	0	4.2
	2012	1	23	67	60	56	34	18	0	0	13	19	12	2	5	5	0	4.6
Austria	1995	4	37	95	82	89	71	73		6	22	52	32	21	18	59		2.1
	2000	1	17	30	59	42	23	41		1	11	22	12	11	6	22		2.5
	2005	1	32	23	22	41	24	30	0	0	13	11	8	3	5	10	0	3.5
	2010	0	4	4	12	13	8	10	0	1	5	4	2	2	5	6	0	2.0
	2011	0	8	11	9	13	11	13	0	0	11	6	4	1	3	4	0	2.2
	2012	1	5	8	7	19	9	13	0	1	10	8	4	4	1	5	0	1.9
Azerbaijan	1995	0	13	29	14	6	4	1		0	5	18	0	0	0	0		2.9
	2000	0	9	24	33	42	30	0		0	3	3	6	3	0	0		9.2
	2005	77	109	297	215	209	187	88	0	90	64	98	47	32	24	24	0	3.1
	2010	0	328	371	267	280	30	27		3	141	100	57	73	9	18		3.2
	2011																	–
	2012	4	230	223	170	176	95	48	0	8	115	89	35	50	35	23	0	2.7
Belarus	1995																	–
	2000																	–
	2005		71	180	273	287	118	62			25	53	50	43	11	62		4.1
	2010	0	65	173	224	293	163	58	0	1	28	52	56	37	28	91	0	3.3
	2011	1	53	156	228	290	138	48		3	37	67	47	39	27	83		3.0
	2012	0	44	174	250	266	158	73	0	1	34	64	47	45	28	93	0	3.1
Belgium	1995	3	23	49	63	52	54	102		3	12	24	32	17	10	34		2.6
	2000	3	20	57	39	55	32	56		6	15	15	19	4	13	27		2.6
	2005	1	26	50	32	27	15	47	0	2	27	31	15	12	4	23	0	1.7
	2010	4	20	39	30	29	21	19	0	6	13	18	19	11	5	10	0	2.0
	2011	8	25	50	33	25	18	27	0	3	13	14	9	3	5	7	0	3.4
	2012	3	25	33	18	27	22	18	0	5	23	23	17	9	7	5	0	1.6
Bosnia and Herzegovina	1995	0	15	61	90	140	139	100		0	40	67	64	49	77	23		1.7
	2000	4	56	82	99	66	58	77		4	30	46	29	29	48	124		1.4
	2005	1	22	58	61	78	44	80	1	2	35	39	33	28	28	130	0	1.2
	2010	1	27	37	34	61	46	51	0	0	27	19	16	10	18	94	0	1.4
	2011	2	33	32	52	75	61	62	0	3	17	27	17	13	25	128	0	1.4
	2012	1	23	32	58	74	62	92	1	0	33	26	21	10	25	116	1	1.5
Bulgaria	1995																	–
	2000	0	13	16	20	3	9	10		0	11	14	7	3	4	6		1.6
	2005	9	98	150	195	195	150	136	0	9	90	111	59	29	37	70	0	2.3
	2010	1	40	115	143	133	90	65	0	3	42	59	43	23	15	34	0	2.7
	2011	2	38	100	110	122	92	61	0	2	41	40	36	28	14	30	0	2.7
	2012	0	46	89	130	131	82	57	0	0	37	50	44	24	16	35	0	2.6
Croatia	1995	6	38	97	210	132	178	141		10	50	57	57	38	60	130		2.0
	2000																	–
	2005	1	24	27	48	72	47	34	0	1	12	18	15	11	6	56	0	2.1
	2010	0	10	19	18	38	25	24		1	3	8	4	2	1	30		2.7
	2011	0	12	5	20	31	31	21	0	0	12	14	14	8	7	26	0	1.5
	2012																	–
Cyprus	1995	0	1	1	0	1	1	2		0	1	1	1	2	0	1		1.0
	2000																	–
	2005	0	3	1	1	1	0	1	0	0	1	0	0	0	0	0	0	7.0
	2010	0	2	1	0	0	0	0	0	0	0	3	1	0	0	0	1	0.60
	2011	0	0	3	4	0	0	1	0	0	1	0	2	0	0	0	0	2.7
	2012	0	0	4	2	1	1	0	0	0	3	2	1	0	0	1	0	1.1
Czech Republic	1995	2	10	22	83	88	53	90		0	9	11	20	13	19	88		2.2
	2000	0	7	31	52	89	61	59		0	15	13	9	10	7	57		2.7
	2005	0	8	24	57	55	45	46	0	0	3	14	16	7	5	28	0	3.2
	2010	0	12	19	36	29	29	19	0	0	6	10	11	7	2	20	0	2.6
	2011	0	10	29	20	38	28	24	0	0	4	9	4	4	3	15	0	3.8
	2012	0	7	21	24	42	33	22	0	1	3	11	8	3	7	26	0	2.5
Denmark	1995	0	7	16	28	18	9	11		2	7	13	8	4	3	2		2.3
	2000	5	10	20	24	16	11	14		5	16	15	14	6	7	8		1.4
	2005	0	12	12	18	23	9	7	0	2	11	5	13	9	3	5	0	1.7
	2010	0	8	22	10	13	16	2	0	0	4	5	15	8	8	4	0	1.6
	2011	0	5	14	18	32	16	4	0	0	5	5	9	7	2	7	0	2.5
	2012																	–
Estonia	1995																	–
	2000	0	6	31	53	56	35	15		0	9	11	14	11	4	10		3.3
	2005	0	9	25	19	40	12	7	0	0	6	11	8	11	6	8	0	2.2
	2010	0	3	7	21	25	12	8	0	0	3	5	3	3	6	3	0	3.3
	2011	0	4	22	16	14	18	13	0	0	4	8	12	3	3	6	0	2.4
	2012	0	6	15	13	21	17	9	0	0	5	7	2	4	1	5	0	3.4
Finland	1995	1	1	10	25	28	24	61		1	1	6	7	4	10	65		1.6
	2000	0	3	8	22	19	28	53		0	1	5	3	4	6	49		2.0
	2005	1	5	4	3	14	11	25	0	0	3	4	1	0	6	20	0	1.9
	2010	0	10	6	8	9	8	18	0	0	3	2	4	1	2	11	0	2.6
	2011	0	1	4	4	7	11	27	0	1	2	3	5	3	1	13	0	1.9
	2012	0	2	9	7	5	9	21	0	1	4	0	4	2	3	11	0	2.1
France	1995	30	156	431	502	414	297	496		36	138	226	176	90	92	365		2.1
	2000	10	136	248	247	211	125	244		18	108	127	89	46	43	155		2.1
	2005	12	127	212	222	196	134	205	0	16	104	134	82	56	38	180	0	1.8
	2010	10	60	139	114	99	76	110	0	10	47	76	49	45	25	97	0	1.7
	2011	12	88	112	116	94	73	101	0	7	58	67	48	36	23	65	0	2.0
	2012																	–
Georgia	1995	2	20	30	25	40	18	12		2	8	17	17	18	7	5		2.0
	2000	4	76	111	113	63	45	28		1	49	37	33	17	10	5		2.9
	2005	0	226	272	268	207	76	60		4	109	105	58	46	17	47		2.9
	2010	5	340	529	341	264	143	77	0	5	135	118	62	52	28	41	0	3.9
	2011	5	271	478	333	251	139	93	0	8	136	132	59	32	35	54	0	3.4
	2012	4	200	314	248	235	150	81	0	5	101	116	72	43	32	47	0	3.0
Germany	1995	14	179	453	539	460	442	625		17	115	251	167	89	104	397		2.4
	2000																	–
	2005	6	59	113	171	167	92	167	0	4	51	104	73	43	37	103	0	1.9
	2010	1	43	92	97	141	87	136	0	3	44	63	61	38	26	76	0	1.9
	2011	1	43	96	106	141	69	131	0	2	44	92	59	54	26	86	0	1.6
	2012	4	43	99	113	147	105	99	0	5	49	99	37	47	24	55	1	1.9

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Greece	1995																	–
	2000	1	10	22	32	24	19	46		0	2	9	10	5	6	25		2.7
	2005	1	14	25	22	14	12	23	5	0	13	18	8	7	2	17	0	1.8
	2010	1	19	27	20	18	19	22	3	3	2	13	4	4	4	15	1	2.8
	2011	2	30	30	26	24	19	38	2	1	9	14	9	3	5	20	1	2.8
	2012																	–
Greenland	1995																	–
	2000																	–
	2005																	–
	2010	0	5	7	5	5	2	2	0	1	5	0	0	4	2	0	0	2.2
	2011	0	10	2	0	3	3	1		0	8	1	1	2	3	0		1.3
	2012	0	6	3	5	1	5	1		2	3	0	3	1	0	3		1.8
Hungary	1995																	–
	2000	0	8	24	85	104	58	27		1	7	17	19	22	10	30		2.9
	2005	0	6	24	67	117	67	39	0	1	5	13	11	22	15	33	0	3.2
	2010	1	9	15	36	51	52	23	0	0	9	16	14	9	15	20	0	2.3
	2011	0	11	18	34	46	53	28	0	0	3	9	8	9	12	29	0	2.7
	2012	2	7	15	29	64	41	25	0	0	8	14	15	11	14	28	0	2.0
Iceland	1995	0	0	0	0	0	0	1		0	0	0	0	0	0	1		1.0
	2000									0		1						–
	2005	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	–
	2010	0	0	1	0	3	0	0	0	0	0	1	1	0	0	0	0	2.0
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	–
	2012	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1.0
Ireland	1995																	–
	2000	0	10	7	7	6	4	12		0	13	8	13	6	7	15		0.74
	2005	1	6	10	21	10	7	6	0	0	9	10	3	3	0	8	0	1.8
	2010	0	8	18	4	11	5	11	0	0	7	8	2	3	2	5	0	2.1
	2011	0	7	9	10	11	7	8	0	0	8	7	7	8	2	1	0	1.6
	2012	1	7	9	9	9	12	4	0	1	5	6	6	4	2	2	0	2.0
Israel	1995																	–
	2000	0	20	26	23	23	13	38	0	3	10	16	6	3	3	32	0	2.0
	2005	1	4	15	18	15	5	26	0	0	6	14	7	7	5	19	0	1.4
	2010	1	13	28	12	8	4	6	0	0	1	8	10	2	0	10	0	2.3
	2011	0	29	30	11	5	9	9	0	0	10	10	7	4	4	7	0	2.2
	2012	0	9	33	20	3	6	13	0	0	4	20	11	4	2	17	0	1.4
Italy	1995	9	59	202	157	94	124	289		7	52	93	57	40	51	168		2.0
	2000	12	63	96	75	58	54	112		6	38	58	33	13	19	39		2.3
	2005	8	93	191	137	101	61	115	24	3	80	145	56	25	19	70	9	1.8
	2010	14	40	75	66	32	31	58	2	25	41	57	41	22	22	54	6	1.2
	2011	0	51	88	81	52	24	59	0	5	41	73	37	18	14	43	1	1.5
	2012																	–
Kazakhstan	1995																	–
	2000	36	1 057	1 409	1 379	923	439	218		84	999	1 079	599	275	202	204		1.6
	2005	31	917	1 142	983	795	274	175	0	46	751	767	436	286	121	187	0	1.7
	2010	15	675	754	595	511	251	127	0	33	566	520	263	205	122	132	0	1.6
	2011	6	602	716	516	515	235	91	0	15	439	495	260	190	109	117	0	1.6
	2012	9	508	586	514	479	233	98	0	16	415	411	241	177	97	100	0	1.7
Kyrgyzstan	1995	3	109	171	165	65	38	30		1	70	94	34	18	15	19		2.3
	2000	4	128	227	205	115	52	46		6	128	146	100	41	30	29		1.6
	2005	1	247	303	269	194	66	84	0	15	215	236	141	70	33	98	0	1.4
	2010	5	261	260	188	141	64	48	0	5	223	199	98	71	40	42	0	1.4
	2011	6	225	204	179	168	77	41	0	13	200	191	84	60	50	39	0	1.4
	2012	4	210	255	207	184	86	30	0	8	195	173	108	55	42	37	0	1.6
Latvia	1995	0	20	44	71	70	40	30		0	22	49	55	47	27	29		1.2
	2000	0	53	106	124	111	64	34		2	25	41	27	28	7	15		3.4
	2005	1	22	71	104	117	55	34	0	0	17	31	31	23	18	12	0	3.1
	2010	0	20	44	65	71	39	15	0	0	6	19	25	12	10	13	0	3.0
	2011	0	11	42	58	50	33	18	0	0	7	16	19	14	12	13	0	2.6
	2012	0	19	62	67	59	36	15	0	1	14	15	14	16	15	9	0	3.1
Lithuania	1995	4	46	132	225	176	90	77		5	6	53	45	32	16	42		3.8
	2000	1	38	97	145	155	74	68		0	20	37	39	32	22	48		2.9
	2005	0	42	118	186	187	108	67	0	1	25	41	57	49	23	54	0	2.8
	2010	1	34	75	128	157	89	54	0	1	20	36	31	43	18	32	0	3.0
	2011	1	25	52	126	158	77	55	0	0	20	31	37	38	16	45	0	2.6
	2012	0	35	73	143	148	91	60	0	1	8	28	55	36	20	28	0	3.1
Luxembourg	1995																	–
	2000																	–
	2005	0	0	2	2	1	1	2	0	0	0	2	1	1	1	0	0	1.6
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	3.0
	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Malta	1995	0	0	0	1	0	0	0		0	0	1	0	0	1	2		0.25
	2000	0	1	0	1	1	0	1										–
	2005	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	–
	2010	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	3.0
	2011	0	2	4	0	0	0	0	0	0	1	0	0	0	0	0	0	6.0
	2012	1	2	2	2	0	0	0	0	0	1	1	0	0	0	0	0	3.5
Monaco	1995																	–
	2000																	–
	2005																	–
	2010																	–
	2011																	–
	2012																	–
Montenegro	2005	0	3	5	7	15	4	8	0	0	0	7	3	4	0	8	0	1.9
	2010	0	1	1	4	4	7	1	0	1	3	3	2	3	1	8	0	0.86
	2011	0	1	2	8	11	7	3	0	1	4	2	4	3	1	1	0	2.0
	2012	0	3	4	5	10	3	4	0	0	4	5	1	2	1	3	0	1.8
Netherlands	1995	22	79	119	75	28	9	10		24	56	50	13	10	8	7		2.0
	2000	0	34	63	41	25	10	21		4	29	22	16	9	5	10		2.0
	2005	0	23	42	23	26	14	19	0	3	14	19	11	9	1	4	0	2.4
	2010	0	22	29	22	20	9	17	0	1	9	14	13	5	4	11	0	2.1
	2011	2	22	35	19	23	14	13	0	2	13	13	7	7	4	3	0	2.6
	2012	1	15	31	14	18	9	15	0	4	7	18	15	4	6	6	0	1.7
Norway	1995	0	4	8	6	3	5	12		0	4	7	2	0	3	8		1.6
	2000	0	1	9	3	6	2	4		1	3	1			2	5		2.1
	2005	0	9	4	6	4	4	3	0	0	4	7	2	1	0	3	0	1.8
	2010	0	9	9	7	1	4	2	0	0	5	7	3	2	0	0	0	1.9
	2011	0	3	7	3	3	1	1	0	0	14	6	0	1	0	1	0	0.82
	2012																	–
Poland	1995	3	122	295	795	565	369	377		4	129	163	225	111	107	414		2.2
	2000	1	99	303	812	782	361	434		1	99	158	211	170	82	421		2.4
	2005	3	109	199	389	639	292	310	0	3	95	142	112	151	63	316	0	2.2
	2010	3	70	205	310	574	393	237	0	2	59	118	82	104	82	245	0	2.6
	2011	5	69	187	314	560	439	275	0	1	67	96	90	130	99	255	0	2.5
	2012	1	82	183	306	471	438	267	0	1	54	96	106	102	100	226	0	2.6

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

	YEAR	MALE 0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	FEMALE 0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Portugal	1995	11	215	363	328	200	173	164		7	139	172	87	33	42	85		2.6
	2000	8	147	375	349	208	140	140		5	114	154	87	41	25	64		2.8
	2005	5	85	227	284	181	90	93	5	7	67	109	66	29	11	42	1	2.9
	2010	3	55	110	199	152	70	76	0	3	54	62	54	36	10	28	0	2.7
	2011	3	56	87	177	172	75	74	3	4	43	58	56	30	12	25	1	2.8
	2012	1	56	103	187	153	79	75	1	6	52	62	66	28	19	32	0	2.5
Republic of Moldova	1995	0	55	115	166	95	65	15		2	42	38	31	19	10	12		3.3
	2000	2	52	31	36	13	13	6		1	16	32	45	23	14	6		1.1
	2005	2	211	337	345	313	106	31	0	3	97	92	57	61	23	18	0	3.8
	2010	0	119	243	244	248	113	21	0	6	47	90	46	47	23	20	0	3.5
	2011	2	94	257	250	267	107	21	0	3	66	79	51	41	20	14	0	3.6
	2012	0	99	234	256	284	131	31	0	3	58	95	48	56	26	25	0	3.3
Romania	1995	387	1 662	2 322	3 608	2 587	1 751	784		355	1 352	1 240	871	479	396	417		2.6
	2000	46	832	1 508	1 799	1 684	916	533		53	701	766	484	341	207	321		2.5
	2005	36	752	1 511	1 786	1 999	952	638	4	55	758	780	493	374	219	442	2	2.5
	2010	21	669	865	1 336	1 293	895	567	0	40	503	477	400	275	172	438	0	2.4
	2011	19	623	813	1 192	1 104	837	541	0	26	475	513	407	214	196	426	0	2.3
	2012	17	556	764	1 297	1 053	831	495	0	22	431	433	371	188	184	435	0	2.4
Russian Federation	1995																	–
	2000	1	295	526	596	402	151	54		1	43	73	74	38	31	44		6.7
	2005																	–
	2010	8	2 228	6 276	5 571	5 361	2 787	920	0	28	1 247	2 554	1 719	1 182	745	790	0	2.8
	2011	15	1 826	5 726	5 338	4 928	2 664	845		36	1 139	2 394	1 643	1 166	719	752		2.7
	2012	17	1 568	5 472	5 115	4 446	2 629	839	0	31	997	2 292	1 595	1 081	637	748	0	2.7
San Marino	1995																	–
	2000							1										–
	2005																	–
	2010																	–
	2011																	–
	2012																	–
Serbia	2005	3	62	96	118	156	112	132	0	6	69	76	55	49	22	149	0	1.6
	2010	2	76	70	93	116	83	109	0	5	66	74	46	39	34	164	0	1.3
	2011	2	60	73	74	122	112	101	0	5	46	59	43	30	20	129	0	1.6
	2012	1	70	72	77	98	86	77	0	4	46	66	38	31	35	118	0	1.4
Serbia & Montenegro	1995	10	108	204	317	296	350	386		11	127	167	133	83	158	275		1.8
	2000																	–
Slovakia	1995	4	18	44	123	108	63	152		5	16	17	22	24	33	159		1.9
	2000	2	6	15	31	50	16	32		0	5	9	7	5	4	54		1.8
	2005	0	3	13	16	25	25	20	0	0	1	8	9	5	6	27	0	1.8
	2010	1	7	7	18	17	17	15	0	0	1	6	7	2	3	11	0	2.7
	2011	0	6	8	6	20	16	13	0	0	2	3	4	6	1	11	0	2.6
	2012	0	2	9	17	20	12	7	0	0	2	3	4	6	1	13	0	2.3
Slovenia	1995	1	13	39	63	36	26	27		0	7	24	11	9	5	42		2.1
	2000	0	3	11	36	22	14	17		0	3	9	3	4	3	20		2.5
	2005	0	4	10	16	15	11	14	0	0	4	4	6	5	4	16	0	1.8
	2010	0	4	7	10	9	6	12	0	0	1	5	2	4	1	3	0	3.0
	2011	0	3	9	16	12	8	5	0	0	0	5	4	2	1	17	0	1.8
	2012	0	2	6	4	8	6	5	0	0	2	3	0	1	1	9	0	1.9
Spain	1995	22	132	337	242	150	112	228		23	90	129	64	39	34	98		2.6
	2000																	–
	2005	13	166	394	367	230	140	230	2	10	142	252	151	63	24	108	2	2.1
	2010	6	139	306	291	286	146	184	1	14	130	251	151	54	23	76	0	1.9
	2011	15	135	325	292	277	162	197	2	15	142	249	161	75	30	100	0	1.8
	2012	10	112	259	299	276	156	220	3	15	101	202	161	70	24	74	1	2.1
Sweden	1995	1	5	12	8	5	4	27		0	10	13	5	5	4	14		1.2
	2000	0	9	10	12	11	4	25		1	9	8	10	2	2	15		1.5
	2005	0	7	21	16	10	5	16	0	1	10	15	12	5	3	13	0	1.3
	2010	1	10	28	8	5	5	13	0	2	9	16	11	4	2	3	0	1.5
	2011	1	14	15	12	8	3	8	0	0	12	9	10	2	2	3	0	1.6
	2012	0	8	16	8	9	8	13	0	0	11	10	3	7	2	6	0	1.6
Switzerland	1995	0	12	23	26	23	13	27		1	13	20	9	1	2	15		2.0
	2000	0	5	17	10	7	6	6	0	1	8	11	7	2	1	5	0	1.5
	2005	2	8	10	11	11	2	7	0	0	6	11	8	3	1	4	0	1.5
	2010	0	6	12	9	6	5	8	0	0	7	15	6	4	1	3	0	1.3
	2011	2	8	16	10	13	7	3	0	2	6	13	2	4	2	2	0	1.9
	2012	0	3	18	8	6	5	11	0	0	7	15	7	1	2	4	0	1.4
Tajikistan	1995																	–
	2000																	–
	2005	8	308	279	164	104	54	48	0	26	225	185	151	89	43	53	0	1.2
	2010	12	398	366	214	129	93	74	0	23	320	272	111	109	87	82	0	1.3
	2011	8	343	365	181	128	75	77	0	31	314	229	104	100	105	114	0	1.2
	2012	8	346	320	169	124	75	72	0	16	243	243	105	99	94	127	0	1.2
The Former Yugoslav Republic of Macedonia	1995	2	15	42	45	33	29	24		2	32	30	20	11	17	17		1.5
	2000	5	8	14	20	19	20	14		1	15	14	17	5	5	10		1.5
	2005	2	14	20	23	20	18	13	1	2	17	13	10	7	5	13	0	1.7
	2010	0	6	19	24	24	12	11	0	0	9	12	7	7	4	6	0	2.1
	2011	3	17	11	19	21	10	6	0	1	14	9	6	3	1	11	0	1.9
	2012	0	16	14	12	19	15	13	0	0	12	14	9	6	10	7	0	1.5
Turkey	1995																	–
	2000																	–
	2005	33	1 148	1 295	1 028	963	534	429	0	50	699	474	243	175	166	213	0	2.7
	2010	23	631	779	703	778	514	407	0	33	485	384	193	141	101	203	0	2.5
	2011	22	550	693	608	696	482	412	0	25	409	385	195	117	121	212	0	2.4
	2012	20	507	655	575	650	476	398	0	30	369	308	168	97	105	227	0	2.5
Turkmenistan	1995	1	11	188	0	79	30	0		2	15	146	0	47	25	0		1.3
	2000	16	103	185	144	127	31	21		19	73	140	76	31	34	17		1.6
	2005	2	148	181	146	97	51	13	0	3	100	101	72	46	27	8	0	1.8
	2010	1	130	212	183	141	51	26		2	112	112	74	46	38	25		1.8
	2011																	–
	2012																	–
Ukraine	1995	10	385	1 076	2 064	1 515	1 087	437		21	314	380	327	182	185	280		3.9
	2000	21	693	1 552	2 385	2 007	1 062	532		41	487	590	447	298	218	405		3.3
	2005																	–
	2010								7 417								2 559	2.9
	2011	8	539	1 991	2 209	1 796	881	377	0	11	348	741	603	388	230	380	0	2.9
	2012	9	546	2 028	2 393	1 926	965	389		10	334	771	609	401	218	431		3.0
United Kingdom of Great Britain and Northern Ireland	1995																	–
	2000	8	86	130	96	87	75	138		9	95	114	60	31	31	67		1.5
	2005	9	135	200	166	95	95	124	0	14	115	163	80	39	28	83	1	1.6
	2010	7	132	169	135	108	60	108	0	15	110	131	81	42	40	58	0	1.5
	2011	3	137	193	137	97	69	100	0	19	120	129	75	45	26	49	0	1.6
	2012	8	156	184	137	118	88	88	0	17	109	141	81	55	17	52	0	1.7
Uzbekistan	1995																	–
	2000	6	351	749	510	346	213	107		11	261	547	288	213	112	111		1.5
	2005	25	596	831	723	522	263	313		40	538	597	375	288	217	367		1.4
	2010	8	487	574	529	479	293	297	0	22	365	512	308	248	239	350	0	1.3
	2011	8	378	493	453	440	306	253	0	11	335	418	233	245	293	332	0	1.2
	2012	10	360	506	403	449	313	273	0	9	319	367	237	201	261	322	0	1.3

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2012**

	LABORATORIES								FREE THROUGH NTP		RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS		
Albania	0.5	0	1.6	1.6	1.6	0	No	Yes	Yes (all suspects)	Yes	Yes	
Andorra	10.2	0	510.5	510.5	0	0	In and out of country	Yes	Yes (all suspects)	Yes	Yes	
Armenia	1.0	0	1.7	1.7	1.7	0	In country	Yes	Yes (all suspects)	Yes	Yes	
Austria		–										
Azerbaijan	0.8	4	3.8	1.6	0.5	7		Yes	Yes (all suspects)	Yes	Yes	
Belarus	2.1	2	15.4	4.3	4.3	8	In country	Yes	Yes (all suspects)	Yes	Yes	25
Belgium	1.0	–	51.5	6.3	3.6	19		Yes	Yes (other criteria)	Yes	Yes	
Bosnia and Herzegovina	0.4	100	17.0	3.9	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Bulgaria	0.5	0	21.3	9.6	2.7	0	In country	Yes	Yes (all suspects)	Yes	Yes	
Croatia		–										
Cyprus		–										
Czech Republic	0.4	–	21.6	8.9	8.9		In country	Yes	Yes (all suspects)	Yes	Yes	
Denmark	0.2	–	0.9	0.9	0.9		In country	Yes	Yes (all suspects)	Yes	Yes	
Estonia	0.4	100	7.7	7.7	7.7	2	In country	Yes	Yes (all suspects)	Yes	Yes	12
Finland	0.2	100	10.2	0.9	2.8	1	In country	Yes	Yes (all suspects)	Yes	Yes	
France	0.4	–	18.0	5.5	1.6	20	In country	Yes	Yes (all suspects)	Yes	Yes	
Georgia	0.3	9	2.3	1.1	2.3	1	In country	Yes	Yes (all suspects)	Yes	Yes	107
Germany	0.3	–	11.4	5.1	4.5	141		Yes	Yes (all suspects)	Yes	Yes	
Greece		–										
Greenland		–										
Hungary	0.1	0	6.0	3.5	1	3		Yes	Yes (all suspects)	Yes	Yes	
Iceland	0.3	100	15.3	15.3	15.3	0	Out of country	Yes	Yes (if TB is confirmed)	Yes	Yes	
Ireland	0.2	27	10.9	3.3	2.2	3	Out of country	Yes	Yes (all suspects)	No	Yes	
Israel	0.2	–	12.4	1.3	0.7	1	In country	Yes	Yes (all suspects)	Yes	Yes	
Italy		–										
Kazakhstan	2.9	0	6.8	6.8	3.4	4	In country	Yes	Yes (all suspects)	Yes	Yes	204
Kyrgyzstan	2.2	0	10.0	2.7	1.8	7	In and out of country	Yes	Yes (all suspects)	Yes	Yes	34
Latvia	0.8	0	9.7	2.4	2.4	2	In country	Yes	Yes (all suspects)	Yes	Yes	
Lithuania	0.4	8	9.9	9.9	3.3	7	In and out of country	Yes	Yes (if TB is confirmed)	Yes	Yes	
Luxembourg	0.2	100	9.5	9.5	9.5	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Malta	0.2	0	11.7	0	0	0	Out of country	No	Yes (all suspects)	Yes	Yes	
Monaco		–										
Montenegro	0.2	0	8.1	8.1	0	0	Out of country	Yes	Yes (if TB is confirmed)	Yes	Yes	56
Netherlands	0.3	–	11.1	1.5	1.2	2	In country	Yes	Yes (all suspects)	No	Yes	
Norway	0.3	0	9.0	3	4	3	In and out of country	Yes	Yes (all suspects)	Yes	Yes	
Poland	0.2	0	10.6	6	1.4	3		Yes	Yes (all suspects)	Yes	Yes	
Portugal	0.5	–	22.2	10.4				Yes	Yes (all suspects)	Yes	Yes	
Republic of Moldova	1.7	0	5.7	5.7	4.3	24		Yes	Yes (all suspects)	Yes	Yes	
Romania	0.5	1	20.9	9.9	0.9	0	In and out of country	Yes	Yes (all suspects)	Yes	Yes	51
Russian Federation	0.7	–	4.1	3.8			In country	No	Yes (all suspects)	Yes	Yes	
San Marino		–										
Serbia	0.3	0	15.2	2.1	0.5	0	Out of country	Yes	Yes (if TB is confirmed)	Yes	Yes	8
Slovakia	0.1	14	6.4	1.8	1.8	2	In and out of country	Yes	Yes (all suspects)	Yes	Yes	
Slovenia	0.1	67	7.3	2.4	2.4	1	In and out of country	Yes	Yes (all suspects)	Yes	Yes	
Spain		–						Yes	Yes (all suspects)	Yes	Yes	
Sweden	<0.1	–	2.6	2.6	2.6	0	In country	Yes	Yes (all suspects)	Yes	Yes	
Switzerland	0.5	–	14.4	6.3		14	In country	Yes	Yes (all suspects)	No	Yes	
Tajikistan	1.1	4	1.9	0.6	0.6	3	In country	Yes	Yes (if TB is confirmed)	Yes	Yes	34
The Former Yugoslav Republic of Macedonia	0.3	0	7.1	2.4	0	0	Out of country	Yes	Yes (if TB is confirmed)	Yes	Yes	22
Turkey	0.5	–	10.7	5.1	0.6	18	In country	Yes	Yes (all suspects)	Yes	Yes	25
Turkmenistan		–										
Ukraine	1.8	5	9.4	4.5	0	15		Yes	Yes (all suspects)	Yes	Yes	61
United Kingdom of Great Britain and Northern Ireland		–						Yes	Yes (all suspects)	Yes	Yes	
Uzbekistan	1.0	1	1.2	0.5	0.5	7	In country	Yes	Yes (all suspects)	Yes	Yes	29

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

TABLE A4.10 **Measured percentage of TB cases with MDR-TB[a], most recent year available**

	New TB cases				Previously treated TB cases			
	Year	Source	Coverage	Percentage	Year	Source	Coverage	Percentage
Albania	2012	Surveillance	National	0.58 (<0.1–3.2)	2012	Surveillance	National	0 (0–22)
Andorra	2011	Surveillance	National	0 (0–98)	2011	Surveillance	National	0 (0–98)
Armenia	2007	Survey	National	9.4 (7.0–12)	2007	Survey	National	43 (38–49)
Austria	2011	Surveillance	National	3.5 (1.6–6.5)	2011	Surveillance	National	18 (2.3–52)
Azerbaijan	2007	Survey	Sub-national	22 (19–27)	2007	Survey	Sub-national	56 (50–62)
Belarus	2012	Surveillance	National	35 (33–37)	2012	Surveillance	National	69 (66–71)
Belgium	2011	Surveillance	National	1.3 (0.54–2.7)	2011	Surveillance	National	11 (3.2–27)
Bosnia and Herzegovina	2011	Surveillance	National	0.14 (0–0.79)	2011	Surveillance	National	9.8 (2.7–23)
Bulgaria	2012	Surveillance	National	2.3 (1.3–3.8)	2012	Surveillance	National	23 (17–31)
Croatia	2011	Surveillance	National	0.28 (<0.1–1.6)	2011	Surveillance	National	2.5 (<0.1–13)
Cyprus	2011	Surveillance	National	4 (0.10–20)	2011	Surveillance	National	0 (0–84)
Czech Republic	2011	Surveillance	National	1.5 (0.56–3.3)	2011	Surveillance	National	6.3 (0.16–30)
Denmark	2011	Surveillance	National	1.2 (0.24–3.4)	2011	Surveillance	National	0 (0–23)
Estonia	2012	Surveillance	National	20 (14–26)	2012	Surveillance	National	50 (35–65)
Finland	2012	Surveillance	National	1.5 (0.30–4.2)	2012	Surveillance	National	0 (0–23)
France	2009	Surveillance	National	0.45 (0.24–0.77)	2009	Surveillance	National	13 (7.4–21)
Georgia	2012	Surveillance	National	9.2 (7.9–11)	2012	Surveillance	National	31 (27–35)
Germany	2012	Surveillance	National	1.5 (1.0–2.0)	2012	Surveillance	National	10 (5.5–17)
Greece	2010	Surveillance	National	0.87 (<0.1–4.7)	2010	Surveillance	National	6.7 (0.17–32)
Greenland								
Hungary	2010	Surveillance	National	2.1 (1.0–3.8)	2010	Surveillance	National	8.8 (3.6–17)
Iceland	2012	Surveillance	National	0 (0–60)	2012	Surveillance	National	100 (2.5–100)
Ireland	2012	Surveillance	National	1.1 (0.13–3.8)	2012	Surveillance	National	0 (0–20)
Israel	2012	Surveillance	National	4.7 (2.7–7.7)	2012	Surveillance	National	33 (4.3–78)
Italy	2011	Surveillance	Sub-national	3.9 (2.7–5.6)	2011	Surveillance	Sub-national	5.4 (3.5–8.0)
Kazakhstan	2012	Surveillance	National	23 (22–24)	2012	Surveillance	National	55 (54–56)
Kyrgyzstan	2011	Survey	National	26 (23–30)	2012	Surveillance	National	68 (65–72)
Latvia	2012	Surveillance	National	11 (8.8–14)	2012	Surveillance	National	32 (23–42)
Lithuania	2012	Surveillance	National	11 (9.5–14)	2012	Surveillance	National	44 (39–49)
Luxembourg	2011	Surveillance	National	0 (0–41)	2011	Surveillance	National	0 (0–98)
Malta	2012	Surveillance	National	0 (0–25)	2012	Surveillance	National	0 (0–98)
Monaco								
Montenegro	2012	Surveillance	National	0 (0–6.2)	2012	Surveillance	National	0 (0–52)
Netherlands	2012	Surveillance	National	1.6 (0.77–2.9)	2012	Surveillance	National	3.6 (<0.1–18)
Norway	2011	Surveillance	National	1.3 (0.27–3.8)	2011	Surveillance	National	0 (0–15)
Poland	2012	Surveillance	National	0.49 (0.30–0.76)	2012	Surveillance	National	2.1 (1.0–3.6)
Portugal	2011	Surveillance	National	1.5 (0.86–2.3)	2011	Surveillance	National	5.2 (1.7–12)
Republic of Moldova	2012	Surveillance	National	24 (21–26)	2012	Surveillance	National	62 (59–65)
Romania	2004	Survey	National	2.8 (1.8–4.2)	2004	Survey	National	11 (8.0–15)
Russian Federation	2011	Surveillance	Sub-national	23 (21–25)	2011	Surveillance	Sub-national	49 (44–53)
San Marino								
Serbia	2012	Surveillance	National	0.84 (0.31–1.8)	2012	Surveillance	National	3.6 (0.75–10)
Slovakia	2012	Surveillance	National	0 (0–2.6)	2012	Surveillance	National	3.7 (<0.1–19)
Slovenia	2012	Surveillance	National	0 (0–3.2)	2012	Surveillance	National	0 (0–26)
Spain	2001, 2005	Surveillance	Sub-national	0.22 (<0.1–0.80)	2001, 2005	Surveillance	Sub-national	7.1 (3.3–13)
Sweden	2012	Surveillance	National	2.4 (1.2–4.3)	2012	Surveillance	National	8.3 (1.0–27)
Switzerland	2012	Surveillance	National	1.2 (0.25–3.5)	2012	Surveillance	National	13 (3.6–30)
Tajikistan	2011	Survey	National	13 (9.8–16)	2012	Surveillance	National	56 (52–60)
The Former Yugoslav Republic of Macedonia	2012	Surveillance	National	0 (0–2.4)	2012	Surveillance	National	15 (4.4–35)
Turkey	2012	Surveillance	National	3.2 (2.7–3.7)	2012	Surveillance	National	22 (19–25)
Turkmenistan	2002	Survey	Sub-national	3.8 (1.1–9.5)	2002	Survey	Sub-national	18 (11–27)
Ukraine	2012	Surveillance	National	14 (14–15)	2012	Surveillance	National	32 (31–33)
United Kingdom of Great Britain and Northern Ireland	2011	Surveillance	National	1.3 (1.0–1.7)	2011	Surveillance	National	5.6 (3.0–9.3)
Uzbekistan	2011	Survey	National	23 (18–29)	2011	Survey	National	62 (52–71)

EUROPEAN REGION

[a] Empty rows indicate an absence of high-quality survey or surveillance data. In the absence of high-quality national data, high-quality sub-national data are used.

SOUTH-EAST ASIA REGION

Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See **ANNEX 1** for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. The main updates implemented in this report are explained in Box 2.1 of Chapter 2. *Estimates published in previous global TB control reports should no longer be used*.

Data source

Data shown in this annex are taken from the WHO global TB database on 1 October 2013. Data shown in the main part of the report were taken from the database in July 2013. As a result, data in this annex may differ slightly from those in the main part of the report.

Data for all years can be downloaded from www.who.int/tb/data.

Country notes

Bangladesh

Estimates of TB disease burden have not been officially approved by the national TB programme (NTP) in Bangladesh. A joint reassessment by WHO and the NTP will be undertaken following the completion of the prevalence survey planned for 2014.

India

Estimates of TB disease burden for India have not yet been officially approved by the Ministry of Health & Family Welfare, Government of India and should therefore be considered provisional.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Bangladesh	1990	107	66 (20–140)	61 (18–130)	560 (220–1 100)	525 (202–998)	240 (150–360)	225 (139–331)
	1995	120	72 (27–140)	60 (22–116)	620 (290–1 100)	518 (244–893)	270 (220–320)	225 (184–270)
	2000	132	77 (29–150)	58 (22–111)	670 (320–1 100)	507 (243–866)	300 (240–360)	225 (184–270)
	2005	143	74 (29–140)	52 (20–98)	670 (330–1 100)	469 (231–790)	320 (260–390)	225 (184–270)
	2010	151	69 (28–130)	46 (19–85)	660 (330–1 100)	437 (220–727)	340 (280–410)	225 (185–268)
	2011	153	70 (28–130)	46 (19–84)	660 (340–1 100)	435 (220–722)	340 (280–410)	225 (185–268)
	2012	155	70 (29–130)	45 (19–84)	670 (340–1 100)	434 (218–721)	350 (290–410)	225 (185–268)
Bhutan	1990	< 1	1 (0.410–2.0)	194 (77–365)	10 (4.7–17)	1 860 (881–3 190)	4.2 (3.6–4.8)	784 (673–903)
	1995	< 1	0.55 (0.230–1.0)	109 (45–200)	6 (3.0–10)	1 180 (599–1 960)	2.9 (2.5–3.3)	561 (482–646)
	2000	< 1	0.41 (0.180–0.740)	73 (31–132)	4.3 (2.2–6.9)	754 (392–1 230)	2.3 (1.9–2.6)	402 (345–463)
	2005	< 1	0.35 (0.160–0.600)	53 (25–92)	3.5 (1.8–5.7)	536 (279–875)	1.9 (1.6–2.2)	287 (247–331)
	2010	< 1	0.11 (0.068–0.160)	15 (9.5–22)	2.2 (1.1–3.8)	313 (149–536)	1.5 (1.3–1.7)	206 (177–237)
	2011	< 1	0.11 (0.068–0.160)	15 (9.4–22)	2 (0.840–3.5)	269 (115–486)	1.4 (1.2–1.6)	192 (165–222)
	2012	< 1	0.1 (0.062–0.150)	14 (8.4–21)	1.7 (0.580–3.3)	225 (79–446)	1.3 (1.1–1.5)	180 (154–207)
Democratic People's Republic of Korea	1990	20	4.7 (4.3–5.0)	23 (21–25)	97 (26–210)	479 (130–1 050)	77 (44–120)	383 (219–592)
	1995	22	4.6 (4.2–5.0)	21 (19–23)	100 (28–230)	479 (130–1 050)	83 (48–130)	383 (219–592)
	2000	23	4 (3.7–4.3)	17 (16–19)	110 (30–240)	479 (130–1 050)	87 (50–140)	383 (219–592)
	2005	24	3 (2.7–3.2)	12 (12–13)	110 (31–250)	479 (130–1 050)	91 (52–140)	383 (219–592)
	2010	25	2.5 (2.3–2.6)	10 (9.5–11)	120 (33–270)	494 (134–1 080)	97 (85–110)	395 (348–445)
	2011	25	2.5 (2.4–2.6)	10 (9.6–11)	120 (34–270)	505 (137–1 110)	100 (92–110)	404 (372–437)
	2012	25	2.2 (2.1–2.4)	9 (8.6–9.5)	130 (34–280)	511 (139–1 120)	100 (92–110)	409 (373–447)
India	1990	869	330 (220–480)	38 (25–55)	4 000 (3 600–4 500)	465 (415–518)	1 900 (1 600–2 200)	216 (182–254)
	1995	956	370 (240–520)	38 (25–55)	4 400 (4 000–5 000)	465 (414–519)	2 100 (1 800–2 300)	216 (189–245)
	2000	1 042	400 (260–570)	39 (25–55)	4 600 (4 000–5 200)	438 (382–498)	2 300 (2 000–2 500)	216 (195–239)
	2005	1 127	400 (290–530)	36 (26–47)	4 100 (3 300–5 000)	365 (295–443)	2 400 (2 100–2 600)	209 (188–231)
	2010	1 206	320 (210–460)	27 (17–38)	3 200 (2 200–4 500)	269 (181–374)	2 200 (2 000–2 500)	185 (167–204)
	2011	1 221	300 (190–420)	24 (16–35)	3 000 (2 100–4 200)	249 (168–346)	2 200 (2 000–2 400)	181 (163–199)
	2012	1 237	270 (170–390)	22 (14–32)	2 800 (1 900–3 900)	230 (155–319)	2 200 (2 000–2 400)	176 (159–193)
Indonesia	1990	179	95 (33–190)	53 (18–106)	790 (330–1 400)	442 (186–806)	370 (270–480)	206 (149–271)
	1995	194	120 (42–230)	61 (21–120)	940 (400–1 700)	483 (205–878)	400 (310–500)	205 (159–256)
	2000	209	120 (42–220)	55 (20–107)	990 (460–1 700)	474 (222–821)	430 (340–520)	204 (164–249)
	2005	224	84 (34–160)	38 (15–70)	830 (410–1 400)	369 (183–621)	450 (360–540)	199 (160–242)
	2010	241	67 (30–120)	28 (12–50)	740 (360–1 300)	306 (148–521)	450 (380–540)	189 (156–224)
	2011	244	67 (30–120)	27 (12–49)	730 (350–1 200)	301 (145–512)	460 (380–540)	187 (155–222)
	2012	247	67 (30–120)	27 (12–48)	730 (350–1 200)	297 (144–506)	460 (380–540)	185 (153–220)
Maldives	1990	< 1	0.059 (0.052–0.067)	27 (24–31)	0.67 (0.260–1.3)	311 (119–593)	0.32 (0.200–0.480)	150 (92–221)
	1995	< 1	0.033 (0.027–0.040)	14 (11–17)	0.48 (0.230–0.820)	197 (95–336)	0.29 (0.230–0.350)	118 (96–142)
	2000	< 1	0.015 (0.010–0.019)	5.4 (3.8–7.1)	0.22 (0.082–0.430)	81 (30–157)	0.17 (0.130–0.200)	60 (49–73)
	2005	< 1	<0.01 (<0.01–<0.01)	2 (1.6–2.5)	0.23 (0.100–0.410)	78 (34–138)	0.15 (0.120–0.180)	51 (42–62)
	2010	< 1	<0.01 (<0.01–<0.01)	2.3 (2.0–2.5)	0.17 (0.065–0.310)	51 (20–96)	0.12 (0.097–0.140)	36 (30–44)
	2011	< 1	<0.01 (<0.01–<0.01)	1.9 (1.7–2.1)	0.14 (0.051–0.280)	43 (15–85)	0.11 (0.088–0.130)	33 (27–39)
	2012	< 1	<0.01 (<0.01–<0.01)	2 (1.8–2.2)	0.22 (0.100–0.380)	65 (30–113)	0.14 (0.110–0.170)	41 (33–49)
Myanmar	1990	42	48 (17–97)	115 (39–230)	380 (170–650)	894 (414–1 550)	170 (120–220)	393 (290–512)
	1995	45	53 (19–110)	118 (41–234)	400 (190–680)	881 (421–1 500)	180 (140–230)	404 (314–505)
	2000	48	51 (19–100)	106 (39–207)	400 (200–670)	831 (415–1 390)	200 (160–240)	412 (333–498)
	2005	50	35 (15–65)	70 (29–129)	320 (170–530)	647 (333–1 060)	200 (170–240)	403 (340–472)
	2010	52	26 (12–46)	51 (23–89)	270 (210–340)	525 (404–661)	200 (170–230)	384 (329–444)
	2011	52	26 (12–45)	49 (23–86)	260 (200–330)	506 (390–637)	200 (170–230)	381 (326–439)
	2012	53	25 (12–44)	48 (23–84)	260 (200–320)	489 (377–616)	200 (170–230)	377 (322–435)
Nepal	1990	18	7.5 (2.2–16)	41 (12–88)	66 (25–130)	364 (140–692)	30 (18–44)	163 (101–241)
	1995	21	6.1 (2.5–11)	29 (12–54)	61 (30–100)	295 (147–493)	34 (27–40)	163 (133–196)
	2000	23	5 (2.2–8.9)	21 (9.4–38)	58 (26–100)	248 (113–436)	38 (31–45)	163 (133–196)
	2005	25	4.9 (2.1–8.9)	20 (8.4–35)	59 (26–110)	235 (101–424)	41 (34–50)	163 (133–196)
	2010	27	5.3 (2.4–9.4)	20 (8.8–35)	64 (28–110)	238 (105–425)	44 (36–52)	163 (135–194)
	2011	27	5.4 (2.4–9.6)	20 (8.8–35)	64 (28–110)	236 (103–423)	44 (37–53)	163 (135–194)
	2012	27	5.5 (2.5–9.8)	20 (9.0–36)	66 (29–120)	241 (106–429)	45 (37–53)	163 (135–195)
Sri Lanka	1990	17	1.3 (0.750–2.0)	7.5 (4.3–12)	20 (7.4–40)	118 (43–231)	11 (7.2–17)	66 (42–96)
	1995	18	1.6 (0.970–2.5)	9 (5.3–14)	23 (11–38)	125 (63–207)	12 (9.9–14)	66 (54–79)
	2000	19	1.9 (1.1–2.8)	10 (6.0–15)	22 (11–36)	115 (57–192)	12 (10–15)	66 (54–79)
	2005	20	1.4 (1.0–1.8)	6.9 (5.2–8.8)	22 (10–37)	108 (52–185)	13 (11–16)	66 (54–79)
	2010	21	0.59 (0.480–0.710)	2.8 (2.3–3.4)	22 (11–38)	108 (52–184)	14 (11–16)	66 (55–79)
	2011	21	0.41 (0.330–0.500)	2 (1.6–2.4)	23 (11–39)	108 (52–184)	14 (11–17)	66 (55–79)
	2012	21	0.24 (0.180–0.310)	1.1 (0.84–1.4)	23 (11–39)	109 (52–185)	14 (12–17)	66 (55–79)
Thailand	1990	57	11 (4.9–20)	20 (8.6–35)	130 (63–220)	227 (111–383)	78 (65–93)	138 (114–164)
	1995	59	11 (4.7–20)	19 (8.0–34)	130 (64–210)	217 (109–362)	77 (63–91)	130 (107–154)
	2000	62	20 (7.9–37)	31 (13–59)	180 (86–300)	286 (139–487)	110 (88–130)	171 (141–203)
	2005	66	15 (6.6–27)	23 (10–42)	150 (77–260)	236 (117–395)	100 (84–120)	154 (127–184)
	2010	66	10 (4.5–18)	16 (6.8–28)	120 (55–210)	179 (83–309)	85 (70–100)	128 (106–153)
	2011	67	9.5 (4.1–17)	14 (6.2–26)	110 (51–200)	168 (76–296)	82 (68–98)	124 (102–147)
	2012	67	9.2 (3.8–17)	14 (5.8–25)	110 (47–190)	159 (71–282)	80 (66–95)	119 (98–142)
Timor-Leste	2005	< 1	0.67 (0.290–1.2)	67 (29–121)	7.2 (3.1–13)	722 (306–1 310)	5 (4.0–6.0)	498 (406–601)
	2010	1	0.62 (0.280–1.1)	57 (26–102)	7.2 (2.8–14)	666 (259–1 260)	5.4 (4.4–6.4)	498 (409–596)
	2011	1	0.67 (0.300–1.2)	62 (28–109)	7.6 (3.1–14)	689 (279–1 280)	5.5 (4.5–6.5)	498 (409–596)
	2012	1	0.82 (0.360–1.5)	74 (33–132)	8.4 (3.8–15)	758 (342–1 340)	5.6 (4.6–6.6)	498 (409–596)

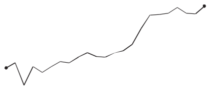
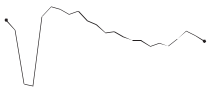
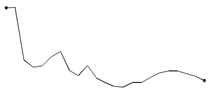
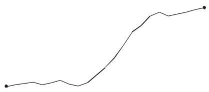
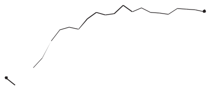
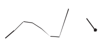
[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]	INCIDENCE HIV-POSITIVE NUMBER (THOUSANDS)	INCIDENCE HIV-POSITIVE RATE[a]	NOTIFIED NEW AND RELAPSE[b] NUMBER	NOTIFIED NEW AND RELAPSE[b] RATE[a]	CASE DETECTION PERCENT
Bangladesh	1990	107	240 (150–360)	225 (139–331)	0.048 (0.030–0.071)	<0.1 (<0.1–<0.1)	48 673	45	20 (14–33)
	1995	120	270 (220–320)	225 (184–270)	0.054 (0.044–0.065)	<0.1 (<0.1–<0.1)	56 437	47	21 (17–26)
	2000	132	300 (240–360)	225 (184–270)	0.089 (0.073–0.11)	<0.1 (<0.1–<0.1)	75 557	57	25 (21–31)
	2005	143	320 (260–390)	225 (184–270)	0.19 (0.16–0.23)	0.1 (0.11–0.16)	123 118	86	38 (32–47)
	2010	151	340 (280–410)	225 (185–268)	0.31 (0.25–0.36)	0.2 (0.17–0.24)	153 892	102	45 (38–55)
	2011	153	340 (280–410)	225 (185–268)	0.34 (0.28–0.41)	0.2 (0.18–0.27)	154 358	101	45 (38–55)
	2012	155	350 (290–410)	225 (185–268)	0.24 (0.20–0.29)	0.2 (0.13–0.19)	168 683	109	49 (41–59)
Bhutan	1990	< 1	4.2 (3.6–4.8)	784 (673–903)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 154	215	27 (24–32)
	1995	< 1	2.9 (2.5–3.3)	561 (482–646)	<0.01 (<0.01–<0.01)	0.2 (0.14–0.19)	1 299	255	45 (39–53)
	2000	< 1	2.3 (1.9–2.6)	402 (345–463)	<0.01 (<0.01–<0.01)	0.4 (0.38–0.51)	1 140	202	50 (44–59)
	2005	< 1	1.9 (1.6–2.2)	287 (247–331)	<0.01 (<0.01–<0.01)	1.2 (1.0–1.4)	1 007	155	54 (47–63)
	2010	< 1	1.5 (1.3–1.7)	206 (177–237)	0.019 (0.016–0.022)	2.6 (2.3–3.0)	1 311	183	89 (77–100)
	2011	< 1	1.4 (1.2–1.6)	192 (165–222)	0.021 (0.018–0.025)	2.9 (2.5–3.4)	1 235	169	88 (76–100)
	2012	< 1	1.3 (1.1–1.5)	180 (154–207)	0.024 (0.021–0.028)	3.3 (2.8–3.8)	1 130	152	85 (73–99)
Democratic People's Republic of Korea	1990	20	77 (44–120)	383 (219–592)					
	1995	22	83 (48–130)	383 (219–592)	0.033 (0.018–0.054)	0.2 (<0.1–0.25)			
	2000	23	87 (50–140)	383 (219–592)	0.087 (0.043–0.15)	0.4 (0.19–0.65)	34 131	149	39 (25–68)
	2005	24	91 (52–140)	383 (219–592)	0.11 (0.054–0.18)	0.5 (0.23–0.77)	42 722	179	47 (30–82)
	2010	25	97 (85–110)	395 (348–445)	0.13 (0.085–0.18)	0.5 (0.34–0.72)	84 648	345	87 (78–99)
	2011	25	100 (92–110)	404 (372–437)	0.13 (0.084–0.18)	0.5 (0.34–0.75)	91 433	371	92 (85–100)
	2012	25	100 (92–110)	409 (373–447)	0.13 (0.086–0.19)	0.5 (0.35–0.76)	91 885	371	91 (83–100)
India	1990	869	1 900 (1 600–2 200)	216 (182–254)	19 (16–22)	2.2 (1.8–2.6)	1 519 182	175	81 (69–96)
	1995	956	2 100 (1 800–2 300)	216 (189–245)	90 (78–100)	9.4 (8.2–11)	1 218 183	127	59 (52–67)
	2000	1 042	2 300 (2 000–2 500)	216 (195–239)	170 (150–190)	16 (14–18)	1 115 718	107	49 (45–55)
	2005	1 127	2 400 (2 100–2 600)	209 (188–231)	170 (160–190)	16 (14–17)	1 156 248	103	49 (44–55)
	2010	1 206	2 200 (2 000–2 500)	185 (167–204)	130 (120–150)	11 (10–12)	1 339 866	111	60 (54–66)
	2011	1 221	2 200 (2 000–2 400)	181 (163–199)	130 (120–140)	11 (9.6–12)	1 323 949	108	60 (54–66)
	2012	1 237	2 200 (2 000–2 400)	176 (159–193)	130 (120–140)	10 (9.4–12)	1 289 836	104	59 (54–66)
Indonesia	1990	179	370 (270–480)	206 (149–271)			74 470	42	20 (15–28)
	1995	194	400 (310–500)	205 (159–256)			35 529	18	8.9 (7.1–12)
	2000	209	430 (340–520)	204 (164–249)	0.085 (0.068–0.10)	<0.1 (<0.1–<0.1)	84 591	40	20 (16–25)
	2005	224	450 (360–540)	199 (160–242)	1.7 (1.3–2.1)	0.8 (0.59–0.94)	254 601	113	57 (47–71)
	2010	241	450 (380–540)	189 (156–224)	5.7 (4.3–7.3)	2.4 (1.8–3.0)	300 659	125	66 (56–80)
	2011	244	460 (380–540)	187 (155–222)	6.7 (5.0–8.5)	2.7 (2.1–3.5)	318 949	131	70 (59–85)
	2012	247	460 (380–540)	185 (153–220)	7.5 (5.6–9.7)	3.1 (2.3–3.9)	328 824	133	72 (61–87)
Maldives	1990	< 1	0.32 (0.200–0.480)	150 (92–221)	<0.01 (<0.01–<0.01)	0.2 (0.10–0.43)	152	70	47 (32–76)
	1995	< 1	0.29 (0.230–0.350)	118 (96–142)	<0.01 (<0.01–<0.01)	0.3 (0.13–0.40)	231	94	80 (66–98)
	2000	< 1	0.17 (0.130–0.200)	60 (49–73)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.21)	132	48	80 (66–98)
	2005	< 1	0.15 (0.120–0.180)	51 (42–62)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.15)	122	41	80 (66–98)
	2010	< 1	0.12 (0.097–0.140)	36 (30–44)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	95	29	80 (66–98)
	2011	< 1	0.11 (0.088–0.130)	33 (27–39)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	87	26	80 (66–98)
	2012	< 1	0.14 (0.110–0.170)	41 (33–49)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	110	33	80 (66–98)
Myanmar	1990	42	170 (120–220)	393 (290–512)	0.9 (0.66–1.2)	2.1 (1.6–2.8)	12 416	29	7.5 (5.8–10)
	1995	45	180 (140–230)	404 (314–505)	6.2 (4.8–7.7)	14 (11–17)	18 229	40	10 (8.0–13)
	2000	48	200 (160–240)	412 (333–498)	15 (12–18)	30 (24–36)	30 840	64	15 (13–19)
	2005	50	200 (170–240)	403 (340–472)	22 (18–25)	43 (36–50)	107 009	213	53 (45–63)
	2010	52	200 (170–230)	384 (329–444)	21 (18–24)	40 (34–46)	131 590	253	66 (57–77)
	2011	52	200 (170–230)	381 (326–439)	20 (17–23)	38 (32–43)	136 737	261	69 (59–80)
	2012	53	200 (170–230)	377 (322–435)	19 (16–21)	35 (30–41)	141 170	267	71 (62–83)
Nepal	1990	18	30 (18–44)	163 (101–241)	<0.01 (<0.01–0.013)	<0.1 (<0.1–<0.1)	10 142	56	34 (23–56)
	1995	21	34 (27–40)	163 (133–196)	0.081 (0.066–0.097)	0.4 (0.32–0.47)	19 804	96	59 (49–72)
	2000	23	38 (31–45)	163 (133–196)	0.52 (0.42–0.62)	2.2 (1.8–2.7)	29 519	127	78 (65–95)
	2005	25	41 (34–50)	163 (133–196)	1.4 (1.1–1.6)	5.4 (4.4–6.5)	33 448	132	81 (67–99)
	2010	27	44 (36–52)	163 (135–194)	1.5 (1.2–1.7)	5.4 (4.5–6.5)	35 114	131	80 (67–97)
	2011	27	44 (37–53)	163 (135–194)	1.4 (1.1–1.7)	5.1 (4.2–6.1)	35 434	130	80 (67–97)
	2012	27	45 (37–53)	163 (135–195)	1.1 (0.94–1.4)	4.2 (3.4–5.0)	35 195	128	78 (66–95)
Sri Lanka	1990	17	11 (7.2–17)	66 (42–96)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	6 666	38	58 (40–92)
	1995	18	12 (9.9–14)	66 (54–79)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	5 956	33	49 (41–60)
	2000	19	12 (10–15)	66 (54–79)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	8 413	45	67 (56–83)
	2005	20	13 (11–16)	66 (54–79)	0.011 (<0.01–0.013)	<0.1 (<0.1–<0.1)	9 451	47	72 (60–88)
	2010	21	14 (11–16)	66 (55–79)	0.014 (0.011–0.016)	<0.1 (<0.1–<0.1)	9 934	48	72 (61–88)
	2011	21	14 (11–17)	66 (55–79)	0.015 (0.012–0.019)	<0.1 (<0.1–<0.1)	10 181	49	73 (62–89)
	2012	21	14 (12–17)	66 (55–79)	0.017 (0.014–0.020)	<0.1 (<0.1–0.10)	9 155	43	66 (55–80)
Thailand	1990	57	78 (65–93)	138 (114–164)	2.4 (2.0–2.9)	4.3 (3.5–5.1)	46 510	82	60 (50–72)
	1995	59	77 (63–91)	130 (107–154)	12 (9.7–14)	20 (16–24)	45 428	77	59 (50–72)
	2000	62	110 (88–130)	171 (141–203)	25 (21–30)	40 (33–48)	34 187	55	32 (27–39)
	2005	66	100 (84–120)	154 (127–184)	19 (16–23)	29 (24–35)	57 895	88	57 (48–69)
	2010	66	85 (70–100)	128 (106–153)	13 (11–16)	20 (17–24)	67 128	101	79 (66–95)
	2011	67	82 (68–98)	124 (102–147)	13 (11–15)	19 (16–23)	65 824	99	80 (67–97)
	2012	67	80 (66–95)	119 (98–142)	12 (10–14)	18 (15–22)	60 304	90	76 (64–92)
Timor-Leste	2005	< 1	5 (4.0–6.0)	498 (406–601)			3 767	378	76 (63–93)
	2010	1	5.4 (4.4–6.4)	498 (409–596)					
	2011	1	5.5 (4.5–6.5)	498 (409–596)			4 386	400	80 (67–98)
	2012	1	5.6 (4.6–6.6)	498 (409–596)			3 828	344	69 (58–84)

[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

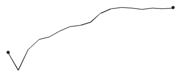
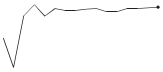
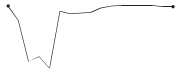
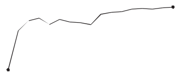
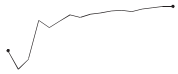
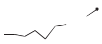
	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Bangladesh		1990	48 673									–
		1995	56 437	20 524	19 297	2 060		729		729		52
		2000	75 557	38 484	29 396	5 914		1 763		1 763		57
		2005	123 118	84 848	23 076	11 318		3 876		3 876		79
		2010	153 892	105 772	21 625	23 506	0	2 989	4 806	7 795	0	83
		2011	154 358	98 948	21 921	27 329	0	2 701	4 665	7 366	3 459	82
	• 45 109 •	2012	168 683	106 790	24 451	30 549	0	3 065	4 936	8 001	3 828	81
Bhutan		1990	1 154									–
		1995	1 299	367	657	265		10		10		36
		2000	1 140	347	430	363		36		36		45
		2005	1 007	308	272	387		40	11	51		53
		2010	1 311	457	275	518	0	61	21	82	0	62
		2011	1 235	382	225	573	0	55	15	70	0	63
	• 215 152 •	2012	1 130	420	127	519		64	15	79		77
Democratic People's Republic of Korea		1990										–
		1995										–
		2000	34 131	16 440	13 801	3 787		103		103		54
		2005	42 722	17 796	18 123	5 381	58	1 364	7 752	9 116		50
		2010	84 648	31 240	36 285	13 715		3 408	11 650	15 058		46
		2011	91 433	31 279	37 457	16 828		5 869	7 638	13 507		46
	• 0 371 •	2012	91 885	31 904	35 959	17 321		6 701	7 514	14 215		47
India		1990	1 519 182									–
		1995	1 218 183	264 515	880 589	68 979		690		690		23
		2000	1 115 718	349 374	650 345	98 006		17 993	80 072	98 065		35
		2005	1 156 248	508 890	399 066	171 838	1 381	75 073	148 580	223 653	0	56
		2010	1 339 866	630 165	366 381	231 121	1 508	110 691	182 281	292 972		63
		2011	1 323 949	642 321	340 203	226 965	1 952	112 508	191 923	304 431		65
	• 175 104 •	2012	1 289 836	629 589	317 616	234 029	2 139	106 463	177 749	284 212		66
Indonesia		1990	74 470									–
		1995	35 529	31 768	34	0		106		106		100
		2000	84 591	52 338	15 035	833		1 448		1 448		78
		2005	254 601	158 640	85 373	6 142		4 446		4 446		65
		2010	300 659	183 366	101 247	11 659	0	4 387	2 202	6 589	0	64
		2011	318 949	197 797	101 750	14 054		5 348	2 359	7 707		66
	• 42 133 •	2012	328 824	202 319	104 866	15 697		5 942	2 600	8 542		66
Maldives		1990	152									–
		1995	231	114	89	18		10		10		56
		2000	132	65	31	32		4	0	4		68
		2005	122	66	23	29	0	4	1	5	0	74
		2010	95	41	20	33	0	1	2	3	0	67
		2011	87	47	12	28	0	0	1	1	0	80
	• 70 33 •	2012	110	52	17	41	0	0	1	1	0	75
Myanmar		1990	12 416									–
		1995	18 229	8 681	7 058	653		1 837		1 837		55
		2000	30 840	17 254	8 659	2 304		2 623		2 623		67
		2005	107 009	36 541	35 601	30 252		4 615	982	5 597		51
		2010	131 590	42 318	56 840	27 976		4 456	5 813	10 269		43
		2011	136 737	42 324	62 038	27 769		4 606	6 403	11 009		41
	• 29 267 •	2012	141 170	42 909	73 042	20 661	0	4 558	6 979	11 537	0	37
Nepal		1990	10 142									–
		1995	19 804	8 591	7 938	2 489		786		786		52
		2000	29 519	13 683	9 074	4 955		1 807		1 807		60
		2005	33 448	14 617	9 474	7 013	0	2 344	629	2 973		61
		2010	35 114	15 569	9 718	7 210	0	2 617	495	3 112	0	62
		2011	35 434	15 000	9 662	7 484	926	2 362	520	2 882	0	61
	• 56 128 •	2012	35 195	15 057	9 128	7 865	865	2 280	440	2 720	0	62
Sri Lanka		1990	6 666	2 769	3 241	656						46
		1995	5 956	3 049	1 677	982		248		248		65
		2000	8 413	4 314	2 261	1 561		277	372	649		66
		2005	9 451	4 868	2 198	1 917	0	266	244	510	202	69
		2010	9 934	4 635	2 145	2 548	0	219	161	380	387	68
		2011	10 181	4 490	2 405	2 612	0	248	147	395	426	65
	• 38 43 •	2012	9 155	4 269	1 889	2 349	0	245	188	433	403	69
Thailand		1990	46 510									–
		1995	45 428	20 273	22 606	1 419		1 130		1 130		47
		2000	34 187	17 754	12 439	2 953		1 041		1 041		59
		2005	57 895	29 762	18 837	7 501		1 795		1 795		61
		2010	67 128	33 450	20 927	10 135	0	1 885	1 111	2 996	731	62
		2011	65 824	33 169	20 726	10 014	0	1 915	1 852	3 767	0	62
	• 82 90 •	2012	60 304	30 998	17 537	8 852		1 887	904	2 791	1 030	64
Timor-Leste		2005	3 767	1 035	2 142	554		36	16	52		33
		2010										–
		2011	4 386	1 610	2 401	337	0	38	31	69	0	40
	344 •	2012	3 828	1 545	1 823	420	0	40	9	49		46

[a] Rates are per 100 000 population.

[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

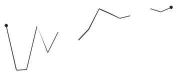
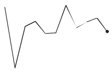
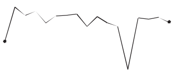
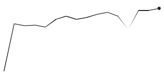
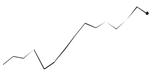
SOUTH-EAST ASIA REGION

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT: CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Bangladesh		1995	20 524	10 867	53	66	5	5	2	10	12
		2000	38 484	38 484	100	77	4	4	1	9	5
		2005	84 848	84 848	100	91	1	4	1	2	2
		2009	109 402	109 075	100	91	1	4	1	2	2
		2010	105 772	105 659	100	90	1	4	1	2	2
	• 71 92 •	2011	98 948	98 932	100	91	1	4	1	2	2
Bhutan		1995	367	433	118	78	20	0	0	1	1
		2000	347	347	100	75	15	4	3	3	0
		2005	308	340	110	84	7	5	3	1	0
		2009	434	434	100	86	6	3	3	2	0
		2010	457	454	99	87	3	3	3	1	2
	• 97 91 •	2011	382	381	100	88	3	3	5	1	1
Democratic People's Republic of Korea		1995			–						
		2000	16 440	14 571	89	73	9	3	7	5	3
		2005	17 796	17 796	100	84	5	2	4	2	2
		2009	29 366	29 366	100	85	5	2	4	2	2
		2010	31 240	31 240	100	86	4	3	4	2	1
	• 0 90 •	2011	31 279	31 279	100	87	3	3	4	2	1
India		1995	264 515	264 722	100	1	25	0	0	0	75
		2000	349 374	349 328	100	31	4	1	1	7	57
		2005	508 890	507 204	100	83	2	5	2	7	1
		2009	624 617	624 617	100	85	2	4	2	6	1
		2010	630 165	630 165	100	85	3	4	2	6	1
	• 25 88 •	2011	642 321	642 321	100	85	3	4	2	5	1
Indonesia		1995	31 768	3 018	10	73	18	2	0	6	1
		2000	52 338	52 338	100	70	17	2	1	4	5
		2005	158 640	158 640	100	83	8	2	1	4	2
		2009	169 213	169 213	100	84	7	2	1	4	2
		2010	183 366	183 366	100	84	7	2	1	4	3
	• 91 90 •	2011	197 797	197 797	100	84	6	2	1	4	3
Maldives		1995	114	114	100	96	2	3	0	0	0
		2000	65	59	91	97	0	2	0	0	2
		2005	66	70	106	86	0	6	0	3	6
		2009	45	45	100	47	0	2	2	4	44
		2010	41	44	107	82	0	9	2	0	7
	• 97 81 •	2011	47	48	102	81	0	2	0	0	17
Myanmar		1995	8 681	7 872	91	53	14	4	4	18	7
		2000	17 254	16 792	97	73	9	5	2	9	2
		2005	36 541	36 652	100	77	7	6	3	5	2
		2009	41 357	41 811	101	77	8	6	3	5	2
		2010	42 318	42 200	100	77	8	5	3	4	2
	• 67 86 •	2011	42 324	42 310	100	77	9	5	3	4	2
Nepal		1995	8 591	8 053	94	56	17	3	2	18	6
		2000	13 683	12 992	95	79	5	5	1	7	2
		2005	14 617	14 617	100	87	1	5	1	3	2
		2009	15 442	15 468	100	87	3	4	1	3	2
		2010	15 569	15 569	100	88	2	3	1	3	3
	• 73 90 •	2011	15 000	15 000	100	88	2	4	1	3	2
Sri Lanka		1995	3 049	3 058	100	75	4	3	0	13	4
		2000	4 314	4 314	100	75	4	4	1	15	2
		2005	4 868	4 841	99	83	3	5	1	6	1
		2009	4 764	4 754	100	83	3	6	2	4	3
		2010	4 635	4 635	100	83	4	7	1	4	1
	• 79 87 •	2011	4 490	4 490	100	83	3	5	1	5	2
Thailand		1995	20 273	20 273	100	36	28	2	0	9	24
		2000	17 754	23 061	130	65	3	8	2	7	15
		2005	29 762	29 919	101	70	5	8	2	7	9
		2009	32 810	27 597	84	81	5	7	1	3	2
		2010	33 450	30 317	91	79	6	7	2	3	2
	• 64 85 •	2011	33 169	30 711	93	79	6	7	1	3	3
Timor-Leste		2005	1 035	1 035	100	61	21	5	1	11	2
		2009	1 206		–						
		2010		1 530	–	80	8	4	1	4	4
	91 •	2011	1 610	1 610	100	86	5	3	0	3	2

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Bangladesh		1995	729	1 179	162	71	3	5	8	11	2
		2000	1 763	1 815	103	70	2	4	2	7	14
		2005	3 876	3 876	100	73	6	4	2	5	9
		2009	4 099	6 637	162	66	16	6	2	5	6
		2010	7 795	7 814	100	47	33	5	2	5	8
	• 75 82 •	2011	7 366	7 369	100	46	36	5	2	4	7
Bhutan		1995	10	22	220	50	9	0	23	14	5
		2000	36		–						
		2005	51	52	102	65	10	6	8	2	10
		2009	76	76	100	70	12	8	7	3	1
		2010	82	81	99	78	6	1	7	5	2
	• 59 76 •	2011	70	67	96	70	6	7	12	1	3
Democratic People's Republic of Korea		1995			–						
		2000	103	1 285	1 248	75	11	2	4	2	5
		2005	9 116	9 116	100	70	6	3	12	5	4
		2009	14 576	14 576	100	74	9	2	11	2	2
		2010	15 058	15 058	100	76	8	4	8	3	2
	• 0 84 •	2011	13 507	13 507	100	77	8	5	7	2	1
India		1995	690	551	80	64	6	4	3	13	9
		2000	98 065	48 133	49	55	15	7	5	16	2
		2005	223 653	224 143	100	47	24	7	4	16	1
		2009	289 756	289 756	100	45	29	7	4	13	1
		2010	292 972	292 972	100	45	30	7	4	13	2
	• 70 75 •	2011	304 431	304 431	100	43	31	7	4	12	3
Indonesia		1995	106	76	72	22	9	0	0	1	67
		2000	1 448	2 530	175	50	22	3	3	7	15
		2005	4 446	4 812	108	63	15	3	4	8	7
		2009	5 688	5 687	100	53	20	4	3	12	8
		2010	6 589	6 589	100	53	20	5	3	11	8
	• 32 71 •	2011	7 707	7 707	100	53	18	5	3	11	9
Maldives		1995	10		–						
		2000	4	5	125	100					0
		2005	5	5	100	80	20	0	0	0	0
		2009	5	1	20	0	0	0	0	0	100
		2010	3	0	0						
	• 0 0 •	2011	1	0	0						
Myanmar		1995	1 837	1 443	79	55	8	4	4	19	9
		2000	2 623	3 001	114	65	9	7	4	12	3
		2005	5 597	6 556	117	58	14	10	6	7	5
		2009	9 717	9 540	98	44	28	11	5	7	4
		2010	10 269	10 106	98	41	32	11	5	7	3
	• 64 72 •	2011	11 009	11 087	101	38	34	12	6	8	3
Nepal		1995	786		–						
		2000	1 807	2 047	113	73	3	4	8	7	4
		2005	2 973	2 973	100	81	2	4	6	4	3
		2009	3 117	3 063	98	82	3	6	3	4	3
		2010	3 112	3 112	100	82	3	5	3	4	4
	• 0 85 •	2011	2 882	2 882	100	83	2	5	4	3	3
Sri Lanka		1995	248		–						
		2000	649	521	80	44	20	6	1	26	3
		2005	510	504	99	67	5	5	2	18	3
		2009	409	408	100	66	7	8	1	13	5
		2010	380	380	100	71	6	7	2	9	4
	• 0 75 •	2011	395	395	100	69	6	8	3	9	5
Thailand		1995	1 130		–						
		2000	1 041		–						
		2005	1 795	2 285	127	52	6	12	5	7	18
		2009	3 929	2 542	65	58	10	11	5	7	9
		2010	2 996	2 580	86	55	11	12	5	7	10
	• 0 69 •	2011	3 767	2 737	73	57	12	11	5	7	8
Timor-Leste		2005	52	56	108	96	0	2	0	2	0
		2009	52		–						
		2010		56	–	77	9	2	4	7	2
	77 •	2011	69	69	100	71	6	4	6		13

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

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TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Bangladesh		2005	0	0	123 118					
		2010	1.1	1 778	158 698	4	0.22	100	100	64
		2011	1.2	1 900	159 023	53	2.8	100	100	0
	• 0 1 •	2012	1.2	2 086	173 619	63	3	100	100	0
Bhutan		2005	0	0	1 018	1		0	0	
		2010			1 332					
		2011			1 250					
	• 0 –	2012			1 145					
Democratic People's Republic of Korea		2005			50 474					
		2010	0	0	96 298	0				
		2011	0	0	99 071	0				
	– –	2012			99 399					
India		2005	2.3	29 488	1 304 828	6 411	22			
		2010	32	480 752	1 522 147	41 476	8.6	90	57	
		2011	45	688 530	1 515 872	44 702	6.5	91	59	
	• 2 56 •	2012	56	821 807	1 467 585	44 063	5.4	92	59	
Indonesia		2005			254 601					
		2010	0.91	2 751	302 861	1 106	40	63	29	
		2011	1.9	6 003	321 308	2 547	42	67	39	
	– 1 •	2012	0.81	2 676	331 424	754	28	18	29	
Maldives		2005			123					
		2010	0	0	97	0				0
		2011	6.8	6	88	0	0			
	– 1 •	2012	0.9	1	111	1	100	0	0	0
Myanmar		2005	2	2 109	107 991	611	29	50	31	0
		2010	3.2	4 362	137 403	961	22	100	94	514
		2011	3.1	4 496	143 140	900	20	100	80	361
	• 2 13 •	2012	13	19 219	148 149	5 161	27		83	
Nepal		2005	0	0	34 077					
		2010	0	0	35 609	0				
		2011	42	15 000	35 954	55	0.37	100	100	
	• 0 42 •	2012	42	15 057	35 635	217	1.4	100	100	
Sri Lanka		2005			9 695	2		0	0	
		2010	10	1 015	10 095	13	1.3	100	54	3
		2011	18	1 832	10 328	21	1.1	71	100	7
	– 36 •	2012	36	3 379	9 343	23	0.68	22	48	8
Thailand		2005			57 895					
		2010	82	55 692	68 239	8 959	16	71	54	
		2011	74	49 770	67 676	7 326	15	75	59	
	– 72 •	2012	72	44 035	61 208	5 807	13	77	62	
Timor-Leste		2005	0	0	3 783					
		2010								
		2011	6.2	276	4 417	4	1.4		100	
	• 0 20 •	2012	20	766	3 837	4	0.52		100	

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Bangladesh	2005					–			–
	2010	339				–		339	4.3
	2011	509			71	<0.1		761	10
	2012	513	4 200 (3 100–5 200)	1 900 (920–3 300)	41	<0.1	2 300 (1 900–2 700)	557	7.0
Bhutan	2005	2			2	0.65		3	5.9
	2010	17			108	24		30	37
	2011	21			48	13		26	37
	2012	16	25 (20–30)	12 (8.8–15)	52	12	13 (8.8–17)	2	2.5
Democratic People's Republic of Korea	2005					–			–
	2010					–			–
	2011	37				–		43	0.32
	2012	25	3 800 (3 000–4 600)	1 500 (1 100–1 900)		–	2 300 (1 600–3 000)	31	0.22
India	2005	34				–			–
	2010	2967				–			–
	2011	4237				–			–
	2012	16588	64 000 (49 000–79 000)	21 000 (18 000–25 000)		–	43 000 (32 000–54 000)		–
Indonesia	2005					–			–
	2010	182			0	0		324	4.9
	2011	383			5	<0.1		695	9.0
	2012	428	6 900 (5 200–8 500)	5 800 (4 300–7 700)	2	<0.1	1 000 (690–1 500)	821	9.6
Maldives	2005					–			–
	2010	0			0	0		0	0
	2011	0			0	0		0	0
	2012	0	1.7 (1.3–2.1)	1.5 (1.1–1.9)	0	0	0.16 (0.11–0.21)	0	0
Myanmar	2005					–			–
	2010	192				–			–
	2011	690				–			–
	2012	778	6 000 (4 600–7 500)	4 900 (3 600–6 500)		–	1 200 (790–1 600)		–
Nepal	2005					–			–
	2010	229			126	0.81		193	6.2
	2011	213			0	0		0	0
	2012	354	990 (660–1 300)	570 (320–950)	188	1.2	420 (270–620)	640	24
Sri Lanka	2005	32			659	12		417	82
	2010	11			839	18		378	99
	2011	13			1080	24		408	100
	2012	5	21 (0–43)	11 (0.28–61)	1069	23	9.6 (4.4–18)	238	55
Thailand	2005					–			–
	2010					–			–
	2011	510				–			–
	2012	492	1 800 (1 400–2 200)	800 (480–1 200)		–	960 (780–1 200)		–
Timor-Leste	2005					–			–
	2010	5				–			–
	2011	2			0	0		2	2.9
	2012	3	82 (62–100)	74 (54–94)		–	7.9 (5.4–10)	3	6.1

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Bangladesh	1995	29	505	983	1 001	748	648	424		64	309	546	360	236	132	38		2.6
	2000	256	3 640	5 643	5 750	4 718	3 667	2 837		495	3 029	3 238	2 247	1 315	778	370		2.3
	2005	524	8 170	10 443	11 423	11 038	8 476	7 453		751	6 776	6 785	5 538	3 960	2 281	1 230		2.1
	2010	365	10 460	12 535	11 409	12 758	11 176	11 536	0	653	9 221	8 279	6 185	5 458	3 484	2 250	0	2.0
	2011	309	9 606	11 616	10 152	11 728	10 746	11 301	0	623	8 849	7 679	5 683	4 946	3 457	2 253	0	2.0
	2012	316	9 479	12 021	10 837	12 744	11 843	12 236	0	650	9 355	8 175	6 342	6 044	4 043	2 705	0	1.9
Bhutan	1995	2	42	65	36	35	24	11		12	43	44	25	12	9	8		1.4
	2000	6	65	41	30	24	12	2		7	57	34	31	23	3	2		1.1
	2005	1	47	58	26	23	14	12		9	45	38	13	11	9	2		1.4
	2010		108	50	25	12	26	13	0	17	104	45	18	18	10	9	0	1.1
	2011	2	88	39	26	14	20	19		2	92	40	19	12	4	5		1.2
	2012	6	82	56	30	11	17	11		6	92	58	14	18	9	10		1.0
Democratic People's Republic of Korea	1995																	–
	2000	293	928	1 508	2 927	2 519	1 167	651		167	683	1 121	2 004	1 524	591	357		1.6
	2005	167	1 409	2 422	2 688	2 040	1 185	485		166	1 127	1 756	1 890	1 381	764	336		1.4
	2010	447	2 524	4 046	4 849	4 061	2 629	1 153		407	1 493	2 461	2 910	2 276	1 347	637		1.7
	2011	314	2 218	4 066	5 493	4 542	2 474	1 024		227	1 390	2 264	3 093	2 409	1 271	494		1.8
	2012	293	2 439	4 015	5 055	4 373	2 699	1 150		227	1 447	2 475	3 005	2 623	1 527	576		1.7
India	1995	16	334	391	287	216	123	68		32	179	169	80	49	30	11		2.6
	2000	1 588	20 963	31 090	30 829	24 230	15 308	8 534		2 250	14 495	17 287	11 768	7 516	4 594	2 697		2.2
	2005	3 185	62 620	74 678	76 870	64 843	43 038	24 726		6 292	45 136	45 629	28 577	17 042	10 513	5 408		2.2
	2010	4 871	78 278	82 757	90 440	81 210	60 766	38 442		8 544	53 415	49 425	34 035	22 719	15 527	9 735		2.3
	2011	4 649	78 096	82 762	89 706	82 921	63 625	42 443		8 336	53 958	49 227	34 698	23 977	17 182	10 731		2.2
	2012	4 697	75 502	79 594	88 111	82 356	63 814	41 322		8 260	53 975	47 511	33 378	23 267	17 300	10 502		2.2
Indonesia	1995	6	203	297	306	302	228	109		16	160	244	282	192	90	33		1.4
	2000																	–
	2005	846	15 215	20 906	18 401	17 847	13 509	6 390		946	13 916	16 393	13 022	10 927	7 539	2 783		1.4
	2010	714	16 501	24 645	21 090	20 977	17 329	7 910	0	816	14 800	17 838	14 629	13 142	9 524	3 451	0	1.5
	2011	787	17 406	25 429	22 353	22 885	19 404	9 089		927	15 840	18 703	15 900	14 533	10 556	3 985		1.5
	2012	824	17 304	25 460	23 057	23 751	20 204	9 554		879	15 875	18 484	16 146	15 215	11 321	4 245		1.5
Maldives	1995	1	28	11	10	8	10	6		1	13	8	4	6	6	2		1.8
	2000	0	9	10	2	5	5	3		0	11	4	5	4	5	2		1.1
	2005	0	9	8	5	6	6	5		1	10	7	1	2	2	4		1.4
	2010	0	8	6	0	4	5	6	0	1	2	3	4	1	0	1	0	2.4
	2011	0	12	7	3	8	1	3	0	0	4	3	1	2	1	2	0	2.6
	2012	0	8	6	2	4	5	4	0	0	7	6	3	3	2	2	0	1.3
Myanmar	1995	42	713	1 423	1 401	977	677	298		58	535	729	729	450	343	154		1.8
	2000	88	1 459	2 636	2 781	2 161	1 235	836		72	1 040	1 592	1 397	987	592	378		1.8
	2005	132	3 401	5 877	5 888	4 585	2 557	1 764		147	2 376	3 047	2 563	2 101	1 218	885		2.0
	2010	106	3 043	6 578	6 688	5 607	3 632	2 308		196	2 452	3 454	2 752	2 525	1 838	1 139		1.9
	2011	120	2 923	6 182	6 319	5 680	3 954	2 500		187	2 401	3 317	2 760	2 554	2 010	1 407		1.9
	2012	146	2 898	6 263	6 469	5 837	3 945	2 626	0	192	2 357	3 368	2 721	2 600	2 023	1 464	0	1.9
Nepal	1995																	–
	2000	170	1 904	1 763	1 713	1 491	1 294	772		176	1 267	1 078	833	575	419	228		2.0
	2005	148	1 946	1 685	1 722	1 806	1 759	820		195	1 208	1 111	797	658	532	230		2.1
	2010	165	2 110	1 832	1 724	1 856	1 857	1 126	0	192	1 177	1 036	819	681	642	352	0	2.2
	2011	245	1 914	1 755	1 723	1 732	1 710	1 180	0	247	1 182	978	752	624	604	354	0	2.2
	2012	250	1 906	1 756	1 644	1 708	1 773	1 203		210	1 227	1 036	666	638	643	397		2.1
Sri Lanka	1995	10	163	361	519	521	365	261		15	207	206	142	122	81	56		2.7
	2000	25	266	459	695	793	484	360		23	312	264	176	202	144	113		2.5
	2005	9	341	520	724	918	657	424		19	295	261	189	200	154	130		2.9
	2010	14	268	539	602	884	683	448		15	255	233	171	183	186	154		2.9
	2011	12	246	459	585	828	653	479	0	13	270	217	191	192	191	154	0	2.7
	2012	7	243	420	504	799	672	456	0	17	242	200	162	211	200	136	0	2.7
Thailand	1995	59	1 191	2 936	2 948	2 434	2 607	2 346		52	741	888	782	936	1 175	1 178		2.5
	2000	27	859	2 570	2 380	2 117	1 908	2 213		32	624	1 035	780	873	1 016	1 321		2.1
	2005	44	1 344	3 814	4 393	4 003	2 831	3 407		57	907	1 662	1 334	1 367	1 259	1 938		2.3
	2010	55	1 506	3 695	5 253	5 042	3 625	4 189		82	1 087	1 930	1 749	1 467	1 494	2 276		2.3
	2011	38	1 546	3 650	5 139	5 140	3 734	4 080		76	1 214	1 773	1 658	1 586	1 402	2 133		2.4
	2012	35	1 444	3 277	4 705	4 867	3 780	3 863		82	995	1 491	1 613	1 424	1 364	2 058		2.4
Timor-Leste	2005	8	136	149	116	119	52	47		8	127	90	76	60	18	29		1.5
	2010																	–
	2011	14	199	177	137	114	99	146	0	16	176	182	113	85	77	75	0	1.2
	2012	7	196	172	128	119	114	129	0	12	154	143	120	75	84	92	0	1.3

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2012**

	LABORATORIES								FREE THROUGH NTP			
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS	RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
Bangladesh	0.7	2	<0.1	<0.1	<0.1	12	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Bhutan	4.7	0	6.7	6.7			Out of country	Yes	Yes (if TB is confirmed)	Yes	Yes	
Democratic People's Republic of Korea	1.3	0	0.2	0.2	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	
India	1.1	2	0.3	0.2	0.1	32		Yes	Yes (all suspects)	Yes	Yes	
Indonesia	2.3	0	0.9	0.1	<0.1	9	In country	Yes	Yes (other criteria)	Yes	Yes	
Maldives	20.7	0	14.8	0	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	
Myanmar	0.9	14	0.2	0.2	0.2	3	In and out of country	Yes	Yes (all suspects)	Yes	Yes	
Nepal	1.9	2	0.4	0.4		9	In country	Yes	Yes (all suspects)	Yes	Yes	
Sri Lanka	1.0	0	0.7	0.2	0.2	1	Out of country	Yes	Yes (all suspects)	Yes	Yes	53
Thailand	1.6	6	4.9	1.3	0.9	14	In country	Yes	Yes (all suspects)	Yes	Yes	
Timor-Leste	1.6	–				1	No	Yes	Yes (all suspects)	Yes	No	

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

TABLE A4.10 **Measured percentage of TB cases with MDR-TB[a], most recent year available**

	New TB cases				Previously treated TB cases			
	Year	Source	Coverage	Percentage	Year	Source	Coverage	Percentage
Bangladesh	2011	Survey	National	1.4 (0.70–2.5)	2011	Survey	National	29 (24–34)
Bhutan								
Democratic People's Republic of Korea								
India	2001, 2004, 2006, 2009	Survey	Sub-national	2.2 (1.9–2.6)	2006, 2009	Survey	Sub-national	15 (11–19)
Indonesia	2004, 2006, 2010	Survey	Sub-national	1.9 (1.4–2.5)	2006, 2010	Survey	Sub-national	12 (8.1–17)
Maldives								
Myanmar	2008	Survey	National	4.2 (3.1–5.6)	2008	Survey	National	10 (6.9–14)
Nepal	2011	Survey	National	2.3 (1.3–3.8)	2011	Survey	National	15 (10–23)
Sri Lanka	2006	Survey	National	0.18 (0–0.99)	2011	Surveillance	National	2.2 (1.0–4.1)
Thailand	2006	Survey	National	1.7 (1.0–2.6)	2006	Survey	National	35 (28–42)
Timor-Leste								

[a] Empty rows indicate an absence of high-quality survey or surveillance data. In the absence of high-quality national data, high-quality sub-national data are used.

WESTERN PACIFIC REGION

Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See **ANNEX 1** for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. The main updates implemented in this report are explained in Box 2.1 of Chapter 2. *Estimates published in previous global TB control reports should no longer be used*.

Data source

Data shown in this annex are taken from the WHO global TB database on 1 October 2013. Data shown in the main part of the report were taken from the database in July 2013. As a result, data in this annex may differ slightly from those in the main part of the report.

Data for all years can be downloaded from www.who.int/tb/data.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
American Samoa	1990	< 1	<0.01 (<0.01–<0.01)	5.1 (2.1–9.5)	0.022 (0.010–0.037)	46 (22–79)	0.012 (<0.01–0.015)	26 (21–31)
	1995	< 1	<0.01 (<0.01–<0.01)	2.4 (0.95–4.4)	0.011 (<0.01–0.019)	21 (10–37)	<0.01 (<0.01–<0.01)	12 (9.4–14)
	2000	< 1	<0.01 (<0.01–<0.01)	0.82 (0.35–1.5)	<0.01 (<0.01–0.010)	9.4 (3.6–18)	<0.01 (<0.01–<0.01)	6.9 (5.6–8.4)
	2005	< 1	<0.01 (<0.01–<0.01)	2.4 (0.99–4.5)	0.013 (<0.01–0.023)	23 (11–38)	<0.01 (<0.01–<0.01)	13 (10–15)
	2010	< 1	<0.01 (<0.01–<0.01)	0.9 (0.14–2.3)	<0.01 (<0.01–0.014)	11 (3.0–25)	<0.01 (<0.01–<0.01)	7.8 (6.3–9.4)
	2011	< 1	<0.01 (<0.01–<0.01)	0.95 (0.17–2.4)	<0.01 (<0.01–0.014)	12 (3.2–25)	<0.01 (<0.01–<0.01)	7.8 (6.3–9.4)
	2012	< 1	<0.01 (<0.01–<0.01)	0.88 (0.23–2.0)	<0.01 (<0.01–0.012)	11 (3.6–22)	<0.01 (<0.01–<0.01)	7.3 (5.9–8.9)
Australia	1990	17	0.061 (0.061–0.062)	0.36 (0.35–0.36)	1.7 (0.750–2.9)	9.7 (4.4–17)	1.2 (1.0–1.3)	6.8 (6.0–7.7)
	1995	18	0.027 (0.027–0.028)	0.15 (0.15–0.16)	1.7 (0.740–3.0)	9.4 (4.1–17)	1.2 (1.1–1.4)	6.8 (6.0–7.7)
	2000	19	0.036 (0.035–0.036)	0.19 (0.18–0.19)	1.7 (0.740–3.0)	8.7 (3.9–16)	1.2 (1.1–1.4)	6.2 (5.5–7.0)
	2005	21	0.041 (0.041–0.042)	0.2 (0.20–0.20)	1.6 (0.650–3.0)	7.8 (3.2–14)	1.2 (1.1–1.4)	5.9 (5.1–6.6)
	2010	22	0.051 (0.050–0.051)	0.23 (0.23–0.23)	2 (0.830–3.6)	8.8 (3.7–16)	1.4 (1.3–1.6)	6.5 (5.7–7.3)
	2011	23	0.04 (0.040–0.041)	0.18 (0.18–0.18)	1.9 (0.740–3.5)	8.2 (3.3–15)	1.4 (1.2–1.6)	6.3 (5.5–7.1)
	2012	23	0.045 (0.044–0.045)	0.19 (0.19–0.19)	2 (0.860–3.7)	8.8 (3.7–16)	1.5 (1.3–1.7)	6.5 (5.7–7.4)
Brunei Darussalam	1990	< 1	<0.01 (<0.01–<0.01)	3 (2.9–3.2)	0.2 (0.070–0.400)	78 (27–154)	0.16 (0.140–0.190)	64 (56–72)
	1995	< 1	<0.01 (<0.01–<0.01)	3 (2.9–3.2)	0.21 (0.064–0.440)	71 (22–150)	0.18 (0.160–0.210)	63 (55–71)
	2000	< 1	0.014 (0.014–0.015)	4.3 (4.2–4.5)	0.55 (0.270–0.930)	165 (81–280)	0.35 (0.310–0.400)	106 (93–120)
	2005	< 1	0.011 (0.010–0.011)	2.9 (2.8–3.0)	0.23 (0.080–0.470)	64 (22–128)	0.19 (0.160–0.210)	51 (45–58)
	2010	< 1	0.012 (0.012–0.013)	3 (2.9–3.2)	0.4 (0.180–0.700)	99 (45–174)	0.27 (0.240–0.310)	68 (60–77)
	2011	< 1	0.012 (0.012–0.013)	3 (2.9–3.2)	0.36 (0.140–0.660)	87 (36–162)	0.26 (0.230–0.300)	65 (57–74)
	2012	< 1	0.013 (0.012–0.013)	3 (2.9–3.2)	0.37 (0.140–0.700)	90 (35–169)	0.28 (0.240–0.320)	68 (59–77)
Cambodia	1990	9	14 (4.9–28)	157 (54–314)	150 (96–220)	1 670 (1 060–2 410)	53 (38–69)	580 (423–761)
	1995	11	15 (5.3–29)	139 (49–274)	180 (130–230)	1 670 (1 220–2 180)	62 (48–78)	578 (448–724)
	2000	12	16 (5.7–31)	128 (47–251)	200 (160–240)	1 620 (1 310–1 960)	71 (56–87)	577 (458–710)
	2005	13	13 (5.1–23)	94 (38–175)	160 (140–190)	1 230 (1 020–1 460)	68 (57–81)	510 (424–604)
	2010	14	9.8 (4.5–17)	68 (31–120)	130 (110–150)	875 (737–1 020)	63 (54–72)	437 (376–503)
	2011	15	9.5 (4.4–17)	65 (30–114)	120 (100–140)	817 (690–954)	62 (53–71)	424 (364–489)
	2012	15	9.3 (4.3–16)	63 (29–110)	110 (96–130)	764 (645–892)	61 (52–70)	411 (353–474)
China	1990	1 165	220 (190–240)	19 (17–21)	2 500 (2 300–2 700)	215 (201–230)	1 800 (1 400–2 200)	153 (121–189)
	1995	1 238	170 (140–200)	13 (11–16)	2 400 (2 200–2 700)	195 (176–216)	1 600 (1 300–1 900)	129 (106–154)
	2000	1 280	110 (84–140)	8.7 (6.5–11)	2 200 (1 900–2 500)	170 (146–196)	1 400 (1 200–1 600)	109 (92–126)
	2005	1 318	75 (72–77)	5.7 (5.5–5.9)	1 800 (1 600–2 100)	140 (121–160)	1 200 (1 100–1 400)	92 (80–105)
	2010	1 360	52 (50–53)	3.8 (3.7–3.9)	1 500 (1 300–1 700)	108 (94–123)	1 100 (930–1 200)	78 (68–88)
	2011	1 368	48 (46–50)	3.5 (3.4–3.6)	1 400 (1 200–1 600)	104 (91–119)	1 000 (900–1 200)	75 (66–85)
	2012	1 377	44 (43–46)	3.2 (3.1–3.3)	1 400 (1 200–1 600)	99 (86–113)	1 000 (880–1 100)	73 (64–82)
China, Hong Kong SAR	1990	6	0.37 (0.360–0.370)	6.3 (6.2–6.4)	9.8 (4.0–18)	169 (69–314)	7.5 (6.6–8.5)	129 (113–146)
	1995	6	0.38 (0.380–0.380)	6.2 (6.1–6.2)	8.7 (3.1–17)	142 (50–280)	7.1 (6.3–8.1)	116 (102–132)
	2000	7	0.27 (0.270–0.280)	4 (4.0–4.0)	8.2 (2.8–17)	120 (40–243)	6.9 (6.1–7.8)	101 (89–115)
	2005	7	0.24 (0.240–0.250)	3.5 (3.5–3.6)	9 (3.8–16)	130 (55–237)	6.5 (5.7–7.4)	94 (83–107)
	2010	7	0.19 (0.180–0.190)	2.6 (2.6–2.7)	7.7 (3.2–14)	110 (46–202)	5.7 (5.0–6.4)	81 (71–91)
	2011	7	0.19 (0.180–0.190)	2.6 (2.6–2.7)	7.3 (3.0–14)	103 (42–191)	5.4 (4.8–6.2)	77 (67–87)
	2012	7	0.19 (0.190–0.190)	2.6 (2.6–2.7)	7.7 (3.4–14)	108 (47–195)	5.5 (4.8–6.3)	77 (68–88)
China, Macao SAR	1990	< 1	0.036 (0.018–0.060)	10 (5.1–17)	0.6 (0.290–1.0)	167 (81–285)	0.39 (0.350–0.450)	110 (96–124)
	1995	< 1	0.022 (<0.01–0.050)	5.4 (1.3–12)	0.55 (0.180–1.1)	137 (45–278)	0.46 (0.410–0.520)	116 (102–131)
	2000	< 1	0.02 (<0.01–0.052)	4.6 (0.74–12)	0.65 (0.250–1.2)	151 (57–289)	0.52 (0.450–0.580)	120 (105–135)
	2005	< 1	0.015 (<0.01–0.051)	3.3 (0.16–11)	0.66 (0.300–1.2)	141 (64–249)	0.46 (0.400–0.520)	98 (86–111)
	2010	< 1	0.015 (<0.01–0.058)	2.8 (<0.1–11)	0.64 (0.280–1.1)	119 (52–214)	0.45 (0.400–0.510)	85 (74–96)
	2011	< 1	0.015 (<0.01–0.059)	2.8 (<0.1–11)	0.59 (0.240–1.1)	108 (44–200)	0.44 (0.380–0.490)	80 (70–91)
	2012	< 1	0.015 (<0.01–0.059)	2.8 (<0.1–11)	0.65 (0.280–1.2)	117 (50–211)	0.46 (0.410–0.530)	83 (73–94)
Cook Islands	1990	< 1	<0.01 (<0.01–<0.01)	0.79 (0.73–0.85)	<0.01 (<0.01–<0.01)	12 (3.4–25)	0 (0–0)	0 (0–0)
	1995	< 1	<0.01 (<0.01–<0.01)	1.1 (0.63–1.7)	<0.01 (<0.01–<0.01)	17 (5.0–35)	<0.01 (<0.01–<0.01)	13 (11–14)
	2000	< 1	<0.01 (<0.01–<0.01)	0.51 (0.26–0.84)	<0.01 (<0.01–<0.01)	7.6 (2.3–16)	<0.01 (<0.01–<0.01)	6.5 (5.7–7.3)
	2005	< 1	<0.01 (<0.01–<0.01)	0.62 (0.34–0.98)	<0.01 (<0.01–<0.01)	7.5 (2.9–14)	<0.01 (<0.01–<0.01)	5.9 (5.2–6.7)
	2010	< 1	<0.01 (<0.01–<0.01)	0.4 (0.34–0.46)	<0.01 (<0.01–<0.01)	6 (1.8–13)	0 (0–0)	0 (0–0)
	2011	< 1	<0.01 (0–<0.01)	0.53 (<0.1–1.9)	<0.01 (<0.01–<0.01)	7.4 (1.1–20)	<0.01 (<0.01–<0.01)	5.6 (4.9–6.4)
	2012	< 1	<0.01 (<0.01–<0.01)	0.6 (0.33–0.97)	<0.01 (<0.01–<0.01)	7.2 (2.9–14)	<0.01 (<0.01–<0.01)	5.6 (4.9–6.3)
Fiji	1990	< 1	0.051 (0.020–0.097)	7 (2.7–13)	1.8 (0.890–3.0)	244 (123–407)	0.81 (0.710–0.920)	112 (98–126)
	1995	< 1	0.039 (0.018–0.069)	5.1 (2.3–8.9)	1.3 (0.650–2.1)	165 (84–273)	0.6 (0.530–0.680)	77 (68–87)
	2000	< 1	0.03 (0.021–0.040)	3.7 (2.6–4.9)	0.91 (0.470–1.5)	112 (58–184)	0.44 (0.390–0.500)	54 (48–62)
	2005	< 1	0.022 (0.020–0.024)	2.7 (2.4–2.9)	0.66 (0.340–1.1)	80 (42–131)	0.33 (0.290–0.370)	40 (35–45)
	2010	< 1	0.016 (0.016–0.017)	1.9 (1.9–2.0)	0.39 (0.200–0.640)	45 (23–75)	0.24 (0.210–0.270)	28 (24–32)
	2011	< 1	0.015 (0.015–0.016)	1.8 (1.7–1.8)	0.32 (0.140–0.570)	37 (16–66)	0.23 (0.200–0.260)	26 (23–29)
	2012	< 1	0.015 (0.014–0.015)	1.7 (1.6–1.7)	0.26 (0.088–0.530)	30 (10–61)	0.21 (0.190–0.240)	24 (21–27)
French Polynesia	1990	< 1	<0.01 (<0.01–0.016)	1.9 (<0.1–7.8)	0.095 (0.042–0.170)	48 (21–85)	0.068 (0.059–0.077)	34 (30–39)
	1995	< 1	<0.01 (<0.01–0.015)	2.3 (0.19–6.8)	0.13 (0.048–0.240)	59 (22–113)	0.1 (0.088–0.110)	47 (41–53)
	2000	< 1	<0.01 (<0.01–<0.01)	1.2 (0.36–2.7)	0.083 (0.025–0.180)	35 (10–74)	0.071 (0.062–0.081)	30 (26–34)
	2005	< 1	<0.01 (<0.01–0.015)	1.6 (<0.1–6.1)	0.099 (0.043–0.180)	39 (17–70)	0.072 (0.063–0.082)	28 (25–32)
	2010	< 1	<0.01 (<0.01–<0.01)	0.78 (0.25–1.6)	0.059 (0.018–0.120)	22 (6.6–46)	0.047 (0.041–0.053)	18 (15–20)
	2011	< 1	<0.01 (<0.01–0.022)	1.7 (0–8.0)	0.11 (0.052–0.190)	41 (19–70)	0.074 (0.064–0.083)	27 (24–31)
	2012	< 1	<0.01 (<0.01–<0.01)	0.98 (0.12–2.7)	0.071 (0.026–0.140)	26 (9.4–51)	0.058 (0.050–0.065)	21 (18–24)
Guam	1990	< 1	<0.01 (<0.01–0.012)	2.7 (<0.1–9.5)	0.088 (0.037–0.160)	67 (28–124)	0.066 (0.058–0.075)	50 (44–57)
	1995	< 1	<0.01 (<0.01–0.023)	3.9 (<0.1–16)	0.14 (0.062–0.250)	96 (43–170)	0.099 (0.087–0.110)	68 (60–77)
	2000	< 1	<0.01 (<0.01–<0.01)	1.9 (0.22–5.3)	0.077 (0.028–0.150)	49 (18–96)	0.062 (0.054–0.070)	40 (35–45)
	2005	< 1	<0.01 (<0.01–0.022)	2.9 (0–14)	0.12 (0.059–0.200)	74 (37–124)	0.072 (0.063–0.082)	46 (40–52)
	2010	< 1	<0.01 (<0.01–0.036)	4.6 (<0.1–23)	0.19 (0.095–0.310)	118 (59–196)	0.12 (0.100–0.130)	73 (64–82)
	2011	< 1	<0.01 (<0.01–0.012)	2.7 (0.33–7.6)	0.13 (0.049–0.240)	78 (31–148)	0.094 (0.083–0.110)	59 (51–66)
	2012	< 1	<0.01 (<0.01–<0.01)	2.2 (0.68–4.5)	0.11 (0.036–0.220)	66 (22–134)	0.078 (0.069–0.089)	48 (42–54)
Japan	1990	122	3.8 (3.7–3.9)	3.1 (3.0–3.2)	83 (35–150)	68 (29–123)	60 (52–67)	49 (43–55)
	1995	124	3.3 (3.2–3.3)	2.6 (2.6–2.7)	66 (26–120)	53 (21–99)	50 (43–56)	40 (35–45)
	2000	126	2.8 (2.7–2.8)	2.2 (2.2–2.2)	64 (28–110)	51 (23–91)	45 (40–51)	36 (32–41)
	2005	127	2.3 (2.3–2.4)	1.8 (1.8–1.9)	43 (18–79)	34 (14–62)	31 (27–35)	25 (22–28)
	2010	127	2.2 (2.1–2.3)	1.7 (1.7–1.8)	37 (16–66)	29 (12–52)	26 (23–30)	20 (18–23)
	2011	127	2.3 (2.2–2.3)	1.8 (1.7–1.8)	35 (15–64)	28 (12–50)	25 (22–29)	20 (18–23)
	2012	127	2.1 (2.0–2.2)	1.7 (1.6–1.7)	33 (13–61)	26 (11–48)	24 (21–28)	19 (17–22)
Kiribati	1990	< 1	0.039 (0.029–0.051)	55 (41–72)	0.18 (0.080–0.310)	249 (113–437)	0.083 (0.066–0.100)	116 (93–143)
	1995	< 1	0.044 (0.031–0.058)	57 (41–76)	0.59 (0.260–1.0)	770 (347–1 360)	0.39 (0.310–0.460)	505 (410–609)
	2000	< 1	0.013 (<0.01–0.016)	15 (11–20)	0.4 (0.140–0.790)	487 (174–957)	0.31 (0.250–0.380)	372 (296–456)
	2005	< 1	0.015 (0.015–0.016)	17 (16–17)	0.68 (0.300–1.2)	747 (335–1 320)	0.44 (0.360–0.530)	488 (396–588)
	2010	< 1	0.016 (<0.01–0.025)	17 (9.5–26)	0.47 (0.160–0.930)	477 (166–949)	0.36 (0.290–0.430)	366 (298–441)
	2011	< 1	0.017 (<0.01–0.026)	17 (9.5–26)	0.66 (0.300–1.2)	664 (298–1 170)	0.43 (0.350–0.520)	432 (351–521)
	2012	< 1	0.017 (<0.01–0.026)	17 (9.5–26)	0.63 (0.270–1.1)	628 (270–1 130)	0.43 (0.350–0.520)	429 (349–517)
Lao People's Democratic Republic	1990	4	1.7 (1.1–2.6)	41 (25–60)	63 (32–110)	1 490 (746–2 490)	21 (13–31)	492 (304–725)
	1995	5	1.4 (0.860–2.0)	29 (18–42)	60 (32–95)	1 220 (664–1 950)	20 (12–29)	403 (249–593)
	2000	5	1.1 (0.700–1.7)	21 (13–31)	52 (30–79)	961 (557–1 470)	18 (11–26)	330 (204–486)
	2005	6	0.91 (0.560–1.3)	16 (9.7–23)	43 (26–63)	737 (453–1 090)	16 (9.7–23)	270 (167–398)
	2010	6	0.76 (0.470–1.1)	12 (7.3–17)	36 (23–52)	565 (366–807)	14 (8.8–21)	221 (137–326)
	2011	7	0.73 (0.450–1.1)	11 (6.9–17)	35 (23–50)	540 (353–767)	14 (8.6–20)	213 (131–313)
	2012	7	0.72 (0.430–1.1)	11 (6.5–16)	34 (22–48)	514 (335–729)	14 (8.4–20)	204 (126–301)
Malaysia	1990	18	1.2 (0.370–2.5)	6.6 (2.0–14)	44 (23–71)	242 (128–392)	23 (21–26)	127 (113–142)
	1995	21	1.4 (0.480–2.7)	6.6 (2.3–13)	39 (21–63)	189 (102–303)	22 (20–25)	108 (97–120)
	2000	23	1.6 (0.710–2.9)	6.9 (3.0–12)	35 (18–56)	148 (79–239)	22 (20–24)	95 (86–103)
	2005	26	1.5 (0.810–2.4)	5.8 (3.2–9.1)	33 (18–54)	129 (68–210)	22 (20–24)	86 (79–94)
	2010	28	1.5 (1.0–2.2)	5.4 (3.6–7.6)	32 (15–54)	112 (54–190)	23 (21–25)	82 (75–89)
	2011	29	1.6 (1.1–2.1)	5.4 (3.8–7.3)	31 (14–54)	107 (49–186)	23 (21–25)	81 (74–88)
	2012	29	1.6 (1.2–2.1)	5.4 (4.1–7.0)	29 (13–53)	101 (43–183)	24 (22–26)	80 (74–87)
Marshall Islands	1990	< 1	0.013 (<0.01–0.062)	28 (<0.1–130)	0.12 (<0.01–0.470)	251 (3.3–1 000)	0.065 (<0.01–0.190)	137 (14–396)
	1995	< 1	0.018 (<0.01–0.069)	35 (0.72–134)	0.17 (<0.01–0.550)	332 (19–1 080)	0.097 (0.024–0.220)	190 (46–432)
	2000	< 1	0.033 (<0.01–0.070)	62 (18–135)	0.28 (0.099–0.540)	532 (190–1 040)	0.14 (0.084–0.200)	263 (161–389)
	2005	< 1	0.033 (<0.01–0.130)	64 (1.3–245)	0.34 (0.027–1.0)	651 (53–1 980)	0.19 (0.050–0.420)	363 (96–803)
	2010	< 1	0.047 (<0.01–0.200)	89 (0.54–385)	0.47 (0.019–1.6)	903 (36–3 100)	0.26 (0.051–0.650)	502 (97–1 230)
	2011	< 1	0.051 (<0.01–0.220)	98 (0.78–414)	0.51 (0.022–1.7)	973 (43–3 290)	0.28 (0.054–0.690)	536 (103–1 320)
	2012	< 1	0.058 (<0.01–0.240)	111 (1.4–448)	0.57 (0.028–1.9)	1 080 (54–3 560)	0.3 (0.058–0.740)	572 (110–1 400)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Micronesia (Federated States of)	1990	< 1	0.035 (0–0.220)	36 (0–227)	0.45 (<0.01–1.9)	464 (2.8–2 010)	0.36 (0.100–0.800)	379 (104–827)
	1995	< 1	0.077 (0.019–0.180)	72 (18–163)	0.68 (0.220–1.4)	629 (203–1 290)	0.35 (0.200–0.540)	325 (185–505)
	2000	< 1	0.07 (0.024–0.140)	65 (22–130)	0.6 (0.250–1.1)	560 (237–1 020)	0.3 (0.210–0.400)	279 (200–371)
	2005	< 1	0.053 (0.016–0.110)	50 (15–104)	0.47 (0.180–0.900)	446 (172–848)	0.25 (0.170–0.360)	240 (158–338)
	2010	< 1	0.032 (<0.01–0.100)	31 (1.8–100)	0.33 (0.045–0.870)	314 (44–844)	0.21 (0.092–0.380)	206 (89–371)
	2011	< 1	0.028 (<0.01–0.098)	27 (1.1–95)	0.32 (0.046–0.870)	313 (44–837)	0.21 (0.089–0.370)	200 (86–360)
	2012	< 1	0.025 (<0.01–0.093)	24 (0.62–90)	0.28 (0.028–0.810)	270 (27–782)	0.2 (0.086–0.360)	194 (83–349)
Mongolia	1990	2	0.52 (0.400–0.650)	24 (18–30)	20 (9.3–36)	938 (425–1 650)	8.8 (7.5–10)	405 (345–470)
	1995	2	0.42 (0.300–0.560)	18 (13–24)	14 (7.1–24)	625 (308–1 050)	7.2 (6.3–8.2)	314 (274–356)
	2000	2	0.32 (0.190–0.470)	13 (8.1–20)	10 (5.3–17)	431 (221–710)	6.1 (5.5–6.7)	254 (228–281)
	2005	3	0.24 (0.120–0.400)	9.4 (4.6–16)	8.5 (4.1–14)	335 (162–569)	5.7 (5.2–6.1)	225 (207–243)
	2010	3	0.2 (0.079–0.390)	7.5 (2.9–14)	9.6 (4.9–16)	353 (181–580)	6.1 (5.7–6.5)	224 (209–240)
	2011	3	0.2 (0.077–0.390)	7.4 (2.8–14)	10 (5.3–16)	364 (191–591)	6.1 (5.7–6.6)	223 (208–239)
	2012	3	0.2 (0.075–0.390)	7.2 (2.7–14)	11 (5.7–17)	380 (204–608)	6.2 (5.8–6.7)	223 (208–239)
Nauru	1990	< 1	<0.01 (<0.01–<0.01)	9.1 (5.0–14)	0.01 (<0.01–0.019)	111 (43–213)	<0.01 (<0.01–<0.01)	88 (77–99)
	1995	< 1	<0.01 (<0.01–<0.01)	4.7 (2.5–7.5)	<0.01 (<0.01–<0.01)	54 (22–99)	<0.01 (<0.01–<0.01)	40 (35–46)
	2000	< 1	<0.01 (<0.01–<0.01)	7.2 (3.5–12)	<0.01 (<0.01–0.012)	72 (35–122)	<0.01 (<0.01–<0.01)	46 (40–52)
	2005	< 1	<0.01 (<0.01–<0.01)	23 (10–41)	0.022 (0.011–0.036)	216 (109–359)	0.013 (0.011–0.014)	125 (110–142)
	2010	< 1	<0.01 (<0.01–<0.01)	3.7 (2.3–5.4)	<0.01 (<0.01–0.012)	55 (17–116)	<0.01 (<0.01–<0.01)	34 (30–39)
	2011	< 1	<0.01 (<0.01–<0.01)	8.1 (4.1–14)	<0.01 (<0.01–0.015)	86 (41–147)	<0.01 (<0.01–<0.01)	57 (50–65)
	2012	< 1	<0.01 (<0.01–<0.01)	9.5 (4.4–17)	<0.01 (<0.01–0.015)	91 (46–151)	<0.01 (<0.01–<0.01)	54 (47–61)
New Caledonia	1990	< 1	<0.01 (<0.01–0.024)	4.7 (0.40–14)	0.21 (0.079–0.400)	123 (47–236)	0.16 (0.140–0.190)	98 (85–110)
	1995	< 1	<0.01 (<0.01–<0.01)	2.1 (0.56–4.6)	0.11 (0.033–0.240)	59 (18–125)	0.1 (0.088–0.110)	53 (46–60)
	2000	< 1	<0.01 (<0.01–0.034)	3.3 (0–16)	0.17 (0.080–0.280)	79 (38–134)	0.11 (0.095–0.120)	51 (45–58)
	2005	< 1	<0.01 (<0.01–<0.01)	1.1 (0.13–3.1)	0.067 (0.024–0.130)	29 (11–57)	0.054 (0.047–0.061)	24 (21–27)
	2010	< 1	<0.01 (<0.01–0.011)	1.2 (<0.1–4.5)	0.076 (0.032–0.140)	31 (13–56)	0.056 (0.049–0.064)	23 (20–26)
	2011	< 1	<0.01 (<0.01–0.014)	1.3 (<0.1–5.5)	0.084 (0.037–0.150)	33 (15–60)	0.06 (0.052–0.068)	24 (21–27)
	2012	< 1	<0.01 (<0.01–<0.01)	0.74 (0.23–1.6)	0.053 (0.016–0.110)	21 (6.2–44)	0.044 (0.038–0.049)	17 (15–20)
New Zealand	1990	3	0.019 (0.018–0.019)	0.55 (0.54–0.55)	0.58 (0.270–1.0)	17 (7.9–30)	0.4 (0.350–0.450)	12 (10–13)
	1995	4	0.021 (0.021–0.021)	0.58 (0.57–0.58)	0.67 (0.320–1.2)	18 (8.7–31)	0.45 (0.390–0.510)	12 (11–14)
	2000	4	0.012 (0.012–0.012)	0.32 (0.31–0.32)	0.49 (0.170–0.980)	13 (4.5–25)	0.4 (0.350–0.450)	10 (9.0–12)
	2005	4	<0.01 (<0.01–<0.01)	0.15 (0.15–0.15)	0.51 (0.200–0.950)	12 (4.9–23)	0.38 (0.330–0.430)	9.2 (8.1–10)
	2010	4	<0.01 (<0.01–<0.01)	0.12 (0.12–0.12)	0.48 (0.210–0.870)	11 (4.8–20)	0.35 (0.300–0.390)	7.9 (6.9–9.0)
	2011	4	<0.01 (<0.01–<0.01)	0.1 (0.10–0.10)	0.5 (0.220–0.880)	11 (5.1–20)	0.35 (0.310–0.400)	7.9 (7.0–9.0)
	2012	4	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	0.47 (0.200–0.840)	10 (4.5–19)	0.34 (0.300–0.380)	7.6 (6.6–8.6)
Niue	1990	< 1	<0.01 (<0.01–<0.01)	2.9 (2.8–3.0)	<0.01 (<0.01–<0.01)	43 (13–91)	0 (0–0)	0 (0–0)
	1995	< 1	<0.01 (<0.01–<0.01)	3 (3.0–3.1)	<0.01 (<0.01–<0.01)	45 (13–96)	0 (0–0)	0 (0–0)
	2000	< 1	<0.01 (<0.01–<0.01)	3.1 (3.1–3.2)	<0.01 (<0.01–<0.01)	47 (14–99)	0 (0–0)	0 (0–0)
	2005	< 1	<0.01 (<0.01–<0.01)	1.7 (1.7–1.8)	<0.01 (<0.01–<0.01)	26 (7.6–54)	0 (0–0)	0 (0–0)
	2010	< 1	<0.01 (<0.01–<0.01)	1.4 (1.3–1.4)	<0.01 (<0.01–<0.01)	20 (6.1–43)	0 (0–0)	0 (0–0)
	2011	< 1	<0.01 (<0.01–<0.01)	19 (4.7–42)	<0.01 (<0.01–<0.01)	170 (59–341)	<0.01 (<0.01–<0.01)	81 (71–91)
	2012	< 1	<0.01 (<0.01–<0.01)	3.1 (1.7–4.9)	<0.01 (<0.01–<0.01)	46 (14–97)	<0.01 (<0.01–<0.01)	37 (32–42)
Northern Mariana Islands	1990	< 1	<0.01 (<0.01–<0.01)	3.1 (0.91–6.5)	0.038 (0.011–0.081)	86 (26–183)	0.032 (0.028–0.036)	73 (64–83)
	1995	< 1	<0.01 (<0.01–<0.01)	4.4 (1.5–8.8)	0.071 (0.021–0.150)	123 (36–261)	0.055 (0.048–0.062)	96 (84–109)
	2000	< 1	<0.01 (<0.01–0.018)	6.9 (0.13–26)	0.12 (0.050–0.210)	172 (74–312)	0.086 (0.076–0.098)	126 (110–143)
	2005	< 1	<0.01 (<0.01–0.019)	6.3 (<0.1–30)	0.1 (0.052–0.180)	163 (81–273)	0.066 (0.057–0.074)	102 (89–115)
	2010	< 1	<0.01 (<0.01–<0.01)	3.2 (0.37–8.9)	0.049 (0.019–0.093)	91 (35–172)	0.037 (0.032–0.042)	68 (60–77)
	2011	< 1	<0.01 (<0.01–<0.01)	3.6 (0.15–13)	0.054 (0.023–0.097)	101 (43–182)	0.038 (0.033–0.043)	71 (62–81)
	2012	< 1	<0.01 (<0.01–<0.01)	3.5 (0.17–12)	0.052 (0.022–0.094)	97 (42–175)	0.037 (0.032–0.042)	69 (60–78)
Palau	1990	< 1	<0.01 (<0.01–<0.01)	3.4 (1.0–7.1)	<0.01 (<0.01–0.017)	50 (12–112)	<0.01 (<0.01–<0.01)	45 (36–54)
	1995	< 1	<0.01 (<0.01–<0.01)	17 (7.3–31)	0.034 (0.013–0.065)	197 (76–376)	0.025 (0.021–0.031)	147 (119–178)
	2000	< 1	<0.01 (<0.01–<0.01)	26 (11–48)	0.049 (0.023–0.085)	256 (119–444)	0.03 (0.024–0.036)	156 (127–189)
	2005	< 1	<0.01 (<0.01–<0.01)	10 (3.8–20)	0.022 (<0.01–0.039)	110 (48–198)	0.013 (0.011–0.016)	67 (54–81)
	2010	< 1	<0.01 (<0.01–<0.01)	23 (9.0–43)	0.045 (0.022–0.076)	221 (108–372)	0.024 (0.019–0.029)	116 (94–140)
	2011	< 1	<0.01 (<0.01–<0.01)	8.8 (3.8–16)	0.021 (<0.01–0.039)	100 (40–187)	0.015 (0.012–0.018)	73 (59–88)
	2012	< 1	<0.01 (<0.01–<0.01)	4.4 (2.9–6.2)	0.014 (<0.01–0.029)	65 (19–138)	<0.01 (<0.01–<0.01)	24 (20–29)
Papua New Guinea	1990	4	3.4 (1.2–6.9)	82 (28–165)	30 (12–55)	715 (289–1 330)	13 (8.5–18)	308 (203–435)
	1995	5	3 (1.0–5.9)	63 (22–125)	29 (12–54)	620 (250–1 160)	15 (10–21)	322 (212–453)
	2000	5	2.8 (0.910–5.8)	52 (17–107)	32 (12–61)	586 (219–1 130)	19 (12–26)	349 (230–492)
	2005	6	3.4 (1.1–6.9)	55 (18–112)	37 (14–71)	607 (230–1 160)	22 (14–31)	358 (236–505)
	2010	7	3.7 (1.2–7.5)	54 (18–110)	39 (14–76)	568 (208–1 100)	24 (16–34)	348 (229–491)
	2011	7	3.7 (1.2–7.6)	53 (17–109)	38 (14–76)	549 (194–1 080)	24 (16–34)	346 (228–488)
	2012	7	3.9 (1.3–7.8)	54 (18–109)	39 (13–77)	541 (187–1 080)	25 (16–35)	348 (230–490)
Philippines	1990	62	34 (26–44)	55 (42–70)	620 (480–790)	1 000 (768–1 270)	240 (150–360)	393 (243–580)
	1995	70	35 (30–40)	50 (43–58)	630 (480–800)	904 (692–1 140)	250 (200–300)	360 (294–432)
	2000	78	31 (29–34)	40 (38–43)	600 (480–740)	775 (616–953)	260 (210–310)	329 (269–395)
	2005	86	30 (28–32)	35 (32–37)	540 (470–630)	633 (544–729)	260 (210–310)	301 (246–361)
	2010	93	25 (24–27)	27 (25–29)	470 (410–530)	502 (441–566)	260 (210–310)	275 (227–328)
	2011	95	24 (23–26)	26 (24–28)	460 (400–520)	484 (425–546)	260 (210–310)	270 (223–322)
	2012	97	23 (22–25)	24 (22–26)	450 (390–500)	461 (405–520)	260 (210–310)	265 (219–316)
Republic of Korea	1990	43	3.7 (0.170–13)	8.7 (0.40–29)	96 (78–110)	223 (182–267)	73 (64–83)	171 (150–194)
	1995	45	2.7 (0.044–10)	5.9 (0.10–23)	90 (74–110)	202 (166–243)	48 (42–55)	108 (95–123)
	2000	46	1.2 (0.460–2.4)	2.7 (1.0–5.2)	85 (69–100)	184 (150–221)	25 (22–28)	54 (48–62)
	2005	47	2.7 (0.040–11)	5.8 (<0.1–23)	79 (64–94)	167 (136–201)	49 (43–56)	105 (92–119)
	2010	48	2.5 (0.190–7.5)	5.1 (0.40–16)	73 (60–88)	152 (124–182)	51 (44–57)	105 (92–118)
	2011	49	2.7 (0.120–9.1)	5.6 (0.25–19)	72 (59–87)	149 (121–179)	53 (47–60)	109 (96–124)
	2012	49	2.6 (0.160–8.5)	5.4 (0.32–17)	71 (58–86)	146 (119–175)	53 (46–60)	108 (95–122)
Samoa	1990	< 1	<0.01 (<0.01–0.015)	5 (2.1–9.0)	0.086 (0.037–0.160)	53 (23–96)	0.059 (0.047–0.071)	36 (29–44)
	1995	< 1	<0.01 (<0.01–0.013)	4.2 (1.6–7.9)	0.075 (0.030–0.140)	44 (18–81)	0.051 (0.039–0.063)	30 (23–37)
	2000	< 1	<0.01 (<0.01–0.011)	3.1 (1.1–6.3)	0.059 (0.022–0.110)	34 (12–65)	0.041 (0.030–0.053)	23 (17–30)
	2005	< 1	<0.01 (<0.01–<0.01)	2.3 (0.98–4.1)	0.045 (0.018–0.083)	25 (10–46)	0.032 (0.026–0.039)	18 (14–22)
	2010	< 1	<0.01 (<0.01–0.010)	3 (1.2–5.6)	0.053 (0.025–0.092)	29 (13–50)	0.031 (0.025–0.038)	17 (13–21)
	2011	< 1	<0.01 (<0.01–0.011)	3.1 (1.3–5.8)	0.055 (0.026–0.095)	29 (14–51)	0.032 (0.026–0.039)	17 (14–21)
	2012	< 1	<0.01 (<0.01–0.011)	3.2 (1.3–6.0)	0.057 (0.027–0.099)	30 (14–52)	0.033 (0.027–0.040)	18 (14–21)
Singapore	1990	3	0.12 (0.120–0.120)	4 (3.8–4.1)	2.5 (1.0–4.6)	82 (33–152)	1.8 (1.6–2.1)	61 (53–69)
	1995	3	0.13 (0.120–0.130)	3.6 (3.4–3.8)	2.9 (1.2–5.4)	84 (35–154)	2.2 (1.9–2.5)	62 (55–71)
	2000	4	0.12 (0.110–0.140)	3.2 (2.8–3.6)	2.7 (1.1–4.9)	68 (29–125)	2 (1.7–2.2)	51 (44–57)
	2005	4	0.082 (0.071–0.094)	1.8 (1.6–2.1)	2.1 (0.890–3.9)	47 (20–86)	1.6 (1.4–1.8)	35 (31–40)
	2010	5	0.097 (0.082–0.110)	1.9 (1.6–2.2)	2.3 (0.850–4.4)	45 (17–86)	1.8 (1.6–2.0)	35 (31–40)
	2011	5	0.087 (0.073–0.100)	1.7 (1.4–1.9)	2.3 (0.770–4.6)	44 (15–88)	1.9 (1.7–2.1)	36 (32–41)
	2012	5	0.089 (0.075–0.110)	1.7 (1.4–2.0)	3.9 (1.9–6.6)	73 (35–125)	2.6 (2.3–3.0)	50 (44–56)
Solomon Islands	1990	< 1	0.22 (0.063–0.480)	71 (20–154)	1.9 (0.690–3.8)	619 (222–1 210)	0.97 (0.600–1.4)	312 (193–460)
	1995	< 1	0.2 (0.077–0.370)	54 (21–103)	1.7 (0.810–2.9)	473 (225–810)	0.86 (0.710–1.0)	240 (196–288)
	2000	< 1	0.17 (0.068–0.330)	42 (16–79)	1.5 (0.710–2.6)	364 (173–624)	0.76 (0.620–0.910)	185 (151–222)
	2005	< 1	0.13 (0.053–0.240)	27 (11–50)	1.2 (0.560–2.0)	251 (120–429)	0.67 (0.540–0.800)	142 (116–171)
	2010	< 1	0.09 (0.039–0.160)	17 (7.5–30)	0.9 (0.420–1.6)	171 (79–297)	0.57 (0.470–0.680)	108 (89–129)
	2011	< 1	0.085 (0.038–0.150)	16 (7.0–28)	0.86 (0.400–1.5)	160 (74–279)	0.55 (0.460–0.660)	103 (85–123)
	2012	< 1	0.082 (0.036–0.150)	15 (6.6–27)	0.83 (0.380–1.5)	151 (70–264)	0.54 (0.440–0.640)	97 (80–116)
Tokelau	1990	< 1	<0.01 (<0.01–<0.01)	6.4 (2.0–13)	<0.01 (<0.01–<0.01)	85 (24–185)	<0.01 (<0.01–<0.01)	72 (57–90)
	1995	< 1	<0.01 (0–<0.01)	4.9 (<0.1–22)	<0.01 (<0.01–<0.01)	54 (2.4–185)	<0.01 (<0.01–<0.01)	39 (13–80)
	2000	< 1	<0.01 (<0.01–<0.01)	4.1 (0.57–11)	<0.01 (<0.01–<0.01)	32 (5.3–82)	<0.01 (<0.01–<0.01)	13 (3.5–28)
	2005	< 1	0 (0–0)	<0.1 (0–0.10)	0 (0–<0.01)	0.26 (<0.1–0.54)	0 (0–0)	0 (0–0)
	2010	< 1	0 (0–0)	0 (0–<0.1)			0 (0–0)	0 (0–0)
	2011	< 1	0 (0–0)	0 (0–<0.1)			0 (0–0)	0 (0–0)
	2012	< 1	0 (0–0)	0 (0–<0.1)			0 (0–0)	0 (0–0)
Tonga	1990	< 1	<0.01 (<0.01–0.010)	5.9 (2.7–10)	0.056 (0.027–0.097)	59 (28–102)	0.036 (0.030–0.042)	38 (32–45)
	1995	< 1	<0.01 (<0.01–<0.01)	4.2 (2.0–7.3)	0.045 (0.019–0.081)	46 (20–84)	0.032 (0.027–0.037)	33 (28–39)
	2000	< 1	<0.01 (<0.01–<0.01)	3.6 (1.4–6.8)	0.038 (0.015–0.073)	39 (15–74)	0.027 (0.021–0.034)	28 (22–35)
	2005	< 1	<0.01 (<0.01–<0.01)	3 (1.3–5.5)	0.033 (0.013–0.060)	32 (13–60)	0.023 (0.018–0.028)	22 (18–27)
	2010	< 1	<0.01 (<0.01–<0.01)	2.6 (1.0–5.0)	0.029 (0.013–0.052)	28 (13–50)	0.017 (0.015–0.020)	17 (14–20)
	2011	< 1	<0.01 (<0.01–<0.01)	2.6 (1.0–4.9)	0.028 (0.013–0.049)	27 (12–47)	0.016 (0.014–0.019)	16 (13–18)
	2012	< 1	<0.01 (<0.01–<0.01)	2.5 (1.1–4.6)	0.027 (0.014–0.045)	26 (13–43)	0.015 (0.013–0.018)	14 (12–17)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2012**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV) NUMBER (THOUSANDS)	MORTALITY (EXCLUDING HIV) RATE[a]	PREVALENCE (INCLUDING HIV) NUMBER (THOUSANDS)	PREVALENCE (INCLUDING HIV) RATE[a]	INCIDENCE (INCLUDING HIV) NUMBER (THOUSANDS)	INCIDENCE (INCLUDING HIV) RATE[a]
Tuvalu	1990	< 1	<0.01 (<0.01–0.019)	98 (27–212)	0.083 (0.029–0.160)	921 (327–1 820)	0.048 (0.031–0.069)	536 (347–766)
	1995	< 1	<0.01 (<0.01–0.021)	73 (5.1–227)	0.066 (<0.01–0.170)	711 (101–1 900)	0.04 (0.017–0.074)	437 (181–805)
	2000	< 1	<0.01 (<0.01–0.014)	68 (19–146)	0.059 (0.021–0.120)	626 (226–1 230)	0.034 (0.022–0.048)	357 (231–510)
	2005	< 1	<0.01 (<0.01–0.010)	50 (15–105)	0.047 (0.017–0.089)	480 (180–923)	0.028 (0.019–0.039)	291 (198–402)
	2010	< 1	<0.01 (<0.01–<0.01)	18 (7.3–33)	0.022 (<0.01–0.044)	222 (75–448)	0.018 (0.014–0.021)	178 (145–215)
	2011	< 1	<0.01 (<0.01–<0.01)	12 (3.8–24)	0.017 (<0.01–0.036)	176 (53–371)	0.015 (0.012–0.018)	152 (124–184)
	2012	< 1	<0.01 (<0.01–<0.01)	37 (16–68)	0.037 (0.017–0.065)	377 (172–658)	0.024 (0.019–0.029)	241 (196–290)
Vanuatu	1990	< 1	0.016 (<0.01–0.032)	11 (3.9–22)	0.22 (0.062–0.470)	148 (43–319)	0.19 (0.150–0.230)	127 (103–154)
	1995	< 1	0.011 (<0.01–0.019)	6.5 (2.9–11)	0.16 (0.049–0.340)	97 (29–204)	0.11 (0.085–0.130)	63 (51–76)
	2000	< 1	0.03 (0.013–0.054)	16 (6.9–29)	0.31 (0.140–0.550)	166 (74–295)	0.2 (0.160–0.250)	110 (89–132)
	2005	< 1	0.029 (0.012–0.052)	14 (5.9–25)	0.28 (0.130–0.490)	134 (63–232)	0.17 (0.140–0.210)	83 (68–99)
	2010	< 1	0.024 (0.011–0.043)	10 (4.5–18)	0.25 (0.110–0.440)	105 (47–185)	0.16 (0.130–0.200)	69 (57–83)
	2011	< 1	0.022 (<0.01–0.039)	9.1 (4.1–16)	0.24 (0.100–0.420)	97 (42–175)	0.16 (0.130–0.190)	67 (55–80)
	2012	< 1	0.02 (<0.01–0.035)	7.9 (3.6–14)	0.22 (0.090–0.410)	89 (36–165)	0.16 (0.130–0.190)	65 (53–77)
Viet Nam	1990	69	36 (21–55)	52 (30–79)	360 (150–670)	525 (212–976)	170 (120–240)	251 (172–344)
	1995	76	32 (20–47)	42 (26–61)	340 (150–610)	451 (198–805)	170 (120–220)	220 (155–295)
	2000	81	27 (18–38)	33 (22–47)	290 (130–510)	353 (156–629)	160 (120–210)	197 (142–260)
	2005	85	23 (16–31)	27 (19–37)	240 (110–440)	288 (125–517)	150 (110–190)	176 (131–229)
	2010	89	19 (13–26)	22 (15–29)	210 (87–390)	238 (97–440)	140 (100–180)	155 (115–201)
	2011	90	19 (13–25)	21 (14–28)	200 (82–380)	227 (91–424)	140 (100–180)	151 (112–197)
	2012	91	18 (12–25)	20 (13–27)	200 (78–370)	218 (86–410)	130 (99–170)	147 (109–192)
Wallis and Futuna Islands	1990	< 1	<0.01 (<0.01–<0.01)	17 (9.2–27)	0.028 (0.011–0.052)	201 (80–378)	0.022 (0.019–0.024)	156 (137–176)
	1995	< 1	<0.01 (<0.01–<0.01)	4.2 (2.3–6.6)	<0.01 (<0.01–0.019)	62 (19–132)	<0.01 (<0.01–<0.01)	49 (43–55)
	2000	< 1	<0.01 (<0.01–<0.01)	4.2 (3.6–4.9)	<0.01 (<0.01–0.019)	63 (19–132)	<0.01 (<0.01–<0.01)	15 (13–17)
	2005	< 1	<0.01 (<0.01–<0.01)	4.7 (2.6–7.5)	0.01 (<0.01–0.021)	70 (21–148)	<0.01 (<0.01–<0.01)	57 (50–64)
	2010	< 1	<0.01 (<0.01–<0.01)	2.8 (1.4–4.6)	<0.01 (<0.01–0.012)	42 (13–88)	<0.01 (<0.01–<0.01)	36 (31–41)
	2011	< 1	<0.01 (<0.01–<0.01)	2.6 (1.5–4.1)	<0.01 (<0.01–0.011)	41 (13–85)	<0.01 (<0.01–<0.01)	17 (15–19)
	2012	< 1	<0.01 (<0.01–<0.01)	13 (5.6–23)	0.016 (<0.01–0.026)	117 (59–193)	<0.01 (<0.01–<0.01)	65 (57–74)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE[b]		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
American Samoa	1990	< 1	0.012 (<0.01–0.015)	26 (21–31)			9	19	75 (62–93)
	1995	< 1	<0.01 (<0.01–<0.01)	12 (9.4–14)					
	2000	< 1	<0.01 (<0.01–<0.01)	6.9 (5.6–8.4)			3	5.2	75 (62–93)
	2005	< 1	<0.01 (<0.01–<0.01)	13 (10–15)			6	10	80 (66–99)
	2010	< 1	<0.01 (<0.01–<0.01)	7.8 (6.3–9.4)			4	7.2	92 (76–110)
	2011	< 1	<0.01 (<0.01–<0.01)	7.8 (6.3–9.4)			3	5.4	70 (58–86)
	2012	< 1	<0.01 (<0.01–<0.01)	7.3 (5.9–8.9)					
Australia	1990	17	1.2 (1.0–1.3)	6.8 (6.0–7.7)	0.028 (0.024–0.031)	0.2 (0.14–0.18)	1 016	5.9	87 (77–99)
	1995	18	1.2 (1.1–1.4)	6.8 (6.0–7.7)	0.047 (0.041–0.053)	0.3 (0.23–0.29)	1 073	5.9	87 (77–99)
	2000	19	1.2 (1.1–1.4)	6.2 (5.5–7.0)	0.029 (0.026–0.033)	0.2 (0.13–0.17)	1 043	5.4	87 (77–99)
	2005	21	1.2 (1.1–1.4)	5.9 (5.1–6.6)	0.028 (0.025–0.032)	0.1 (0.12–0.16)	1 046	5.1	87 (77–99)
	2010	22	1.4 (1.3–1.6)	6.5 (5.7–7.3)	0.036 (0.031–0.041)	0.2 (0.14–0.18)	1 257	5.6	87 (77–99)
	2011	23	1.4 (1.2–1.6)	6.3 (5.5–7.1)	0.036 (0.031–0.040)	0.2 (0.14–0.18)	1 239	5.4	87 (77–99)
	2012	23	1.5 (1.3–1.7)	6.5 (5.7–7.4)	0.038 (0.033–0.043)	0.2 (0.14–0.19)	1 305	5.7	87 (77–99)
Brunei Darussalam	1990	< 1	0.16 (0.140–0.190)	64 (56–72)			143	56	87 (77–99)
	1995	< 1	0.18 (0.160–0.210)	63 (55–71)					
	2000	< 1	0.35 (0.310–0.400)	106 (93–120)			307	93	87 (77–99)
	2005	< 1	0.19 (0.160–0.210)	51 (45–58)	<0.01 (<0.01–<0.01)	0.6 (<0.1–2.0)	163	44	87 (77–99)
	2010	< 1	0.27 (0.240–0.310)	68 (60–77)	<0.01 (0–<0.01)	0.3 (0–1.4)	237	59	87 (77–99)
	2011	< 1	0.26 (0.230–0.300)	65 (57–74)	<0.01 (<0.01–<0.01)	0.9 (0.12–2.3)	230	57	87 (77–99)
	2012	< 1	0.28 (0.240–0.320)	68 (59–77)	<0.01 (0–<0.01)	0.4 (0–2.1)	243	59	87 (77–99)
Cambodia	1990	9	53 (38–69)	580 (423–761)	0.99 (0.72–1.3)	11 (8.0–14)	6 501	72	12 (9.4–17)
	1995	11	62 (48–78)	578 (448–724)	5.1 (4.0–6.4)	48 (37–60)	14 603	136	23 (19–30)
	2000	12	71 (56–87)	577 (458–710)	7.9 (6.3–9.7)	65 (51–80)	18 891	155	27 (22–34)
	2005	13	68 (57–81)	510 (424–604)	5.8 (4.8–6.8)	43 (36–51)	35 535	266	52 (44–63)
	2010	14	63 (54–72)	437 (376–503)	3.1 (2.7–3.6)	22 (19–25)	40 460	282	64 (56–75)
	2011	15	62 (53–71)	424 (364–489)	3.1 (2.6–3.5)	21 (18–24)	38 555	264	62 (54–73)
	2012	15	61 (52–70)	411 (353–474)	2.7 (2.3–3.1)	18 (15–21)	40 185	270	66 (57–77)
China	1990	1 165	1 800 (1 400–2 200)	153 (121–189)	0.18 (0.14–0.22)	<0.1 (<0.1–<0.1)	375 481	32	21 (17–27)
	1995	1 238	1 600 (1 300–1 900)	129 (106–154)	1.4 (1.2–1.7)	0.1 (0.10–0.14)	515 764	42	32 (27–39)
	2000	1 280	1 400 (1 200–1 600)	109 (92–126)	4.2 (3.6–4.9)	0.3 (0.28–0.38)	454 372	35	33 (28–38)
	2005	1 318	1 200 (1 100–1 400)	92 (80–105)	6.3 (5.5–7.2)	0.5 (0.42–0.54)	899 729	68	74 (65–85)
	2010	1 360	1 100 (930–1 200)	78 (68–88)	7.6 (6.7–8.6)	0.6 (0.49–0.63)	908 399	67	86 (76–98)
	2011	1 368	1 000 (900–1 200)	75 (66–85)	7.6 (6.7–8.6)	0.6 (0.49–0.63)	899 669	66	88 (78–100)
	2012	1 377	1 000 (880–1 100)	73 (64–82)	7.3 (6.4–8.2)	0.5 (0.47–0.60)	890 645	65	89 (79–100)
China, Hong Kong SAR	1990	6	7.5 (6.6–8.5)	129 (113–146)			6 510	112	87 (77–99)
	1995	6	7.1 (6.3–8.1)	116 (102–132)			6 212	101	87 (77–99)
	2000	7	6.9 (6.1–7.8)	101 (89–115)			6 015	88	87 (77–99)
	2005	7	6.5 (5.7–7.4)	94 (83–107)	0.054 (0.036–0.075)	0.8 (0.53–1.1)	5 660	82	87 (77–99)
	2010	7	5.7 (5.0–6.4)	81 (71–91)	0.036 (0.022–0.053)	0.5 (0.31–0.75)	4 935	70	87 (77–99)
	2011	7	5.4 (4.8–6.2)	77 (67–87)	0.049 (0.033–0.069)	0.7 (0.46–0.97)	4 739	67	87 (77–99)
	2012	7	5.5 (4.8–6.3)	77 (68–88)	0.044 (0.026–0.067)	0.6 (0.37–0.94)	4 809	67	87 (77–99)
China, Macao SAR	1990	< 1	0.39 (0.350–0.450)	110 (96–124)			343	95	87 (77–99)
	1995	< 1	0.46 (0.410–0.520)	116 (102–131)			402	101	87 (77–99)
	2000	< 1	0.52 (0.450–0.580)	120 (105–135)			449	104	87 (77–99)
	2005	< 1	0.46 (0.400–0.520)	98 (86–111)	<0.01 (0–<0.01)	0.3 (0–1.3)	398	85	87 (77–99)
	2010	< 1	0.45 (0.400–0.510)	85 (74–96)	<0.01 (<0.01–<0.01)	0.6 (<0.1–1.7)	394	74	87 (77–99)
	2011	< 1	0.44 (0.380–0.490)	80 (70–91)	<0.01 (<0.01–<0.01)	0.5 (<0.1–1.5)	380	70	87 (77–99)
	2012	< 1	0.46 (0.410–0.530)	83 (73–94)	<0.01 (<0.01–<0.01)	0.4 (<0.1–1.5)	404	73	87 (77–99)
Cook Islands	1990	< 1	0 (0–0)	0 (0–0)			0	0	
	1995	< 1	<0.01 (<0.01–<0.01)	13 (11–14)			2	11	87 (77–99)
	2000	< 1	<0.01 (<0.01–<0.01)	6.5 (5.7–7.3)			1	5.6	87 (77–99)
	2005	< 1	<0.01 (<0.01–<0.01)	5.9 (5.2–6.7)			1	5.2	87 (77–99)
	2010	< 1	0 (0–0)	0 (0–0)			0	0	
	2011	< 1	<0.01 (<0.01–<0.01)	5.6 (4.9–6.4)			1	4.9	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	5.6 (4.9–6.3)			1	4.9	87 (77–99)
Fiji	1990	< 1	0.81 (0.710–0.920)	112 (98–126)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	226	31	28 (25–32)
	1995	< 1	0.6 (0.530–0.680)	77 (68–87)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	203	26	34 (30–39)
	2000	< 1	0.44 (0.390–0.500)	54 (48–62)	<0.01 (<0.01–<0.01)	0.2 (0.14–0.18)	144	18	33 (29–37)
	2005	< 1	0.33 (0.290–0.370)	40 (35–45)	<0.01 (<0.01–<0.01)	0.2 (0.21–0.27)	132	16	41 (36–46)
	2010	< 1	0.24 (0.210–0.270)	28 (24–32)	<0.01 (<0.01–<0.01)	0.2 (0.13–0.17)	189	22	79 (70–90)
	2011	< 1	0.23 (0.200–0.260)	26 (23–29)	<0.01 (<0.01–<0.01)	0.2 (0.13–0.17)	215	25	95 (84–110)
	2012	< 1	0.21 (0.190–0.240)	24 (21–27)	<0.01 (<0.01–<0.01)	0.2 (0.13–0.17)	210	24	99 (87–110)
French Polynesia	1990	< 1	0.068 (0.059–0.077)	34 (30–39)			59	30	87 (77–99)
	1995	< 1	0.1 (0.088–0.110)	47 (41–53)					
	2000	< 1	0.071 (0.062–0.081)	30 (26–34)			62	26	87 (77–99)
	2005	< 1	0.072 (0.063–0.082)	28 (25–32)			63	25	87 (77–99)
	2010	< 1	0.047 (0.041–0.053)	18 (15–20)			41	15	87 (77–99)
	2011	< 1	0.074 (0.064–0.083)	27 (24–31)			64	24	87 (77–99)
	2012	< 1	0.058 (0.050–0.065)	21 (18–24)			50	18	87 (77–99)
Guam	1990	< 1	0.066 (0.058–0.075)	50 (44–57)					
	1995	< 1	0.099 (0.087–0.110)	68 (60–77)					
	2000	< 1	0.062 (0.054–0.070)	40 (35–45)			54	35	87 (77–99)
	2005	< 1	0.072 (0.063–0.082)	46 (40–52)			63	40	87 (77–99)
	2010	< 1	0.12 (0.100–0.130)	73 (64–82)	<0.01 (0–<0.01)	1.2 (0–5.5)	101	63	87 (77–99)
	2011	< 1	0.094 (0.083–0.110)	59 (51–66)			82	51	87 (77–99)
	2012	< 1	0.078 (0.069–0.089)	48 (42–54)	<0.01 (0–<0.01)	0.3 (0–2.9)	68	42	87 (77–99)
Japan	1990	122	60 (52–67)	49 (43–55)	0.24 (0.21–0.28)	0.2 (0.18–0.23)	51 821	42	87 (77–99)
	1995	124	50 (43–56)	40 (35–45)	0.22 (0.20–0.25)	0.2 (0.16–0.20)	43 078	35	87 (77–99)
	2000	126	45 (40–51)	36 (32–41)	0.15 (0.13–0.17)	0.1 (0.11–0.14)	39 384	31	87 (77–99)
	2005	127	31 (27–35)	25 (22–28)	0.13 (0.11–0.15)	0.1 (<0.1–0.11)	27 194	21	87 (77–99)
	2010	127	26 (23–30)	20 (18–23)	0.1 (0.091–0.12)	<0.1 (<0.1–<0.1)	22 693	18	87 (77–99)
	2011	127	25 (22–29)	20 (18–23)	0.1 (0.089–0.12)	<0.1 (<0.1–<0.1)	22 119	17	87 (77–99)
	2012	127	24 (21–28)	19 (17–22)	0.098 (0.085–0.11)	<0.1 (<0.1–<0.1)	20 857	16	86 (76–98)
Kiribati	1990	< 1	0.083 (0.066–0.100)	116 (93–143)			68	96	82 (67–100)
	1995	< 1	0.39 (0.310–0.460)	505 (410–609)					
	2000	< 1	0.31 (0.250–0.380)	372 (296–456)			252	304	82 (67–100)
	2005	< 1	0.44 (0.360–0.530)	488 (396–588)			332	367	75 (62–93)
	2010	< 1	0.36 (0.290–0.430)	366 (298–441)	<0.01 (<0.01–<0.01)	2.5 (1.7–3.4)	286	293	80 (66–98)
	2011	< 1	0.43 (0.350–0.520)	432 (351–521)			343	346	80 (66–98)
	2012	< 1	0.43 (0.350–0.520)	429 (349–517)			346	343	80 (66–98)
Lao People's Democratic Republic	1990	4	21 (13–31)	492 (304–725)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.15)	1 826	43	8.7 (5.9–14)
	1995	5	20 (12–29)	403 (249–593)	0.026 (0.015–0.039)	0.5 (0.30–0.81)	830	17	4.2 (2.9–6.8)
	2000	5	18 (11–26)	330 (204–486)	0.092 (0.051–0.15)	1.7 (0.95–2.7)	2 227	41	13 (8.5–20)
	2005	6	16 (9.7–23)	270 (167–398)	0.17 (0.093–0.28)	3 (1.6–4.8)	3 766	65	24 (16–39)
	2010	6	14 (8.8–21)	221 (137–326)	0.23 (0.12–0.37)	3.6 (1.9–5.8)	4 061	63	29 (19–46)
	2011	7	14 (8.6–20)	213 (131–313)	0.24 (0.13–0.39)	3.7 (2.0–6.0)	4 360	67	31 (21–51)
	2012	7	14 (8.4–20)	204 (126–301)	0.25 (0.13–0.41)	3.8 (2.0–6.2)	4 118	62	30 (21–49)
Malaysia	1990	18	23 (21–26)	127 (113–142)	0.18 (0.16–0.20)	1 (0.88–1.1)	11 702	64	51 (45–57)
	1995	21	22 (20–25)	108 (97–120)	1.1 (0.96–1.2)	5.2 (4.6–5.7)	11 778	57	53 (47–58)
	2000	23	22 (20–24)	95 (86–103)	1.9 (1.7–2.1)	8 (7.3–8.8)	15 057	64	68 (62–75)
	2005	26	22 (20–24)	86 (79–94)	2.2 (2.0–2.3)	8.3 (7.6–9.1)	15 415	60	69 (64–76)
	2010	28	23 (21–25)	82 (75–89)	2.3 (2.1–2.5)	8.1 (7.4–8.8)	18 517	65	80 (74–87)
	2011	29	23 (21–25)	81 (74–88)	2.3 (2.1–2.5)	7.8 (7.2–8.5)	19 808	69	85 (78–93)
	2012	29	24 (22–26)	80 (74–87)	2.3 (2.2–2.6)	8 (7.4–8.7)	21 851	75	93 (85–100)
Marshall Islands	1990	< 1	0.065 (<0.01–0.190)	137 (14–396)					
	1995	< 1	0.097 (0.024–0.220)	190 (46–432)					
	2000	< 1	0.14 (0.084–0.200)	263 (161–389)			34	65	25 (17–41)
	2005	< 1	0.19 (0.050–0.420)	363 (96–803)			111	213	59 (27–220)
	2010	< 1	0.26 (0.051–0.650)	502 (97–1 230)			193	368	73 (30–380)
	2011	< 1	0.28 (0.054–0.690)	536 (103–1 320)	<0.01 (0–0.019)	6.1 (0–36)	139	265	49 (20–260)
	2012	< 1	0.3 (0.058–0.740)	572 (110–1 400)	<0.01 (0–0.015)	2.6 (0–29)	145	276	48 (20–250)

[a] Rates are per 100 000 population.

[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE[b]		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Micronesia (Federated States of)	1990	< 1	0.36 (0.100–0.800)	379 (104–827)			367	381	100 (46–370)
	1995	< 1	0.35 (0.200–0.540)	325 (185–505)			172	160	49 (32–87)
	2000	< 1	0.3 (0.210–0.400)	279 (200–371)			91	85	30 (23–42)
	2005	< 1	0.25 (0.170–0.360)	240 (158–338)			98	92	38 (27–58)
	2010	< 1	0.21 (0.092–0.380)	206 (89–371)			164	158	77 (43–180)
	2011	< 1	0.21 (0.089–0.370)	200 (86–360)			148	143	72 (40–170)
	2012	< 1	0.2 (0.086–0.360)	194 (83–349)			144	139	72 (40–170)
Mongolia	1990	2	8.8 (7.5–10)	405 (345–470)			1 659	76	19 (16–22)
	1995	2	7.2 (6.3–8.2)	314 (274–356)			2 780	121	39 (34–44)
	2000	2	6.1 (5.5–6.7)	254 (228–281)			3 109	130	51 (46–57)
	2005	3	5.7 (5.2–6.1)	225 (207–243)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	4 601	182	81 (75–88)
	2010	3	6.1 (5.7–6.5)	224 (209–240)	<0.01 (<0.01–<0.01)	0.2 (0.21–0.24)	4 458	164	73 (68–79)
	2011	3	6.1 (5.7–6.6)	223 (208–239)	<0.01 (<0.01–<0.01)	0.3 (0.27–0.31)	4 217	153	69 (64–74)
	2012	3	6.2 (5.8–6.7)	223 (208–239)	0.011 (<0.01–0.011)	0.4 (0.35–0.41)	4 128	148	66 (62–71)
Nauru	1990	< 1	<0.01 (<0.01–<0.01)	88 (77–99)			7	76	87 (77–99)
	1995	< 1	<0.01 (<0.01–<0.01)	40 (35–46)					
	2000	< 1	<0.01 (<0.01–<0.01)	46 (40–52)			4	40	87 (77–99)
	2005	< 1	0.013 (0.011–0.014)	125 (110–142)			11	109	87 (77–99)
	2010	< 1	<0.01 (<0.01–<0.01)	34 (30–39)			3	30	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	57 (50–65)			5	50	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	54 (47–61)					
New Caledonia	1990	< 1	0.16 (0.140–0.190)	98 (85–110)			143	85	87 (77–99)
	1995	< 1	0.1 (0.088–0.110)	53 (46–60)			87	46	87 (77–99)
	2000	< 1	0.11 (0.095–0.120)	51 (45–58)			94	45	87 (77–99)
	2005	< 1	0.054 (0.047–0.061)	24 (21–27)			47	21	87 (77–99)
	2010	< 1	0.056 (0.049–0.064)	23 (20–26)			49	20	87 (77–99)
	2011	< 1	0.06 (0.052–0.068)	24 (21–27)			52	21	87 (77–99)
	2012	< 1	0.044 (0.038–0.049)	17 (15–20)			38	15	87 (77–99)
New Zealand	1990	3	0.4 (0.350–0.450)	12 (10–13)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.11)	348	10	87 (77–99)
	1995	4	0.45 (0.390–0.510)	12 (11–14)	<0.01 (<0.01–<0.01)	0.2 (0.17–0.22)	391	11	87 (77–99)
	2000	4	0.4 (0.350–0.450)	10 (9.0–12)	<0.01 (<0.01–<0.01)	0.2 (0.13–0.17)	344	8.9	87 (77–99)
	2005	4	0.38 (0.330–0.430)	9.2 (8.1–10)	<0.01 (<0.01–<0.01)	0.1 (0.12–0.16)	332	8	87 (77–99)
	2010	4	0.35 (0.300–0.390)	7.9 (6.9–9.0)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.15)	301	6.9	87 (77–99)
	2011	4	0.35 (0.310–0.400)	7.9 (7.0–9.0)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.15)	305	6.9	87 (77–99)
	2012	4	0.34 (0.300–0.380)	7.6 (6.6–8.6)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.14)	293	6.6	87 (77–99)
Niue	1990	< 1	0 (0–0)	0 (0–0)			0	0	
	1995	< 1	0 (0–0)	0 (0–0)			0	0	
	2000	< 1	0 (0–0)	0 (0–0)			0	0	
	2005	< 1	0 (0–0)	0 (0–0)			0	0	
	2010	< 1	0 (0–0)	0 (0–0)			0	0	
	2011	< 1	<0.01 (<0.01–<0.01)	81 (71–91)			1	70	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	37 (32–42)			0	0	0
Northern Mariana Islands	1990	< 1	0.032 (0.028–0.036)	73 (64–83)			28	64	87 (77–99)
	1995	< 1	0.055 (0.048–0.062)	96 (84–109)			48	83	87 (77–99)
	2000	< 1	0.086 (0.076–0.098)	126 (110–143)			75	110	87 (77–99)
	2005	< 1	0.066 (0.057–0.074)	102 (89–115)			57	89	87 (77–99)
	2010	< 1	0.037 (0.032–0.042)	68 (60–77)			32	59	87 (77–99)
	2011	< 1	0.038 (0.033–0.043)	71 (62–81)			33	62	87 (77–99)
	2012	< 1	0.037 (0.032–0.042)	69 (60–78)			32	60	87 (77–99)
Palau	1990	< 1	<0.01 (<0.01–<0.01)	45 (36–54)					
	1995	< 1	0.025 (0.021–0.031)	147 (119–178)			19	110	75 (62–93)
	2000	< 1	0.03 (0.024–0.036)	156 (127–189)					
	2005	< 1	0.013 (0.011–0.016)	67 (54–81)			10	50	75 (62–93)
	2010	< 1	0.024 (0.019–0.029)	116 (94–140)			19	93	80 (66–98)
	2011	< 1	0.015 (0.012–0.018)	73 (59–88)			12	58	80 (66–98)
	2012	< 1	<0.01 (<0.01–<0.01)	24 (20–29)			4	19	80 (66–98)
Papua New Guinea	1990	4	13 (8.5–18)	308 (203–435)	0.1 (0.067–0.14)	2.4 (1.6–3.4)	2 497	60	19 (14–30)
	1995	5	15 (10–21)	322 (212–453)	0.46 (0.30–0.65)	9.7 (6.4–14)	8 041	171	53 (38–80)
	2000	5	19 (12–26)	349 (230–492)	1 (0.68–1.4)	19 (13–27)	10 520	196	56 (40–85)
	2005	6	22 (14–31)	358 (236–505)	1.4 (0.92–2.0)	23 (15–32)	12 564	206	58 (41–87)
	2010	7	24 (16–34)	348 (229–491)	1.1 (0.75–1.6)	17 (11–23)	14 531	212	61 (43–92)
	2011	7	24 (16–34)	346 (228–488)	1.2 (0.76–1.6)	16 (11–23)	14 893	212	61 (44–93)
	2012	7	25 (16–35)	348 (230–490)	1.1 (0.71–1.5)	15 (9.9–21)	20 557	287	82 (59–120)
Philippines	1990	62	240 (150–360)	393 (243–580)	0.024 (0.015–0.036)	<0.1 (<0.1–<0.1)	317 008	512	130 (88–210)
	1995	70	250 (200–300)	360 (294–432)	0.025 (0.020–0.030)	<0.1 (<0.1–<0.1)	119 186	171	48 (40–58)
	2000	78	260 (210–310)	329 (269–395)	0.077 (0.063–0.092)	0.1 (<0.1–0.12)	119 914	154	47 (39–57)
	2005	86	260 (210–310)	301 (246–361)	0.18 (0.15–0.22)	0.2 (0.17–0.25)	137 100	160	53 (44–65)
	2010	93	260 (210–310)	275 (227–328)	0.39 (0.32–0.46)	0.4 (0.34–0.49)	166 323	178	65 (54–79)
	2011	95	260 (210–310)	270 (223–322)	0.46 (0.38–0.55)	0.5 (0.40–0.58)	195 560	206	76 (64–92)
	2012	97	260 (210–310)	265 (219–316)	0.46 (0.38–0.55)	0.5 (0.39–0.57)	216 627	224	84 (71–100)
Republic of Korea	1990	43	73 (64–83)	171 (150–194)	0.051 (0.045–0.058)	0.1 (0.10–0.14)	63 904	149	87 (77–99)
	1995	45	48 (42–55)	108 (95–123)	0.044 (0.038–0.049)	0.1 (<0.1–0.11)	42 117	94	87 (77–99)
	2000	46	25 (22–28)	54 (48–62)	0.023 (0.020–0.026)	<0.1 (<0.1–<0.1)	21 782	47	87 (77–99)
	2005	47	49 (43–56)	105 (92–119)	0.089 (0.078–0.10)	0.2 (0.17–0.21)	42 892	91	87 (77–99)
	2010	48	51 (44–57)	105 (92–118)	0.13 (0.12–0.15)	0.3 (0.24–0.31)	44 063	91	87 (77–99)
	2011	49	53 (47–60)	109 (96–124)	0.14 (0.13–0.16)	0.3 (0.26–0.33)	46 253	95	87 (77–99)
	2012	49	53 (46–60)	108 (95–122)	0.15 (0.13–0.17)	0.3 (0.27–0.35)	43 702	89	82 (73–94)
Samoa	1990	< 1	0.059 (0.047–0.071)	36 (29–44)			44	27	75 (62–93)
	1995	< 1	0.051 (0.039–0.063)	30 (23–37)			45	26	89 (71–110)
	2000	< 1	0.041 (0.030–0.053)	23 (17–30)			43	25	110 (82–140)
	2005	< 1	0.032 (0.026–0.039)	18 (14–22)			24	13	75 (62–92)
	2010	< 1	0.031 (0.025–0.038)	17 (13–21)			14	7.5	45 (37–56)
	2011	< 1	0.032 (0.026–0.039)	17 (14–21)			20	11	62 (51–78)
	2012	< 1	0.033 (0.027–0.040)	18 (14–21)			22	12	66 (55–82)
Singapore	1990	3	1.8 (1.6–2.1)	61 (53–69)	<0.01 (<0.01–<0.01)	0.2 (0.21–0.27)	1 591	53	87 (77–99)
	1995	3	2.2 (1.9–2.5)	62 (55–71)	0.044 (0.038–0.049)	1.3 (1.1–1.4)	1 889	54	87 (77–99)
	2000	4	2 (1.7–2.2)	51 (44–57)	0.06 (0.053–0.068)	1.5 (1.3–1.7)	1 728	44	87 (77–99)
	2005	4	1.6 (1.4–1.8)	35 (31–40)	0.06 (0.052–0.068)	1.3 (1.2–1.5)	1 376	31	87 (77–99)
	2010	5	1.8 (1.6–2.0)	35 (31–40)	0.07 (0.061–0.079)	1.4 (1.2–1.6)	1 560	31	87 (77–99)
	2011	5	1.9 (1.7–2.1)	36 (32–41)	0.072 (0.063–0.081)	1.4 (1.2–1.6)	1 641	32	87 (77–99)
	2012	5	2.6 (2.3–3.0)	50 (44–56)	0.098 (0.086–0.11)	1.9 (1.6–2.1)	2 301	43	87 (77–99)
Solomon Islands	1990	< 1	0.97 (0.600–1.4)	312 (193–460)			382	122	39 (27–64)
	1995	< 1	0.86 (0.710–1.0)	240 (196–288)			352	98	41 (34–50)
	2000	< 1	0.76 (0.620–0.910)	185 (151–222)			302	73	40 (33–49)
	2005	< 1	0.67 (0.540–0.800)	142 (116–171)			397	85	60 (50–73)
	2010	< 1	0.57 (0.470–0.680)	108 (89–129)			338	64	59 (50–72)
	2011	< 1	0.55 (0.460–0.660)	103 (85–123)			398	74	72 (60–87)
	2012	< 1	0.54 (0.440–0.640)	97 (80–116)			361	66	67 (57–82)
Tokelau	1990	< 1	<0.01 (<0.01–<0.01)	72 (57–90)			1	62	86 (69–110)
	1995	< 1	<0.01 (<0.01–<0.01)	39 (13–80)			2	132	340 (160–1 000)
	2000	< 1	<0.01 (<0.01–<0.01)	13 (3.5–28)			0	0	0
	2005	< 1	0 (0–0)	0 (0–0)			0	0	
	2010	< 1	0 (0–0)	0 (0–0)			0	0	
	2011	< 1	0 (0–0)	0 (0–0)			0	0	
	2012	< 1	0 (0–0)	0 (0–0)					
Tonga	1990	< 1	0.036 (0.030–0.042)	38 (32–45)			23	24	64 (54–76)
	1995	< 1	0.032 (0.027–0.037)	33 (28–39)			20	21	63 (54–75)
	2000	< 1	0.027 (0.021–0.034)	28 (22–35)			24	24	88 (70–110)
	2005	< 1	0.023 (0.018–0.028)	22 (18–27)			18	18	79 (65–99)
	2010	< 1	0.017 (0.015–0.020)	17 (14–20)			11	11	63 (54–75)
	2011	< 1	0.016 (0.014–0.019)	16 (13–18)			9	8.6	55 (47–66)
	2012	< 1	0.015 (0.013–0.018)	14 (12–17)			11	10	73 (62–87)

[a] Rates are per 100 000 population.

[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2012**

	YEAR	POPULATION (MILLIONS)	INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE[b]		CASE DETECTION
			NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Tuvalu	1990	< 1	0.048 (0.031–0.069)	536 (347–766)			23	255	48 (33–74)
	1995	< 1	0.04 (0.017–0.074)	437 (181–805)			36	390	89 (48–220)
	2000	< 1	0.034 (0.022–0.048)	357 (231–510)			16	170	48 (33–74)
	2005	< 1	0.028 (0.019–0.039)	291 (198–402)			12	124	43 (31–63)
	2010	< 1	0.018 (0.014–0.021)	178 (145–215)			14	142	80 (66–98)
	2011	< 1	0.015 (0.012–0.018)	152 (124–184)			12	122	80 (66–98)
	2012	< 1	0.024 (0.019–0.029)	241 (196–290)			19	193	80 (66–98)
Vanuatu	1990	< 1	0.19 (0.150–0.230)	127 (103–154)			140	95	75 (62–93)
	1995	< 1	0.11 (0.085–0.130)	63 (51–76)			79	47	75 (62–93)
	2000	< 1	0.2 (0.160–0.250)	110 (89–132)			152	82	75 (62–93)
	2005	< 1	0.17 (0.140–0.210)	83 (68–99)			76	36	44 (37–54)
	2010	< 1	0.16 (0.130–0.200)	69 (57–83)			116	49	71 (59–86)
	2011	< 1	0.16 (0.130–0.190)	67 (55–80)			110	45	68 (57–83)
	2012	< 1	0.16 (0.130–0.190)	65 (53–77)			125	51	78 (66–95)
Viet Nam	1990	69	170 (120–240)	251 (172–344)			50 203	73	29 (21–42)
	1995	76	170 (120–220)	220 (155–295)	0.083 (0.059–0.11)	0.1 (<0.1–0.15)	55 739	73	33 (25–47)
	2000	81	160 (120–210)	197 (142–260)	1.7 (1.3–2.3)	2.2 (1.6–2.9)	89 792	111	56 (43–78)
	2005	85	150 (110–190)	176 (131–229)	7.6 (5.6–9.9)	8.9 (6.6–12)	94 916	112	63 (49–86)
	2010	89	140 (100–180)	155 (115–201)	9.2 (6.8–12)	10 (7.6–13)	97 448	109	70 (54–95)
	2011	90	140 (100–180)	151 (112–197)	9.2 (6.8–12)	10 (7.6–13)	98 804	110	73 (56–98)
	2012	91	130 (99–170)	147 (109–192)	9.3 (6.9–12)	10 (7.6–13)	102 112	112	76 (59–100)
Wallis and Futuna Islands	1990	< 1	0.022 (0.019–0.024)	156 (137–176)					
	1995	< 1	<0.01 (<0.01–<0.01)	49 (43–55)			6	42	87 (77–99)
	2000	< 1	<0.01 (<0.01–<0.01)	15 (13–17)					
	2005	< 1	<0.01 (<0.01–<0.01)	57 (50–64)			7	49	87 (77–99)
	2010	< 1	<0.01 (<0.01–<0.01)	36 (31–41)					
	2011	< 1	<0.01 (<0.01–<0.01)	17 (15–19)			2	15	87 (77–99)
	2012	< 1	<0.01 (<0.01–<0.01)	65 (57–74)					

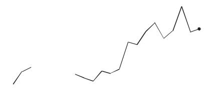
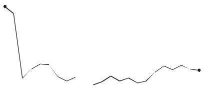
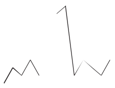
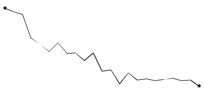
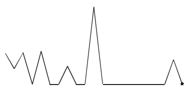
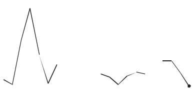
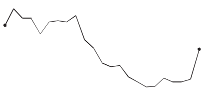
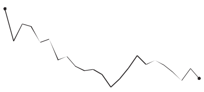
[a] Rates are per 100 000 population.
[b] NOTIFIED NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
American Samoa		1990	9									–
		1995										–
		2000	3	2	0	1		0		0		100
		2005	6	3	2	0	0	1	0	1	0	60
		2010	4	0	3	1	0	0	0	0	0	0
		2011	3	0	3	0	0	0	0	0	0	0
	• 19 … 0 •	2012										–
Australia		1990	1 016									–
		1995	1 073									–
		2000	1 043	251	362	369		17		17		41
		2005	1 046	241	339	450		16	27	43		42
		2010	1 257	274	410	457	5	41	24	65	70	40
		2011	1 239	301	436	463	2	20	29	49	17	41
	• 6 … 6 •	2012	1 305	290	408	498	63	26	20	46	20	42
Brunei Darussalam		1990	143									–
		1995										–
		2000	307	84	166	42		15		15		34
		2005	163	101	30	27		5	0	5	0	77
		2010	237	146	30	43	13	5	0	5	0	83
		2011	230	109	52	48	13	8	0	8	0	68
	• 56 … 59 •	2012	243	119	79	31	0	14	0	14	0	60
Cambodia		1990	6 501									–
		1995	14 603	11 101	1 465	1 428		605		605		88
		2000	18 891	14 822	1 108	2 147		814		814		93
		2005	35 535	21 001	7 057	6 759		718	588	1 306		75
		2010	40 460	17 454	8 301	14 239	0	466	1 168	1 634	0	68
		2011	38 555	15 812	7 686	14 690	0	367	1 115	1 482	0	67
	• 72 … 270 •	2012	40 185	14 838	8 509	15 290	0	446	73	519	1 102	64
China		1990	375 481									–
		1995	515 764	134 488	203 088	1 560		18 693		18 693		40
		2000	454 372	204 765	229 943			19 664	53 480	73 144		47
		2005	899 729	472 719	329 157	42 845		49 707	90 780	140 487	5 301	59
		2010	908 399	429 899	432 868	6 325	0	39 307	14 909	54 216	0	50
		2011	899 669	377 005	481 514	6 540	0	34 610	12 215	46 825	0	44
	• 32 … 65 •	2012	890 645	316 332	536 050	6 479	0	31 784	10 033	41 817	0	37
China, Hong Kong SAR		1990	6 510									–
		1995	6 212									–
		2000	6 015	1 940	3 115	772		188	594	782		38
		2005	5 660	1 561	3 179	701	0	219	500	719	0	33
		2010	4 935	1 475	2 352	792	0	316	197	513	0	39
		2011	4 739	1 380	2 244	815	0	300	187	487	0	38
	• 112 … 67 •	2012	4 809	1 463	2 206	817	0	323	160	483	0	40
China, Macao SAR		1990	343									–
		1995	402	141	94	70		49		49		60
		2000	449	160	180	50		12		12		47
		2005	398	136	162	43	0	14	17	31	43	46
		2010	394	123	175	49	0	21	39	60	26	41
		2011	380	148	126	46	0	21	2	23	39	54
	• 95 … 73 •	2012	404	156	139	31	0	26	2	28	52	53
Cook Islands		1990	0	0	0	0	0	0	0	0	0	
		1995	2	2	0	0	0	0	0	0	0	100
		2000	1	0	1	0	0	0	0	0	0	0
		2005	1	1	0	0	0	0	0	0	0	100
		2010	0	0	0	0	0	0	0	0	0	
		2011	1	1	0	0	0	0	0	0	0	100
	• 0 … 5 •	2012	1	0	0	0	0	1	0	1	0	
Fiji		1990	226	84	105	37						44
		1995	203	68	99	34		2	0	2		41
		2000	144	62	42	40		0	0	0		60
		2005	132	63	29	40						68
		2010	189	89	45	45	0	10	2	12	0	66
		2011	215	107	62	44	0	2	5	7	0	63
	• 31 … 24 •	2012	210	111	54	40	0	5	8	13	0	67
French Polynesia		1990	59									–
		1995										–
		2000	62	29	19	10		1		1		60
		2005	63	21	25	14		3	0	3	0	46
		2010	41	13	18	6	0	4	0	4	0	42
		2011	64	22	27	13	0	2	0	2	0	45
	• 30 … 18 •	2012	50	26	10	8	0	6	0	6	0	72
Guam		1990										–
		1995										–
		2000	54	43	5	6		1		1		90
		2005	63	27	26	9	0	1	1	2	0	51
		2010	101	39	51	9	0	2	0	2	0	43
		2011	82	28	39	11	0	3	0	3	1	42
	• 0 … 42 •	2012	68	23	37	8	0	0	0	0	0	38
Japan		1990	51 821									–
		1995	43 078	14 367	25 172	2 803		736		736		36
		2000	39 384	11 853	19 118	7 046		1 367		1 367		38
		2005	27 194	10 931	10 056	5 340		867	1 125	1 992		52
		2010	22 693	8 237	8 630	4 632	0	1 194	568	1 762		49
		2011	22 119	7 937	8 231	4 826	0	1 125	562	1 687	0	49
	• 42 … 16 •	2012	20 857	7 663	7 675	4 609	0	910	426	1 336		50
Kiribati		1990	68									–
		1995										–
		2000	252	54	47	106		3		3		53
		2005	332	124	79	126		3	7	10		61
		2010	286	118	91	71	0	6	8	14	0	56
		2011	343	140	109	87	0	7	11	18	0	56
	• 96 … 343 •	2012	346	134	122	73	9	8	2	10	0	52
Lao People's Democratic Republic		1990	1 826									–
		1995	830	478	404	95		2		2		54
		2000	2 227	1 526	457	180		64		64		77
		2005	3 766	2 801	484	275		139	41	180	67	85
		2010	4 061	3 119	394	323		163	22	185	62	89
		2011	4 360	3 271	516	349		170	27	197	54	86
	• 43 … 62 •	2012	4 118	3 062	484	351		168	38	206	53	86
Malaysia		1990	11 702									–
		1995	11 778	6 688	4 021	1 069		210		210		62
		2000	15 057	8 156	5 517	1 384		0		0		60
		2005	15 415	8 446	4 862	1 702	0	332	651	983	73	63
		2010	18 517	11 135	4 338	2 545	0	499	820	1 319	0	72
		2011	19 808	11 862	4 501	2 888	0	557	858	1 415	0	72
	• 64 … 75 •	2012	21 851	13 311	4 993	2 945	0	602	859	1 461	0	73

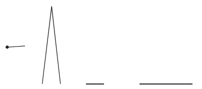
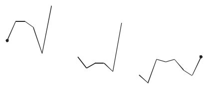
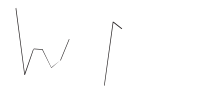
[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Marshall Islands		1990										–
		1995										–
		2000	34	11	25	9		0		0		31
		2005	111	48	31	28		4	1	5	0	61
		2010	193	59	64	65	0	2	8	10	3	48
		2011	139	44	30	57	0	8	12	20	0	59
	• 0 276 •	2012	145	54	53	29	0	4	2	6	5	50
Micronesia (Federated States of)		1990	367									–
		1995	172	9	79	18		2		2		10
		2000	91	15	69	4		3		3		18
		2005	98	32	35	19	5	7	14	21		48
		2010	164	53	79	25	0	3	10	13	4	40
		2011	148	45	73	28	0	2	2	4	0	38
	• 381 139 •	2012	144	43	77	22	0	2	2	4	0	36
Mongolia		1990	1 659									–
		1995	2 780	455	1 330	976		82		82		25
		2000	3 109	1 389	732	862		126		126		65
		2005	4 601	1 868	897	1 620	0	216	125	341	0	68
		2010	4 458	1 837	701	1 675	0	245	343	588	0	72
		2011	4 217	1 723	684	1 578	0	232	316	548	0	72
	• 76 148 •	2012	4 128	1 716	617	1 611	0	184	325	509	0	74
Nauru		1990	7									–
		1995										–
		2000	4	4	0	0		0		0		100
		2005	11	0	11							0
		2010	3	1	1	1	0	0	0	0	0	50
		2011	5	3	1	1	0	0	0	0	0	75
	• 76 0 •	2012										–
New Caledonia		1990	143									–
		1995	87	21	81	9		4		4		21
		2000	94	20	15	29		4		4		57
		2005	47	16	15	15		1	6	7	0	52
		2010	49	20	16	13	0		8	8	0	56
		2011	52	13	18	19	0	2	0	2	0	42
	• 85 15 •	2012	38	13	11	12	1	1	0	1	0	54
New Zealand		1990	348									–
		1995	391	78	222	34		4		4		26
		2000	344	74	133	130		7	0	7		36
		2005	332	83	114	95	29	11	8	19		42
		2010	301	86	68	134	6	7	4	11		56
		2011	305	88	81	121	13	2	4	6		52
	• 10 7 •	2012	293	68	99	112	3	11	4	15	0	41
Niue		1990	0									–
		1995	0	0	1			0		0		0
		2000	0	0	0							
		2005	0	0								
		2010	0	0	0	0	0	0	0	0	0	
		2011	1	0	0	0	1	0	0	0	0	
	• 0 0 •	2012	0	0	0	0	0	0	0	0	0	
Northern Mariana Islands		1990	28									–
		1995	48	14	26	8		0		0		35
		2000	75	27	37	11		0		0		42
		2005	57	15	35	7	0	0	0	0	0	30
		2010	32	17	13	2	0	0	0	0	0	57
		2011	33	15	16	2	0	0	0	0	0	48
	• 64 60 •	2012	32	10	17	4	1	0	2	2	0	37
Palau		1990										–
		1995	19	9	6	4		0		0		60
		2000										–
		2005	10	3	6	1		0	0	0		33
		2010	19	9	10	0	0	0	0	0	0	47
		2011	12	4	6	1	0	1	0	1	0	40
	• 0 19 •	2012	4	3	1	0	0	0	0	0	0	75
Papua New Guinea		1990	2 497									–
		1995	8 041	1 652	3 767	2 349		273		273		30
		2000	10 520	1 933	4 405	3 227		955		955		30
		2005	12 564	1 805	5 105	4 198		1 456		1 456		26
		2010	14 531	2 584	5 907	5 798		242	1 582	1 824		30
		2011	14 893	1 882	6 494	6 373	0	144	1 431	1 575	0	22
	• 60 287 •	2012	20 557	2 862	9 195	8 277	0	223	1 931	2 154	0	24
Philippines		1990	317 008									–
		1995	119 186	94 768	140 712	8		8		8		40
		2000	119 914	67 056	52 858							56
		2005	137 100	81 647	50 347	1 149	0	3 957		3 957		62
		2010	166 323	89 198	72 440	1 610	0	3 075	8 066	11 141	0	55
		2011	195 560	93 580	96 529	2 234	0	3 217	10 528	13 745	0	49
	• 512 224 •	2012	216 627	94 006	115 263	3 274	0	4 084	13 535	17 619	0	45
Republic of Korea		1990	63 904									–
		1995	42 117	11 754	19 360			2 082		2 082		38
		2000	21 782	8 216	11 304			2 262		2 262		42
		2005	42 892	11 638	18 460	5 171	0	3 021	4 077	7 098	4 602	39
		2010	44 063	11 596	18 660	8 795	0	2 838	4 038	6 876	2 174	38
		2011	46 253	11 714	18 386	9 457	0	3 032	4 238	7 270	3 664	39
	• 149 89 •	2012	43 702	12 137	18 938	8 470	0	4 157	5 830	9 987	0	39
Samoa		1990	44									–
		1995	45	15	30	6		0		0		33
		2000	43	13	18	12		0		0		42
		2005	24	11	8	5	0	0	0	0	0	58
		2010	14	6	5	3	0	0	0	0	0	55
		2011	20	6	12	2	0	0	0	0		33
	• 27 12 •	2012	22	15	4	3	0	0	0	0	0	79
Singapore		1990	1 591									–
		1995	1 889	455	1 187	127		120		120		28
		2000	1 728	248	869	165		55		55		22
		2005	1 376	552	570	174	0	60	93	153	20	49
		2010	1 560	530	735	213	0	82	48	130	0	42
		2011	1 641	592	717	224	0	108	54	162	0	45
	• 53 43 •	2012	2 301	678	1 219	306	0	98	63	161	0	36
Solomon Islands		1990	382									–
		1995	352	109	133	97		13		13		45
		2000	302	109	128	65		0		0		46
		2005	397	169	161	62	0	5	0	5	0	51
		2010	338	133	98	105	0	2	3	5	0	58
		2011	398	159	108	127	0	4	7	11	0	60
	• 122 66 •	2012	361	157	87	112	0	5	11	16	0	64

[a] Rates are per 100 000 population.
[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.3 **Case notifications, 1990–2012**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2012	YEAR	NEW AND RELAPSE[b]	NEW CASES: SMEAR-POSITIVE	NEW CASES: SMEAR-NEGATIVE/ UNKNOWN	NEW CASES: EXTRA-PULMONARY	NEW CASES: OTHER	RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
Tokelau		1990	1									–
		1995	2	1	1	0		0		0		50
		2000	0	0	0	0		0		0		
		2005	0	0	0	0	0	0	0	0	0	
		2010	0	0	0	0	0	0	0	0	0	
		2011	0	0	0	0	0	0	0	0	0	
	• 62 0 •	2012										–
Tonga		1990	23									–
		1995	20	9	2	9		0		0		82
		2000	24	15	5	3		1		1		75
		2005	18	11	3	4						79
		2010	11	6	3	2	0	0	0	0	0	67
		2011	9	6	3	0	0	0	0	0	0	67
	• 24 10 •	2012	11	9	1	1	0	0	0	0	0	90
Tuvalu		1990	23									–
		1995	36	6	13	16		1		1		32
		2000	16	0	7	7						0
		2005	12	5	3	4			3	3		62
		2010	14	5	2	7	0	0	0	0	0	71
		2011	12	4	4	4	0	0	1	1	0	50
	• 255 193 •	2012	19	8	2	9	0	0	1	1	0	80
Vanuatu		1990	140									–
		1995	79	30	27	21		1		1		53
		2000	152	63	56	28		5		5		53
		2005	76	35	21	17	0	3	5	8	0	62
		2010	116	44	33	35	3	1	0	1	0	57
		2011	110	49	14	46	0	1	2	3	0	78
	• 95 51 •	2012	125	51	22	51	0	1	1	2	0	70
Viet Nam		1990	50 203									–
		1995	55 739	37 550	8 379	6 194		3 616		3 616		82
		2000	89 792	53 169	17 993	13 137		5 493		5 493		75
		2005	94 916	55 492	16 429	16 670	0	6 325	976	7 301	0	77
		2010	97 448	52 145	18 237	17 651	0	6 834	1 574	8 408	2 581	74
		2011	98 804	50 751	20 373	18 077	2 678	6 925	1 714	8 639		71
	• 0 0 •	2012	102 112	51 033	21 706	18 904	3 210	7 259	1 794	9 053		70
Wallis and Futuna Islands		1990										–
		1995	6	3	2	0		1		1		60
		2000										–
		2005	7	1	6							14
		2010										–
		2011	2	2	0	0	0	0	0	0	0	100
	• 0 0 •	2012										–

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[a] Rates are per 100 000 population.

[b] NEW AND RELAPSE includes cases for which the treatment history is unknown.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
American Samoa		1995		4	–	100	0	0	0	0	0
		2000	2	2	100	0	100	0	0	0	0
		2005	3	4	133	75					25
		2009	0	3	–	0	100	0	0	0	0
		2010	0	0	–						
	• 100 0 •	2011	0		–						
Australia		1995			–						
		2000	251	238	95	27	45	9	0	3	16
		2005	241	241	100	12	68	10		2	8
		2009	267	606	227	6	73	3	0	1	16
		2010	274	629	230	8	72	3	0	2	15
	• 0 77 •	2011	301	527	175	7	70	6	0	1	16
Brunei Darussalam		1995			–						
		2000	84	84	100	42	21	17	0	4	17
		2005	101	101	100	66	5	7	0	2	20
		2009	140	164	117	63	8	9	0	0	20
		2010	146	176	121	61	20	7	0	0	12
	• 0 66 •	2011	109	109	100	66	0	9	0	0	25
Cambodia		1995	11 101	4 363	39	83	8	2	1	4	2
		2000	14 822	14 775	100	88	4	4	0	4	1
		2005	21 001	21 001	100	89	4	3	0	2	2
		2009	17 863	17 863	100	92	3	2	0	1	1
		2010	17 454	17 454	100	91	3	2	0	1	2
	• 91 93 •	2011	15 812	15 884	100	90	4	2	0	1	3
China		1995	134 488	131 413	98	72	22	2	1	1	3
		2000	204 765	213 766	104	93		1	2	1	3
		2005	472 719	472 719	100	92	2	2	1	1	3
		2009	449 152	449 039	100	93	2	1	1	1	2
		2010	429 899	429 790	100	94	2	1	1	0	2
	• 93 95 •	2011	377 005	377 005	100	94	2	1	1	1	2
China, Hong Kong SAR		1995			–						
		2000	1 940	1 940	100	55	5	5	6	4	24
		2005	1 561	1 561	100	60	3	5	9	3	20
		2009	1 444	1 441	100	59	11	15	0	3	12
		2010	1 475	1 487	101	57	11	15	0	4	13
	• 0 69 •	2011	1 380	1 378	100	59	10	14	0	4	13
China, Macao SAR		1995	141		–						
		2000	160	160	100	81	8	6	0	4	1
		2005	136	136	100	93	0	4	0	1	3
		2009	116	115	99	86	2	3	0	2	7
		2010	123	219	178	93	0	3	0	1	3
	• 0 86 •	2011	148	147	99	86	0	5	0	1	7
Cook Islands		1995	2	2	100	100	0	0	0	0	0
		2000	0		–						
		2005	1	1	100	100	0	0	0	0	0
		2009	1	0	0						
		2010	0	0	–						
	• 100 0 •	2011	1	1	100	0	0	0	0	0	100
Fiji		1995	68	73	107	78	8	7	0	3	4
		2000	62	62	100	81	5	5	0	8	2
		2005	63	68	108	71	0	10	0	10	9
		2009	83	79	95	89	5	4	0	1	1
		2010	89	89	100	65	2	6	0	24	3
	• 86 93 •	2011	107	107	100	81	12	1	0	3	3
French Polynesia		1995		33	–	67	0	3	0	21	9
		2000	29	62	214	0	97	2	2	0	0
		2005	21	18	86		89	11	0	0	0
		2009	17	18	106		89	6	0	6	0
		2010	13	13	100	92	0	8	0	0	0
	• 67 80 •	2011	22	20	91	80	0	5	0	15	0
Guam		1995			–						
		2000	43	43	100	93	0	7	0	0	0
		2005	27	27	100	85	0	11	0	0	4
		2009	31	47	152	96	0	2	0	0	2
		2010	39	51	131	84	0	16	0	0	0
	• 0 79 •	2011	28	28	100	79	0	14	0	0	7
Japan		1995	14 367		–						
		2000	11 853	10 348	87	30	15	5	4	1	44
		2005	10 931	10 931	100	38	22	11	3	1	26
		2009	8 853	8 772	99	21	31	19	1	4	24
		2010	8 237	8 242	100	20	32	21	1	3	24
	• 0 0 •	2011	7 937		–						
Kiribati		1995		31	–	45	42	13			0
		2000	54	54	100	83	7	7	2	0	0
		2005	124	123	99	62	31	7	0	1	0
		2009	145	144	99	84	13	3	0	0	0
		2010	118	117	99	88	5	5	2	0	0
	• 87 94 •	2011	140	140	100	74	21	4	1	1	0
Lao People's Democratic Republic		1995	478	343	72	62	8	6	2	19	4
		2000	1 526	1 588	104	68	9	7	0	9	7
		2005	2 801	2 802	100	85	5	5	1	3	1
		2009	3 034	3 034	100	91	2	4	1	2	1
		2010	3 119	3 119	100	89	3	6	0	2	0
	• 70 92 •	2011	3 271	3 271	100	87	5	0	5	2	1
Malaysia		1995	6 688	13 398	200	69	0	6	2	8	14
		2000	8 156	7 915	97	0	78	8	0	10	4
		2005	8 446	8 446	100	69	1	9	0	5	16
		2009	9 981	9 981	100	78	1	9	0	4	9
		2010	11 135	11 135	100	79	1	9	0	4	7
	• 69 79 •	2011	11 862	11 862	100	78	1	9	0	4	8
Marshall Islands		1995		163	–	3	21	7	0	67	1
		2000	11	11	100	64	27	0	0	9	0
		2005	48	47	98	85	2	2		2	9
		2009	52	58	112	71	14	9	0	3	3
		2010	59	71	120	63	17	8	0	1	10
	• 25 88 •	2011	44	50	114	86	2	6	0		6
Micronesia (Federated States of)		1995	9	10	111	80	0	10	0	10	0
		2000	15	14	93	93	0	7	0	0	0
		2005	32	20	62	75	5	10	5	0	5
		2009	61	60	98	65	23	3	2	0	7
		2010	53	59	111	97	0	3	0	0	0
	• 80 96 •	2011	45	51	113	80	16	4	0	0	0
Mongolia		1995	455	455	100	66	7	8	6	10	2
		2000	1 389	1 389	100	83	4	3	3	4	3
		2005	1 868	1 868	100	82	6	3	5	3	2
		2009	1 809	1 809	100	84	4	2	7	2	0
		2010	1 837	1 837	100	83	3	2	8	3	0
	• 74 86 •	2011	1 723	1 723	100	82	3	2	7	4	1

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Nauru		1995			–						
		2000	4	4	100	25					75
		2005	0	3	–	0	67	33	0	0	0
		2009	1	0	0						
		2010	1	3	300	0	67	0	0	0	33
	• 0 0 •	2011	3		–						
New Caledonia		1995	21	32	152	75		12		3	9
		2000	20	45	225	33	56	9		2	0
		2005	16	16	100	88	6	6	0	0	0
		2009	15	15	100	0	93	0	0	7	0
		2010	20	21	105	0	76	19	0	5	0
	• 75 35 •	2011	13	23	177	0	35	9	0	0	57
New Zealand		1995	78		–						
		2000	74	73	99	5	25	23			47
		2005	83	84	101	0	60	6	0	1	33
		2009	90	92	102		76	7		1	16
		2010	86	86	100		74	17			8
	• 0 56 •	2011	88	141	160	0	56	7	0	1	36
Niue		1995	0		–						
		2000	0		–						
		2005	0	0	–						
		2009	0		–						
		2010	0	0	–						
	• 0 0 •	2011	0		–						
Northern Mariana Islands		1995	14		–						
		2000	27	27	100	81	0	0	0	0	19
		2005	15	15	100	73	0	0	0	0	27
		2009	16	16	100	0	81	0	0	0	19
		2010	17	17	100	0	82	0	0	0	18
	• 0 89 •	2011	15	19	127		89	11	0	0	0
Palau		1995	9	9	100	56	11	0	0	11	22
		2000			–						
		2005	3	3	100	100	0	0	0	0	0
		2009	6	8	133	62	12	25	0	0	0
		2010	9	16	178	75	12	12	0	0	0
	• 67 57 •	2011	4	7	175	29	29	14	0	14	14
Papua New Guinea		1995	1 652	4 904	297		56	4	0	15	25
		2000	1 933	422	22	39	24	2	0	26	9
		2005	1 805	1 292	72	57	14	4	1	19	5
		2009	2 238	2 584	115	58	13	4	2	16	6
		2010	2 584	2 530	98	48	10	3	2	14	23
	• 56 69 •	2011	1 882	2 322	123	53	16	4	3	19	5
Philippines		1995	94 768	90 297	95	54	6	1	1	5	34
		2000	67 056	50 196	75	73	15	2	1	6	3
		2005	81 647	81 125	99	82	7	2	1	4	3
		2009	88 806	88 806	100	82	7	2	1	4	4
		2010	89 198	89 198	100	85	7	2	1	4	2
	• 60 90 •	2011	93 580	93 580	100	83	7	2	1	4	3
Republic of Korea		1995	11 754	11 675	99	74	2	2	3	5	14
		2000	8 216	3 231	39	81	2	2	1	3	12
		2005	11 638	3 752	32	81	2	1	1	4	11
		2009	11 285	3 813	34	81	2	1	1	3	12
		2010	11 596	2 828	24	85	4	1	0	3	6
	• 76 80 •	2011	11 714	2 288	20	78	2	1	0	3	16
Samoa		1995	15	15	100	13	67	20	0	0	0
		2000	13	13	100	85	8	8	0	0	0
		2005	11	11	100	91	0	9	0	0	0
		2009	8	10	125	90	0	10	0	0	0
		2010	6	6	100	100	0	0	0	0	0
	• 80 83 •	2011	6	6	100	83	0	17	0	0	0
Singapore		1995	455	122	27	71	15	2	0	11	0
		2000	248	242	98		71	14	0	14	0
		2005	552	548	99		83	14	0	2	1
		2009	552	937	170	65	17	15	0	1	2
		2010	530	948	179	62	17	17	0	1	3
	• 86 83 •	2011	592	979	165	69	14	15	0	1	1
Solomon Islands		1995	109	368	338		65	6	0	4	26
		2000	109	109	100	73	7	5	0	4	11
		2005	169	169	100	56	30	8	0	4	2
		2009	138	138	100	67	22	4	1	3	3
		2010	133	133	100	57	30	1	3	5	4
	• 65 90 •	2011	159	156	98	54	36	3	3	1	4
Tokelau		1995	1		–						
		2000	0		–						
		2005	0		–						
		2009	0	0	–						
		2010	0		–						
	• 0 0 •	2011	0		–						
Tonga		1995	9	20	222	75	0	10	5	0	10
		2000	15	15	100	93	0	0	7	0	0
		2005	11	11	100	73	0	18	0	0	9
		2009	6	6	100	83	0	17	0	0	0
		2010	6	6	100	83	0	17	0	0	0
	• 75 100 •	2011	6	6	100	100	0	0	0	0	0
Tuvalu		1995	6		–						
		2000	0	7	–		86			14	0
		2005	5	6	120	100	0	0	0	0	0
		2009	8	8	100	88	0	0	0	0	12
		2010	5	5	100	100					0
	• 0 75 •	2011	4	4	100	75		25			0
Vanuatu		1995	30	13	43	38	46	15	0	0	0
		2000	63	26	41	77	12	8	0	4	0
		2005	35	42	120	64	17	10	7	2	0
		2009	47	47	100	81	15	4	0	0	0
		2010	44	44	100	66	14	16	0	2	2
	• 85 82 •	2011	49	49	100	53	29	10	4	2	2
Viet Nam		1995	37 550	38 189	102	84	5	3	2	4	2
		2000	53 169	53 169	100	90	2	3	1	2	2
		2005	55 492	55 492	100	90	2	3	1	1	2
		2009	51 291	51 387	100	90	2	3	1	2	2
		2010	52 145	52 147	100	91	2	3	1	2	2
	• 89 93 •	2011	50 751	50 751	100	91	2	3	1	2	2
Wallis and Futuna Islands		1995	3		–						
		2000			–						
		2005	1		–						
		2009	2		–						
		2010		2	–	0	100	0	0	0	0
	• 0 0 •	2011	2		–						

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

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TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT: CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
American Samoa		1995			–						
		2000	0		–						
		2005	1	1	100		100				0
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0		–						
Australia		1995			–						
		2000	17	11	65	9	73	9	0	0	9
		2005	43	43	100	16	56	5		5	19
		2009	61	65	107	6	60	3	2	8	22
		2010	65	58	89	5	64	5	0	3	22
	• 0 66 •	2011	49	67	137	1	64	6	0	3	25
Brunei Darussalam		1995			–						
		2000	15		–						
		2005	5	5	100	40	40	20	0	0	0
		2009	0	0	–						
		2010	5	5	100	100	0	0	0	0	0
	• 0 63 •	2011	8	8	100	62	0	25	0	0	12
Cambodia		1995	605	436	72	59	26	5	3	3	4
		2000	814	827	102	85	5	6	1	4	0
		2005	1 306	1 306	100	49	27	9	2	3	11
		2009	1 429	1 429	100	34	45	3	1	1	15
		2010	1 634	1 524	93	30	44	4	1	1	20
	• 85 74 •	2011	1 482	409	28	66	8	7	5	5	10
China		1995	18 693	54 052	289	90	2	2	3	1	1
		2000	73 144	43 252	59	86	2	1	1	1	8
		2005	140 487	89 239	64	85	5	3	3	1	4
		2009	59 583	59 853	100	86	4	2	2	1	4
		2010	54 216	54 469	100	86	4	2	2	1	5
	• 92 90 •	2011	46 825	46 825	100	87	4	2	3	1	4
China, Hong Kong SAR		1995			–						
		2000	782	218	28	27	26	4	17	18	8
		2005	719	716	100	40	18	4	9	7	22
		2009	509	481	94	26	38	15	0	6	14
		2010	513	512	100	34	34	12	0	4	16
	• 0 62 •	2011	487	453	93	27	35	15	0	7	16
China, Macao SAR		1995	49		–						
		2000	12	37	308	68	16	11	0	5	0
		2005	31	37	119	51	24	11	0	0	14
		2009	45	46	102	43	35	11	0	7	4
		2010	60	35	58	51	14	14	0	11	9
	• 0 96 •	2011	23	28	122	79	18	4	0	0	0
Cook Islands		1995	0		–						
		2000	0		–						
		2005	0	0	–						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Fiji		1995	2		–						
		2000	0		–						
		2005		0	–						
		2009	2	5	250	40	40	20	0	0	0
		2010	12	12	100	50	17	17	0	17	0
	• 0 57 •	2011	7	7	100	29	29	14	14	14	0
French Polynesia		1995		2	–	50	0	50	0	0	0
		2000	1		–						
		2005	3	4	133		75	25			0
		2009	5	5	100	0	100	0	0	0	0
		2010	4	4	100	0	75	25	0	0	0
	• 50 100 •	2011	2	4	200	75	25	0	0	0	0
Guam		1995			–						
		2000	1		–						
		2005	2	2	100	50	0	0	0	50	0
		2009	1	1	100	100	0	0	0	0	0
		2010	2	2	100	100	0	0	0	0	0
	• 0 100 •	2011	3	3	100	67	33	0	0	0	0
Japan		1995	736		–						
		2000	1 367	1 169	86	31	15	5	6	1	41
		2005	1 992	1 992	100	29	16	8	2	2	43
		2009	1 751	1 452	83	15	32	15	1	6	31
		2010	1 762	1 466	83	14	32	17	1	5	31
	• 0 0 •	2011	1 687		–						
Kiribati		1995			–						
		2000	3	9	300	89	0	11	0	0	0
		2005	10	3	30	100					0
		2009	4	6	150	83	17	0	0	0	0
		2010	14	20	143	25	45	30	0	0	0
	• 0 74 •	2011	18	19	106	21	53	5	0	21	0
Lao People's Democratic Republic		1995	2	1	50	100	0	0	0	0	0
		2000	64	64	100	41	8	11	8	11	22
		2005	180	181	101	75	12	6	2	5	1
		2009	184	184	100	85	3	8	2	1	0
		2010	185	184	99	76	7	12	3	3	0
	• 100 81 •	2011	197	170	86	72	9	2	8	3	6
Malaysia		1995	210		–						
		2000	0		–						
		2005	983	1 056	107	46	9	8	1	9	27
		2009	1 181	1 181	100	33	27	9	1	6	23
		2010	1 319	1 319	100	35	24	12	1	12	17
	• 0 54 •	2011	1 415	1 415	100	34	20	9	1	8	28
Marshall Islands		1995			–						
		2000	0		–						
		2005	5	20	400	60	10				30
		2009	2	8	400	12	75	0	0	12	0
		2010	10	4	40	25	25	50	0	0	0
	• 0 100 •	2011	20	20	100	30	70	0	0	0	0
Micronesia (Federated States of)		1995	2	9	450	100	0	0	0	0	0
		2000	3	20	667	25	60	5	10	0	0
		2005	21	9	43	11	89				0
		2009	9	16	178	0	19	75	0	0	6
		2010	13	10	77	20	10	10	0	20	40
	• 100 100 •	2011	4	1	25	0	100	0	0	0	0
Mongolia		1995	82	23	28	61	0	9	13	13	4
		2000	126	126	100	57	14	8	8	7	6
		2005	341	443	130	39	34	9	11	4	3
		2009	569	380	67	60	13	4	17	4	2
		2010	588	234	40	19	61	9	6	2	4
	• 61 74 •	2011	548	548	100	39	35	5	15	4	2

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2011**

	TREATMENT SUCCESS (%)[a] 1995–2011	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Nauru		1995			–						
		2000	0		–						
		2005		0	–						
		2009	0	1	–	100					0
		2010	0	0	–						
	• 0 0 •	2011	0		–						
New Caledonia		1995	4	4	100	100					0
		2000	4		–						
		2005	7	7	100	86	0	14	0	0	0
		2009	9	9	100	0	89	0	0	0	11
		2010	8	8	100	0	88	12	0	0	0
	• 100 0 •	2011	2	1	50	0	0	100	0	0	0
New Zealand		1995	4		–						
		2000	7	23	329	0	30	4			65
		2005	19	18	95	0	67	0	0	0	33
		2009	9	9	100		67	11			22
		2010	11	11	100		73	18			9
	• 0 50 •	2011	6	6	100	0	50	0	0	0	50
Niue		1995	0		–						
		2000			–						
		2005		0	–						
		2009			–						
		2010	0	0	–						
	• 0 0 •	2011	0		–						
Northern Mariana Islands		1995	0		–						
		2000	0		–						
		2005	0	0	–						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Palau		1995	0		–						
		2000			–						
		2005	0	0	–						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	1	0	0						
Papua New Guinea		1995	273		–						
		2000	955	68	7	29	35	4	1	21	9
		2005	1 456	65	4	42	14	15	6	20	3
		2009	1 388	530	38	36	22	5	5	29	3
		2010	1 824	444	24	35	11	5	5	18	27
	• 0 52 •	2011	1 575	398	25	32	20	7	5	22	14
Philippines		1995	8		–						
		2000			–						
		2005	3 957		–						
		2009	9 575	4 362	46	48	13	4	4	5	26
		2010	11 141	4 554	41	53	15	5	5	6	16
	• 0 65 •	2011	13 745	4 583	33	47	18	5	4	6	20
Republic of Korea		1995	2 082	2 004	96	39	1	1	2	3	53
		2000	2 262	131	6	59	2	3	3	12	21
		2005	7 098	3 331	47	72	3	2	0	6	18
		2009	6 880	2 420	35	69	3	2	1	5	21
		2010	6 876	1 813	26	76	4	2	0	6	12
	• 40 74 •	2011	7 270	1 346	19	70	3	1	0	5	19
Samoa		1995	0		–						
		2000	0		–						
		2005	0	0	–						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	0	0	–						
Singapore		1995	120		–						
		2000	55		–						
		2005	153	149	97		79	15	0	5	1
		2009	132	130	98	37	39	20	0	1	3
		2010	130	127	98	47	31	17	0	2	3
	• 0 76 •	2011	162	160	99	43	33	22	0	2	0
Solomon Islands		1995	13		–						
		2000	0		–						
		2005	5	5	100	20	40	20	20	0	0
		2009	2	2	100	50	50	0	0	0	0
		2010	5	5	100	80	0	20	0	0	0
	• 0 100 •	2011	11	10	91	30	70	0	0	0	0
Tokelau		1995	0		–						
		2000	0		–						
		2005	0		–						
		2009	0	0	–						
		2010	0		–						
	• 0 0 •	2011	0		–						
Tonga		1995	0	9	–	100	0	0	0	0	0
		2000	1	1	100	100					0
		2005		0	–						
		2009	0	0	–						
		2010	0	0	–						
	• 100 0 •	2011	0	0	–						
Tuvalu		1995	1		–						
		2000			–						
		2005	3	0	0						
		2009	0	0	–						
		2010	0	0	–						
	• 0 0 •	2011	1	0	0						
Vanuatu		1995	1		–						
		2000	5	5	100	100	0	0	0	0	0
		2005	8	0	0						
		2009	3	3	100	100	0	0	0	0	0
		2010	1	1	100	100	0	0	0	0	0
	• 0 100 •	2011	3	3	100	67	33	0	0	0	0
Viet Nam		1995	3 616	2 384	66	80	2	5	8	2	4
		2000	5 493	8 806	160	74	5	6	5	3	7
		2005	7 301	7 374	101	79	4	5	6	3	3
		2009	8 131	357	4	67	6	8	2	10	7
		2010	8 408	398	5	61	8	8	4	12	6
	• 81 82 •	2011	8 639	8 641	100	79	3	5	5	3	5
Wallis and Futuna Islands		1995	1		–						
		2000			–						
		2005			–						
		2009	0		–						
		2010		0	–						
	• 0 0 •	2011	0		–						

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
American Samoa		2005	0	0	6					
		2010	75	3	4	0	0			
		2011	100	3	3	0	0			
	• 0 –	2012								
Australia		2005	42	448	1 073	22	4.9	9.1	0	
		2010	54	686	1 281	24	3.5			
		2011	59	750	1 268	19	2.5			
	• 42 56 •	2012	56	740	1 325	8	1.1			
Brunei Darussalam		2005	100	163	163	2	1.2	0	0	
		2010	100	237	237	1	0.42	100	100	2
		2011	100	230	230	3	1.3	100	100	0
	• 100 100 •	2012	100	243	243	2	0.82	100	100	0
Cambodia		2005	2.9	1 044	36 123	86	8.2			
		2010	77	32 236	41 628	2 112	6.6	65	45	491
		2011	82	32 544	39 670	1 656	5.1	88	79	1 305
	• 3 80 •	2012	80	32 359	40 258	1 433	4.4	98	88	1 145
China		2005			990 509					
		2010	16	145 919	923 308	4 542	3.1		45	
		2011	23	208 681	911 884	4 715	2.3		36	
	– 34 •	2012	34	309 385	900 678	5 866	1.9		59	
China, Hong Kong SAR		2005	68	4 209	6 160	35	0.83	49	54	
		2010	75	3 833	5 132	24	0.63	17	29	
		2011	74	3 656	4 926	28	0.77			
	• 68 75 •	2012	75	3 707	4 969	22	0.59			
China, Macao SAR		2005	91	378	415	1	0.26	0	100	
		2010	92	399	433	3	0.75	33	33	
		2011	94	360	382	2	0.56	50	50	
	• 91 89 •	2012	89	360	406	4	1.1	0	25	
Cook Islands		2005	0	0	1	0				
		2010		0	0	0				
		2011	100	1	1	0	0			
	• 0 100 •	2012	100	1	1	0	0			
Fiji		2005	100	132	132	1	0.76	0	0	
		2010	82	157	191	3	1.9	100	100	0
		2011	73	160	220	3	1.9	100	100	
	• 100 58 •	2012	58	127	218	5	3.9	100	60	1
French Polynesia		2005	48	30	63	0	0			
		2010	27	11	41	0	0			
		2011	27	17	64	1	5.9	100	100	
	• 48 44 •	2012	44	22	50	0	0			
Guam		2005	72	46	64	0	0			
		2010	62	63	101	1	1.6	100	100	
		2011	65	53	82	0	0			
	• 72 68 •	2012	68	46	68	0	0			
Japan		2005			28 319					
		2010	52	12 098	23 261	53	0.44			
		2011	49	11 221	22 681	75	0.67			
	– 16 •	2012	16	3 328	21 283	62	1.9			
Kiribati		2005	13	44	339	2	4.5	0	0	
		2010	54	159	294	0	0			2
		2011	77	274	354	0	0			
	• 13 43 •	2012	43	150	348	0	0			
Lao People's Democratic Republic		2005			3 807					
		2010	38	1 533	4 083	182	12	100		
		2011	46	2 012	4 387	222	11	76		
	– 48 •	2012	48	1 999	4 156	234	12	78		303
Malaysia		2005	73	11 661	16 066	1 468	13			
		2010	91	17 577	19 337	1 628	9.3	22	22	
		2011	89	18 472	20 666	1 629	8.8	48	48	
	• 73 97 •	2012	97	22 124	22 710	1 347	6.1		32	1 120
Marshall Islands		2005	77	86	112	0	0			
		2010	68	137	201	0	0			
		2011	91	137	151	1	0.73	0	100	
	• 77 60 •	2012	60	88	147	0	0			
Micronesia (Federated States of)		2005	6.2	7	112	0	0			
		2010	49	85	174	0	0			
		2011	97	145	150	0	0			
	• 6 100 •	2012	100	146	146	0	0			0
Mongolia		2005	<0.1	1	4 726	1	100	100	100	
		2010	89	4 256	4 801	2	<0.1	100	100	0
		2011	80	3 612	4 533	3	<0.1	100	100	0
	• 0 78 •	2012	78	3 465	4 453	4	0.12	75	75	0
Nauru		2005	0	0	11	0				
		2010	0	0	3	0				
		2011	0	0	5	0				
	• 0 –	2012								
New Caledonia		2005	40	21	53	0	0			
		2010	0	0	57	0				
		2011	0	0	52					
	• 40 –	2012			38					
New Zealand		2005	41	140	340	8	5.7			
		2010	60	183	305	3	1.6			
		2011	57	175	309	3	1.7			
	• 41 58 •	2012	58	171	297	3	1.8			
Niue		2005		0	0	0				
		2010		0	0	0				
		2011	100	1	1	0	0			
	– –	2012			0					
Northern Mariana Islands		2005	98	56	57	0	0			
		2010	100	32	32	0	0			
		2011	94	31	33	0	0			
	• 98 79 •	2012	79	27	34	1	3.7	0	0	
Palau		2005	90	9	10	0	0			
		2010	95	18	19	0	0			
		2011	83	10	12	1	10	0	0	
	• 90 100 •	2012	100	4	4	0	0			
Papua New Guinea		2005			12 564					
		2010	13	2 122	16 113	222	10			135
		2011	29	4 671	16 324	531	11			256
	– 17 •	2012	17	3 713	22 488	364	9.8		89	325
Philippines		2005			137 100					
		2010	0.94	1 634	174 389	2	0.12	0	0	16
		2011	1.9	3 917	206 088	9	0.23			226
	– 1 •	2012	0.89	2 040	230 162	4	0.2			

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2012**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2012	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Republic of Korea		2005			46 969					
		2010			48 101	135				
		2011			50 491	129				
	– –	2012			49 532					
Samoa		2005	0	0	24	0				
		2010	21	3	14	0	0			0
		2011	0	0	20	0				
	• 0 0 •	2012	0	0	22	0				
Singapore		2005			1 469					
		2010	74	1 184	1 608	50	4.2			
		2011	79	1 332	1 695	61	4.6			
	– 84 •	2012	84	1 978	2 364	47	2.4			
Solomon Islands		2005	0	0	397	0				
		2010	11	39	341	0	0			0
		2011	17	70	405	0	0			
	• 0 12 •	2012	12	45	372	0	0			
Tokelau		2005		0	0	0				
		2010		0	0	0				
		2011		0	0	0				
	– –	2012								
Tonga		2005			18					
		2010	73	8	11	0	0			
		2011	100	9	9	0	0			
	– 100 •	2012	100	11	11	0	0			
Tuvalu		2005	0	0	15	0				
		2010	0	0	14	0				
		2011	31	4	13	0	0			
	• 0 45 •	2012	45	9	20	0	0			
Vanuatu		2005	0	0	81	0				
		2010	7.8	9	116	0	0			
		2011	45	50	112	0	0			
	• 0 52 •	2012	52	65	126	0	0			
Viet Nam		2005	15	14 128	95 892	595	4.2			
		2010	43	42 356	99 022	3 515	8.3	62	43	1 317
		2011	59	59 176	100 518	4 703	7.9	72	48	
	• 15 66 •	2012	66	68 259	103 906	4 775	7	73	47	5 663
Wallis and Futuna		2005			7	0				
		2010		10		0	0			
		2011	400	8	2	0	0			
	– –	2012								

WESTERN PACIFIC REGION

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES: ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES: NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	NEW PULMONARY CASES: % OF BACT+VE[b] TESTED FOR MDR-TB	PREVIOUSLY TREATED CASES: ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	PREVIOUSLY TREATED CASES: NUMBER OF NOTIFIED TESTED FOR MDR-TB	PREVIOUSLY TREATED CASES: % OF NOTIFIED TESTED FOR MDR-TB
American Samoa	2005					–			–
	2010	0			0	–		0	–
	2011	0			1	–		0	–
	2012		–	–		–	–		–
Australia	2005	12				–			–
	2010	33			868	160		48	74
	2011	28			652	99		26	53
	2012	18	17 (9.2–25)	14 (8.1–23)	861	130	3.0 (0.36–9.9)	31	67
Brunei Darussalam	2005					–			–
	2010	0			181	100		5	100
	2011	0			205	130		8	100
	2012	0	0 (0–0)	0 (0–4.4)	166	100	0 (0–3.2)	14	100
Cambodia	2005					–			–
	2010	31			5	<0.1		93	5.7
	2011	56			18	<0.1		190	13
	2012	75	380 (190–580)	330 (160–590)	16	0.11	56 (21–110)	86	17
China	2005					–			–
	2010	2792				–			–
	2011	1601			9940	2.6			–
	2012	3007	59 000 (52 000–66 000)	49 000 (38 000–60 000)	11472	3.6	11 000 (9 000–12 000)	4861	12
China, Hong Kong SAR	2005	41			3271	96		163	23
	2010	28			1897	61		211	41
	2011	23			1992	79		207	43
	2012	26	48 (30–66)	36 (22–55)	2061	76	12 (4.6–27)	232	48
China, Macao SAR	2005	9			265	190		19	61
	2010	6			221	89		39	65
	2011	5			258	110		24	100
	2012	8	8.3 (3.0–14)	2.3 (0.27–8.1)	261	110	6.0 (2.3–11)	28	100
Cook Islands	2005					–			–
	2010	0			0	–		0	–
	2011	0			0	0		0	–
	2012	1	1.0 (<0.1–1.0)	0 (0–0)	0	–	1.0 (<0.1–1.0)	1	100
Fiji	2005					–			–
	2010	0			4	4.5		4	33
	2011	0			18	17		0	0
	2012	0	0 (0–0)	0 (0–14)	15	9.1	0 (0–13)	1	7.7
French Polynesia	2005	0				–		3	100
	2010	0			27	87		4	100
	2011	0			47	110		1	50
	2012	0	0 (0–0)	0 (0–4.2)	30	91	0 (0–3.6)	4	67
Guam	2005	1			39	110		0	0
	2010	2			56	110		2	100
	2011	0			43	110		2	67
	2012	0	0 (0–6.7)	0 (0–6.7)	31	100	0 (0–0)	0	–
Japan	2005					–			–
	2010	68			7684	54		694	39
	2011	60			7400	51		670	40
	2012	64	240 (180–300)	110 (65–170)	8564	66	130 (96–180)	583	44
Kiribati	2005	1			1	0.81			–
	2010	0			0	0		0	0
	2011	0				–			–
	2012	0	15 (12–18)	13 (9.5–16)	0	0	2.3 (1.9–2.7)	0	0
Lao People's Democratic Republic	2005					–			–
	2010	2				–			–
	2011	4				–			–
	2012	10	220 (180–260)	170 (130–220)	14	0.46	48 (40–56)	48	23
Malaysia	2005	1			15010	180		1056	110
	2010	64				–			–
	2011	141				–			–
	2012	74	18 (0–54)	18 (0.46–100)		–	0 (0–250)		–
Marshall Islands	2005	2			52	110		3	60
	2010	1			68	96		3	30
	2011	1			50	100		4	20
	2012	3	4.4 (0–9.3)	4.4 (0.92–12)	73	140	0 (0–5.9)	0	0
Micronesia (Federated States of)	2005	1			35	110		21	100
	2010	1			50	70		3	23
	2011	1			44	98		0	0
	2012	3	6.8 (5.4–8.2)	5.9 (4.3–7.3)	5	8.6	0.93 (0.78–1.1)	0	0
Mongolia	2005	0			0	0		16	4.7
	2010	187			40	2.2		561	95
	2011	185			157	9.1		602	110
	2012	210	170 (140–190)	33 (15–58)	196	11	130 (120–150)	681	130
Nauru	2005					–			–
	2010					–			–
	2011	0			0	0			–
	2012		–	–		–	–		–
New Caledonia	2005					–			–
	2010	0			20	62		0	0
	2011	0			24	140		0	0
	2012	0	0 (0–0)	0 (0–3.1)	28	120	0 (0–0.98)	0	0
New Zealand	2005	4			247	150		14	74
	2010	4			243	180		10	91
	2011	2			229	160		5	83
	2012	4	3.7 (0–9.2)	0.75 (<0.1–4.1)	221	150	3.0 (<0.1–11)	12	80
Niue	2005					–			–
	2010	0				–			–
	2011	0				–			–
	2012	0	0 (0–0)	0 (0–0)		–	0 (0–0)		–
Northern Mariana Islands	2005	2			24	100		1	–
	2010	0			17	100		0	–
	2011	0			19	100		0	–
	2012	0	0 (0–0)	0 (0–6.1)	15	100	0 (0–2.0)	0	0
Palau	2005	0			3	100		0	–
	2010	0			11	58		0	–
	2011	1			8	100		0	0
	2012	0	0 (0–2.8)	0 (0–2.8)	3	100	0 (0–0)	0	–
Papua New Guinea	2005					–			–
	2010					–			–
	2011	15				–			–
	2012	58	1 100 (930–1 300)	590 (430–740)		–	500 (420–590)		–
Philippines	2005	274			4	<0.1		138	3.5
	2010	522			3	<0.1		297	2.7
	2011	1148			25	<0.1		2325	17
	2012	679	12 000 (9 300–15 000)	8 500 (6 000–11 000)	35	<0.1	3 700 (2 500–5 100)	2038	12

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).

[b] BACT+VE = bacteriologically positive cases.

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2012**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Republic of Korea	2005					–			–
	2010	450				–			–
	2011	516			3431	17		968	13
	2012	1212	2 200 (1 800–2 700)	840 (660–1 100)		–	1 400 (1 000–1 900)		–
Samoa	2005					–			–
	2010	0			0	0		0	–
	2011	0				–			–
	2012	0	0 (0–4.1)	0 (0–4.1)	15	79	0 (0–0)		–
Singapore	2005	3			895	96		105	69
	2010	3			923	97		79	61
	2011	6			952	97		104	64
	2012	22	36 (21–51)	31 (18–48)	1178	98	5.2 (1.1–15)	93	58
Solomon Islands	2005					–			–
	2010	0			1	0.75		1	20
	2011	0			0	0		0	0
	2012	0	12 (9.1–15)	12 (8.8–15)	9	5.7	0 (0–3.3)	16	100
Tokelau	2005					–			–
	2010	0			0	–		0	–
	2011					–			–
	2012		–	–		–	–		–
Tonga	2005					–			–
	2010	0			0	0		0	–
	2011	0			0	0		0	–
	2012	0	0.49 (0.36–0.61)	0.49 (0.36–0.61)	0	0	0 (0–0)	0	–
Tuvalu	2005					–			–
	2010	0			0	0		0	–
	2011	0				–			–
	2012	2	0.72 (0.60–0.85)	0.49 (0.36–0.61)	1	11	0.23 (0.19–0.27)		–
Vanuatu	2005					–			–
	2010	0				–			–
	2011	0			0	0		0	0
	2012	0	0.47 (0.39–0.54)	0 (0–8.7)	0	0	0.47 (0.39–0.54)	0	0
Viet Nam	2005					–			–
	2010	101				–			–
	2011	601				–			–
	2012	273	3 800 (3 000–4 600)	2 100 (1 500–2 800)		–	1 700 (1 300–2 300)		–
Wallis and Futuna Islands	2005					–			–
	2010					–			–
	2011	0			0	0		0	–
	2012		–	–		–	–		–

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).

[b] BACT+VE = bacteriologically positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
American Samoa	1995																	–
	2000					1	1							1				2.0
	2005											1		2				–
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011																	–
	2012																	–
Australia	1995																	–
	2000	3	16	35	25	24	19	49		0	15	19	12	15	5	14		2.1
	2005	0	32	27	23	11	12	30		2	18	26	11	10	6	14		1.6
	2010	2	42	33	22	25	9	27	0	4	36	43	12	2	5	12	0	1.4
	2011	2	38	44	26	19	12	37	0	3	26	40	23	7	7	17	0	1.4
	2012	3	26	40	17	25	16	37	0	1	27	48	15	11	9	15	0	1.3
Brunei Darussalam	1995																	–
	2000	0	6	4	15	5	7	15		0	4	6	9	6	3	4		1.6
	2005	0	9	19	19	12	9	0		0	9	11	8	3	2	0		2.1
	2010	0	17	15	13	18	7	18	0	2	7	15	12	8	4	10	0	1.5
	2011	0	11	11	11	10	11	13	0	2	5	9	6	7	3	10	0	1.6
	2012	0	10	13	15	13	8	19	0	0	5	6	9	10	6	5	0	1.9
Cambodia	1995	161	453	1 244	1 147	1 253	1 257	707		123	388	1 133	1 435	1 426	1 180	578		0.99
	2000	26	519	1 323	1 618	1 456	1 373	1 058		38	457	1 157	1 649	1 798	1 459	892		0.99
	2005	49	894	1 600	2 349	2 043	1 964	1 811		45	790	1 413	2 089	2 323	2 058	1 573		1.0
	2010	39	750	1 564	1 760	2 105	1 531	1 599		60	752	1 321	1 303	1 732	1 607	1 331		1.2
	2011	34	791	1 469	1 557	1 972	1 439	1 339		39	690	1 211	1 092	1 528	1 473	1 242		1.2
	2012	31	673	1 256	1 414	1 904	1 434	1 526		22	612	1 088	957	1 424	1 302	1 198		1.2
China	1995	1 102	12 791	18 306	15 487	13 105	13 489	10 130		1 169	10 890	13 250	8 376	5 679	4 579	2 841		1.8
	2000	1 131	19 111	29 399	25 206	25 593	21 429	21 771		1 420	14 536	18 496	12 377	9 899	7 102	6 296		2.0
	2005	1 416	43 005	49 558	55 400	54 872	53 822	69 779		1 864	31 180	27 759	24 728	19 889	18 203	21 244		2.3
	2010	759	42 851	38 880	50 246	52 925	56 754	64 514	0	926	27 064	21 022	20 422	16 075	17 441	20 020	0	2.5
	2011	645	37 514	34 597	43 087	47 949	51 315	55 881	0	733	22 859	18 347	17 119	14 103	15 218	17 638	0	2.6
	2012	511	29 018	28 324	34 505	40 428	44 821	49 413	0	580	17 786	15 549	13 485	11 981	13 384	16 547	0	2.5
China, Hong Kong SAR	1995																	–
	2000	4	78	102	160	211	236	578		5	65	115	86	44	45	211		2.4
	2005	3	76	84	108	200	168	453		3	67	81	92	57	34	135		2.3
	2010	2	52	84	99	184	166	413	0	3	49	101	76	64	49	133	0	2.1
	2011	2	72	52	63	172	189	384	0	3	56	89	69	60	53	116	0	2.1
	2012	4	63	67	95	174	178	430	0	1	45	110	76	51	54	115	0	2.2
China, Macao SAR	1995	0	7	19	20	13	12	16		0	9	18	12	4	5	6		1.6
	2000	0	10	8	25	22	9	17		0	10	4	6	6	3	13		2.2
	2005	3	6	9	21	23	17	22		0	5	9	7	8	1	5		2.9
	2010	0	17	5	7	22	20	11	0	0	7	6	10	5	7	6	0	2.0
	2011	0	20	22	22	47	39	24	0	0	28	25	17	18	6	6	0	1.7
	2012	0	10	12	13	22	32	17	0	1	12	11	13	3	7	3	0	2.1
Cook Islands	1995	0	0	0	0	0	1	0		0	0	0	0	1	0	0		1.0
	2000	0	0	0	0	0	0	0		0	0	0	0	0	0	0		–
	2005	0	1	0	0	0	0	0		0	0	0	0	0	0	0		–
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	–
	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Fiji	1995	0	8	10	9	4	2	3		1	10	9	2	3	4	3		1.1
	2000	0	8	6	13	5	4	2		0	7	5	7	1	4	0		1.6
	2005	7	9	18	18	14	16	6		7	7	9	6	4	6	5		2.0
	2010	1	7	15	11	6	2	4	0	1	11	12	5	1	8	5	0	1.1
	2011	0	12	16	8	9	9	4	0	1	13	17	7	5	2	3	0	1.2
	2012	2	14	12	9	12	5	7	0	2	11	10	7	6	7	7	0	1.2
French Polynesia	1995																	–
	2000	1	3	3	4	4	4	3		1	4	1	0	1	0	0		3.1
	2005	0	2	2	2	0	4	2		0	2	3	0	1	1	3		1.2
	2010	0	3	1	0	1	1	1	0	0	1	1	0	3	0	1	0	1.2
	2011	0	3	1	1	5	1	3	0	0	3	3	0	1	0	1	0	1.8
	2012	0	1	2	2	3	3	3	0	0	2	3	0	3	4	0	0	1.2
Guam	1995																	–
	2000	2	1	6	6	9	6	9		0	3	1	2	5	2	2		2.6
	2005	0	2	4	4	2	2	4		0	3	1	1	2	0	2		2.0
	2010	0	2	3	5	5	7	3	0	1	0	4	3	3	0	3	0	1.8
	2011	0	1	0	2	7	4	4	0	0	1	1	1	0	3	4	0	1.8
	2012	0	1	0	4	5	2	6	0	0	0	0	0	2	1	2	0	3.6
Japan	1995	15	342	627	995	1 847	2 059	4 089		14	258	476	298	476	637	2 234		2.3
	2000	2	246	572	676	1 494	1 509	3 816		5	222	464	213	292	384	1 958		2.4
	2005	9	197	488	605	868	1 418	3 867		5	187	428	249	224	309	2 077		2.1
	2010	1	128	252	382	469	911	3 326		6	89	232	194	155	183	1 909		2.0
	2011	0	96	215	367	465	812	3 256	0	5	94	213	203	148	223	1 840	0	1.9
	2012	2	94	209	309	415	741	3 230	0	2	79	180	169	111	175	1 947	0	1.9
Kiribati	1995																	–
	2000	2	9	3	3	3	8	2		2	5	6	3	4	1	3		1.2
	2005	3	15	15	12	17	4	1		5	22	12	7	7	3	1		1.2
	2010	3	27	13	10	9	6	2	0	5	15	7	4	8	5	4	0	1.5
	2011	4	17	9	3	10	9	3	0	6	26	12	9	16	12	4	0	0.65
	2012	4	19	12	16	17	11	5	0	4	15	11	10	7	2	1	0	1.7
Lao People's Democratic Republic	1995	6	56	71	68	78	90	55		3	49	49	69	54	52	26		1.4
	2000	7	92	128	166	201	177	176		10	59	95	131	122	91	71		1.6
	2005	13	136	223	296	373	300	352		7	101	186	205	244	192	178		1.5
	2010	8	157	254	287	416	385	380		13	133	152	215	269	225	225		1.5
	2011	8	145	275	323	474	416	375		14	141	204	208	267	215	206		1.6
	2012	10	144	236	326	424	381	365		11	119	197	192	246	210	201		1.6
Malaysia	1995	59	640	879	775	788	374	1 072		58	446	448	345	316	149	339		2.2
	2000	32	694	1 138	1 177	908	814	891		41	464	564	424	367	356	286		2.3
	2005	244	1 179	2 218	2 277	1 980	1 427	1 507		208	1 044	1 061	947	816	586	572		2.1
	2010	129	884	1 438	1 599	1 453	967	981	0	152	704	881	592	542	425	388	0	2.0
	2011	63	948	1 564	1 559	1 594	1 245	1 054	0	77	837	876	584	599	459	403	0	2.1
	2012	74	1 060	1 575	1 677	1 762	1 409	1 260	0	105	903	1 010	710	693	590	483	0	2.0
Marshall Islands	1995																	–
	2000	3	5	4	1	3	5	3		7	7	3	0	2	2	0		1.1
	2005	2	4	4	5	6	1	1		1	9	2	4	3	4	2		0.92
	2010	0	10	1	4	6	6	2	0	5	9	2	2	4	8	0	0	0.97
	2011	1	7	2	3	3	3	1	0	1	5	8	2	5	2	1	0	0.83
	2012	0	3	8	6	9	2	2	0	0	5	7	2	5	3	2	0	1.2
Micronesia (Federated States of)	1995	0	1	0	3	1	0	0		0	0	1	0	0	0	1		2.5
	2000	0	2	0	1	0	0	1		4	3	1	1	0	1	1		0.36
	2005																	–
	2010	3	8	1	2	4	4	0	0	5	8	9	3	4	2	0	0	0.71
	2011	4	8	5	6	2	0	1	0	5	5	2	3	1	2	1	0	1.4
	2012	3	8	5	4	2	0	1	0	5	6	2	3	1	3	0	0	1.2
Mongolia	1995	37	99	111	68	19	13	15		30	70	78	33	15	9	25		1.4
	2000	6	181	260	171	68	38	23		32	200	213	113	41	26	17		1.2
	2005	7	271	253	232	147	52	36		15	320	270	145	63	32	25		1.1
	2010	3	285	255	231	154	50	40	0	12	296	246	112	83	42	28	0	1.2
	2011	2	246	289	205	170	71	41	0	10	250	192	121	61	40	25	0	1.5
	2012	7	257	268	191	184	63	37	0	11	250	208	97	82	28	33	0	1.4

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2012**

	YEAR	MALE 0–14	MALE 15–24	MALE 25–34	MALE 35–44	MALE 45–54	MALE 55–64	MALE 65+	MALE UN-KNOWN	FEMALE 0–14	FEMALE 15–24	FEMALE 25–34	FEMALE 35–44	FEMALE 45–54	FEMALE 55–64	FEMALE 65+	FEMALE UN-KNOWN	MALE:FEMALE RATIO
Nauru	1995																	–
	2000					1								1	1			0.50
	2005																	–
	2010	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	–
	2011	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	2.0
	2012																	–
New Caledonia	1995	3	2	3	4	2	2	3		2	1	1	3	3	0	1		1.7
	2000	1	1	3	4	2	3	4		1	8	1	1	3	2	4		0.90
	2005	0	2	1	0	0	3	0		0	1	2	1	2	0	4		0.60
	2010	0	1	2	3	1	4	3	0	0	1	0	1	0	1	3	0	2.3
	2011	0	0	0	3	1	2	3	0	0	0	1	1	0	1	1	0	2.2
	2012			2		3	2	1						1	1	1		2.7
New Zealand	1995	0	4	3	3	5	7	7		1	2	3	4	2	2	4		1.6
	2000	0	6	5	6	8	10	7		1	6	6	5	0	4	10		1.3
	2005	4	6	10	6	6	5	10		1	11	9	6	6	1	2		1.3
	2010	0	6	13	4	6	5	11	0	2	12	7	6	5	3	6	0	1.1
	2011	1	12	5	5	7	7	11	0	4	8	8	4	5	3	8	0	1.2
	2012	0	7	9	2	4	6	14	0	3	4	8	2	3	1	5	0	1.6
Niue	1995																	–
	2000																	–
	2005	0	0	0	0	0	0	0		0	0	0	0	0	0	0		–
	2010																	–
	2011																	–
	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Northern Mariana Islands	1995	1	1	3	5	10	3	3		0	0	2	6	4	1	1		1.9
	2000	1	4	8	9	9	3	2		0	10	17	7	3	1	1		0.92
	2005	0	0	1	3	4	1	2		0	0	0	1	1	1	1		2.8
	2010	0	2	0	0	3	3	0	0	0	2	0	1	3	2	1	0	0.89
	2011	0	0	0	0	1	5	3	0	0	0	1	0	2	3	0	0	1.5
	2012	0	0	0	3	1	1	0	0	0	0	3	1	0	0	0	0	1.2
Palau	1995	0	2	3	0	2	1	0		0	0	0	0	1	0	0		8.0
	2000																	–
	2005			2				1										–
	2010	0	1	2	1	1	1	1	0	1	0	1	1	0	0	0	0	2.3
	2011	0	0	0	1	0	2	0	0	0	0	1	0	0	0	0	0	3.0
	2012	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	–
Papua New Guinea	1995																	–
	2000	8	87	70	30	21	12	5		6	77	45	21	15	5	1		1.4
	2005	28	183	205	108	94	48	12		38	200	204	124	65	35	2		1.0
	2010	37	279	260	196	135	87	27		64	313	292	191	97	52	9		1.0
	2011	50	278	265	152	122	71	18		53	302	272	146	97	55	15		1.0
	2012	54	415	387	250	182	121	37	0	55	398	395	208	156	95	29	80	1.0
Philippines	1995	2	43	56	61	46	47	26		1	20	32	26	20	19	11		2.2
	2000																	–
	2005	482	7 358	11 275	13 253	12 531	7 646	4 279		374	3 710	5 268	5 565	4 603	3 274	2 029		2.3
	2010	511	9 320	12 224	13 716	13 651	8 923	4 742	0	454	4 825	5 489	5 301	4 643	3 329	2 070	0	2.4
	2011	573	9 725	12 804	14 474	14 002	9 568	4 845		448	5 155	5 848	5 521	4 880	3 501	2 236		2.4
	2012	583	9 754	12 576	14 140	13 996	9 676	5 097		466	5 104	5 954	5 584	5 068	3 605	2 380		2.3
Republic of Korea	1995	27	1 131	1 613	1 425	1 207	1 307	1 225		46	908	863	431	296	408	867		2.1
	2000	19	821	1 085	988	853	731	901		25	546	544	393	220	295	795		1.9
	2005	22	687	1 171	1 326	1 336	1 005	1 669		27	590	842	491	370	373	1 729		1.6
	2010	22	537	705	1 049	1 496	1 029	1 997	0	23	472	686	509	487	368	2 216	0	1.4
	2011	13	491	712	1 019	1 414	1 145	2 132	0	37	446	688	520	432	421	2 244	0	1.4
	2012	11	500	699	956	1 562	1 238	2 255	5	22	436	664	444	377	397	2 569	2	1.5
Samoa	1995	0	1	1	1	0	3	2		1	2	2	0	0	1	1		1.1
	2000	0	3	1	1	1	2	1		0	2	1	1	0	0	0		2.2
	2005	0	4	0	1	1	0	0		0	2	0	2	0	1	0		1.2
	2010		1	1			1		3				2		1		3	1.0
	2011	0	1	0	0	0	0	0	0	0	2	1	0	1	0	1	0	0.20
	2012	0	4	3	1	1	1	0	0	1	1	0	1	1	0	1	0	2.0
Singapore	1995	0	9	40	60	62	70	94		1	8	18	21	22	19	31		2.8
	2000	1	8	9	34	51	26	64		1	9	8	7	9	5	16		3.5
	2005	0	8	25	61	94	96	118		0	5	20	33	29	20	43		2.7
	2010	0	11	21	38	105	86	120	0	1	15	21	26	21	21	44	0	2.6
	2011	0	21	21	44	108	119	126	0	0	11	25	23	23	20	51	0	2.9
	2012	1	31	36	54	106	124	143	0	0	26	46	27	26	19	39	0	2.7
Solomon Islands	1995	2	14	6	5	7	9	3		3	17	11	7	12	13	0		0.73
	2000	3	13	4	8	8	10	6		8	15	13	7	7	5	2		0.91
	2005	4	14	18	9	15	12	11		9	23	21	12	11	9	1		0.97
	2010	4	16	18	16	8	3	3	0	4	19	17	11	5	4	5	0	1.0
	2011	3	15	22	12	7	8	6	0	3	13	27	15	10	16	2	0	0.85
	2012	3	20	19	10	12	8	6	0	5	20	18	11	8	12	5	0	0.99
Tokelau	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011																	–
	2012																	–
Tonga	1995	0	1	0	0	0	1	2		0	0	1	1	0	2	1		0.80
	2000		2	1	1		1	5			1	1	1		1	1		2.0
	2005	0	2	1	0	2	1	0		0	2	1	0	0	2	0		1.2
	2010	0	0	0	1	0	1	3	0	0	0	0	0	1	0	0	0	5.0
	2011	0	0	1	0	0	0	1	0	2	0	1	1	0	0	0	0	0.50
	2012	0	0	0	0	2	0	2	0	0	2	0	0	1	1	1	0	0.80
Tuvalu	1995	1	0	1	0	0	1	0		0	1	1	0	0	1	0		1.0
	2000																	–
	2005					1	1				1				2			0.67
	2010	0	1	0	0	1	2	0		0	0	1	0	0	0	0		4.0
	2011	1	1				1							1				3.0
	2012		1		1	1				2	1			2				0.60
Vanuatu	1995	0	6	2	5	3	4	0		0	5	0	2	3	0	0		2.0
	2000	2	7	5	1	10	5	2		5	3	15	7	3	3	1		0.86
	2005	1	4	5	5	0	4	1		0	5	1	2	4	1	2		1.3
	2010	4	6	3	1	5	2	0	0	3	5	3	3	5	3	1	0	0.91
	2011	2	3	4	6	5	4	2	0	0	5	7	5	4	2	0	0	1.1
	2012	0	4	3	4	2	2	2	0	3	12	5	5	4	2	3	0	0.50
Viet Nam	1995																	–
	2000	51	2 367	6 147	8 209	6 713	5 150	7 712		64	1 334	2 320	2 754	2 594	2 847	4 907		2.2
	2005	54	3 408	7 105	8 738	8 606	4 958	7 573		47	1 747	2 293	2 116	2 298	2 023	4 604		2.7
	2010	59	3 205	7 036	7 851	8 564	5 790	6 248	0	53	1 870	2 454	1 681	1 864	1 863	3 751	0	2.9
	2011	61	3 099	6 677	7 763	8 474	6 107	5 821	0	64	1 863	2 325	1 681	1 814	1 878	3 124	0	3.0
	2012	58	2 993	6 689	7 680	8 481	6 315	5 920	0	84	1 841	2 481	1 626	1 683	1 884	3 298	0	3.0
Wallis and Futuna Islands	1995																	–
	2000																	–
	2005																	–
	2010																	–
	2011						2											–
	2012																	–

WESTERN PACIFIC REGION

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2012**

	LABORATORIES								FREE THROUGH NTP		RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS		
American Samoa		–										
Australia		–					In country	Yes	Yes (all suspects)	Yes	Yes	
Brunei Darussalam	0.2	0	12.1	12.1	12.1	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	26
Cambodia	1.4	10	1.0	0.3	0	6	No	Yes	Yes (all suspects)	Yes	Yes	
China	0.2	2	3.7	0.7	<0.1	16	In country	Yes	Yes (all suspects)	Yes	Yes	
China, Hong Kong SAR	0.4	3	9.1	1.4	1.4	9	In country	Yes	Yes (all suspects)	Yes	Yes	
China, Macao SAR	0.4	0	9.0	9	0	0	In country	No	Yes (all suspects)	Yes	Yes	
Cook Islands		–					Out of country	Yes	Yes (other criteria)	No	Yes	
Fiji	0.5	0	5.7	0	0	3	No	Yes	Yes (all suspects)	Yes	Yes	41
French Polynesia		–					Out of country	Yes	Yes (if TB is confirmed)	Yes	Yes	
Guam		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Japan		–					In and out of country	Yes	No	No	Yes	
Kiribati	2.0	0	49.6	0	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	93
Lao People's Democratic Republic	2.4	0	2.3	0.8	0.8	0	No	Yes	Yes (all suspects)	Yes	No	
Malaysia	2.6	4	6.2	0.2	0.3	0	In country	Yes	Yes (all suspects)	Yes	Yes	106
Marshall Islands	5.7	33	95.1	95.1	95.1	1	Out of country	No	Yes (all suspects)	Yes	Yes	
Micronesia (Federated States of)	3.9	0	0	0	0	0	In and out of country	Yes	Yes (all suspects)	Yes	Yes	
Mongolia	1.4	8	3.6	1.8	1.8	0	In country	Yes	Yes (all suspects)	Yes	Yes	53
Nauru		–										
New Caledonia		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
New Zealand		–					In country	Yes	Yes (all suspects)	Yes	Yes	
Niue		–										
Northern Mariana Islands		–					Out of country	No	Yes (all suspects)	Yes	Yes	
Palau	9.6	0	240.9	240.9	240.9	1	Out of country	Yes	Yes (all suspects)	Yes	Yes	0
Papua New Guinea	1.6	0	0	0	0	6		Yes	Yes (if TB is confirmed)	Yes	Yes	
Philippines	2.7	0	0.7	0.2	<0.1	17	In country	Yes	Yes (all suspects)	Yes	Yes	
Republic of Korea	1.0	–	51.0	0.7	2	2		Yes	Yes (all suspects)	Yes	Yes	204
Samoa		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Singapore		–					In country	Yes	No	No	Yes	
Solomon Islands	1.5	0	0	0	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	0
Tokelau		–										
Tonga		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Tuvalu		–					Out of country	Yes	Yes (all suspects)	Yes	Yes	
Vanuatu	4.0	100	0	0	0	0	Out of country	Yes	Yes (all suspects)	Yes	Yes	111
Viet Nam	0.9	0	1.4	0.1	0.1	22	In country	Yes	Yes (for smear-positive TB)	Yes	No	
Wallis and Futuna Islands		–										

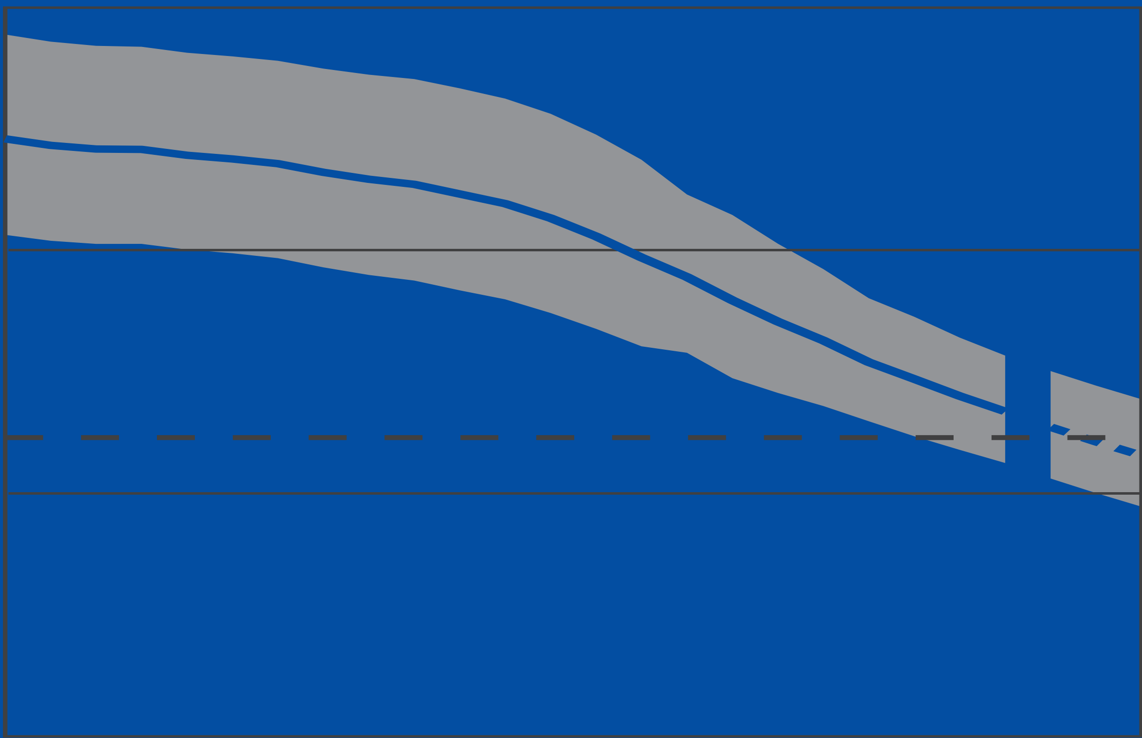
[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

TABLE A4.10 **Measured percentage of TB cases with MDR-TB[a], most recent year available**

	New TB cases				Previously treated TB cases			
	Year	Source	Coverage	Percentage	Year	Source	Coverage	Percentage
American Samoa								
Australia	2012	Surveillance	National	1.9 (1.1–3.0)	2012	Surveillance	National	6.5 (0.79–21)
Brunei Darussalam	2012	Surveillance	National	0 (0–2.2)	2012	Surveillance	National	0 (0–23)
Cambodia	2007	Survey	National	1.4 (0.71–2.5)	2007	Survey	National	11 (4.0–22)
China	2007	Survey	National	5.7 (4.5–7.0)	2007	Survey	National	26 (22–30)
China, Hong Kong SAR	2012	Surveillance	National	0.97 (0.59–1.5)	2012	Surveillance	National	2.6 (0.95–5.5)
China, Macao SAR	2012	Surveillance	National	0.77 (<0.1–2.7)	2012	Surveillance	National	21 (8.3–41)
Cook Islands	2012	Surveillance	National	0 (0–98)	2012	Surveillance	National	100 (2.5–100)
Fiji	2006	Surveillance	National	0 (0–8.2)	2006	Surveillance	National	0 (0–98)
French Polynesia	2012	Surveillance	National	0 (0–12)	2012	Surveillance	National	0 (0–60)
Guam	2012	Surveillance	National	0 (0–11)	2012	Surveillance	National	12 (9.2–15)
Japan	2002	Surveillance	National	0.7 (0.42–1.1)	2002	Surveillance	National	9.8 (7.1–13)
Kiribati								
Lao People's Democratic Republic								
Malaysia	1997	Survey	Sub-national	0.1 (0–0.56)	1997	Survey	Sub-national	0 (0–17)
Marshall Islands	2012	Surveillance	National	4.1 (0.86–12)	2012	Surveillance	National	0 (0–98)
Micronesia (Federated States of)								
Mongolia	2007	Survey	National	1.4 (0.66–2.5)	2012	Surveillance	National	26 (23–30)
Nauru								
New Caledonia	2012	Surveillance	National	0 (0–12)	2012	Surveillance	National	0 (0–98)
New Zealand	2011	Surveillance	National	0.44 (<0.1–2.4)	2011	Surveillance	National	20 (0.51–72)
Niue								
Northern Mariana Islands	2012	Surveillance	National	0 (0–22)	2012	Surveillance	National	0 (0–98)
Palau	2012	Surveillance	National	0 (0–71)	2012	Surveillance	National	23 (20–27)
Papua New Guinea								
Philippines	2004	Survey	National	4 (2.9–5.5)	2004	Survey	National	21 (14–29)
Republic of Korea	2004	Survey	National	2.7 (2.1–3.4)	2004	Survey	National	14 (10–19)
Samoa	2012	Surveillance	National	0 (0–22)	2012	Surveillance	National	0 (0–98)
Singapore	2012	Surveillance	National	1.6 (0.97–2.5)	2012	Surveillance	National	3.2 (0.67–9.1)
Solomon Islands					2012	Surveillance	National	0 (0–21)
Tokelau								
Tonga								
Tuvalu								
Vanuatu	2006	Surveillance	National	0 (0–12)				
Viet Nam	2006	Survey	National	2.7 (2.0–3.7)	2006	Survey	National	19 (14–25)
Wallis and Futuna Islands								

[a] Empty rows indicate an absence of high-quality survey or surveillance data. In the absence of high-quality national data, high-quality sub-national data are used.

The World Health Organization monitors the global tuberculosis epidemic in support of national TB control programmes.



For further information about tuberculosis contact:

Information Resource Centre HTM/GTB
World Health Organization
20 Avenue Appia, 1211–Geneva–27, Switzerland
Email: tbdocs@who.int
Web site: www.who.int/tb

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