



SAARC EPIDEMIOLOGICAL RESPONSE ON TUBERCULOSIS

2017



**SAARC Tuberculosis & HIV/AIDS Centre
(STAC)**



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FOREWORD

Tuberculosis – a disease from early times still remains a major public health problem, in the SAARC region. In member states of SAARC Region, there has been a considerable development in TB care services. However, three countries in the region namely India, Pakistan and Bangladesh are in WHO high TB and High MDR-TB countries list.

But as a region, all countries have shown remarkable progress in TB control since the introduction of DOTS. All most all countries have achieved MDG TB related targets and stop TB targets in 2015 compared with 1990 as base line. The year 2016, has been the year of beginning of reform of in TB care services and it is the first year of transitions: from the MDGs to a new era of Sustainable Development Goals (SDGs), and from the Stop TB Strategy to the End TB Strategy.

This report is an excellent review of the current status and future plans for the control of TB in the SAARC Region. It includes information on burden of tuberculosis in the SAARC region, including incidence, mortality along with the MDR-TB, TB/HIV confection etc. It also covers the information of the year 2015 and has been prepared on the basis of information collected from member countries during the year 2016 and by reviewing other related documents.

This is the fifteenth Report on Tuberculosis (TB) situation of SAARC Region which is being published by SAARC Tuberculosis and HIV/AIDS Centre (STAC) in a series that started in 2003, which includes a compilation of regional and country-specific achievements, challenges and plans. . The main purpose of the report is to provide a comprehensive and up-to-date assessment of the TB epidemic and progress made in TB care and control at Global, SAARC Region and Member States level.

I would like to thank the programme managers and experts within SAARC member countries, who have generated and shared the epidemiological data that has been used in this report.

We look forward to your continued collaboration in our joint efforts to broaden the partnership for control of tuberculosis in the SAARC region.

Dr. R.P. Bichha
Director
SAARC Tuberculosis and HIV/AIDS Centre

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ABBREVIATIONS

ACF	:	Active Case Finding
ACSM	:	Advocacy, Communication and Social Mobilization
AIDS	:	Acquired Immuno - Deficiency Syndrome
ART	:	Antiretroviral Treatment
C & DST	:	Culture and DST Laboratories
CB	:	Community-Based
CBNAAT	:	Cartridges Based Nucleic Acid Amplification Test
CBDOT	:	Community Based Dots on Tuberculosis
CFR	:	Case Fatality Ratio
CI	:	Confidence Interval
CNR	:	Case Notification Rate
CTB	:	Challenge TB
DMC	:	Designated Microscopy Centre
DMIS	:	Drug Management Information System
DOTS	:	Directly Observed Treatment Short course
DRS	:	Drug Resistance Survey
DR-TB	:	Drug-resistant tuberculosis
DST	:	Drug Susceptibility Testing
EP-TB	:	Extra-Pulmonary Tuberculosis
EQA	:	External Quality Assurance
FDCs	:	Fixed-Dose Combination Drugs
FLD	:	First Line Drug
GDF	:	Global Drug Facility
GF	:	Global Fund to Fight AIDS, Tuberculosis and Malaria
GLC	:	Green Light Committee
HBCs	:	High-Burden Countries
HIV	:	Human Immunodeficiency Virus
IDPs	:	Internally displaced Population
IEC	:	Information, Education and Communication
IPT	:	Isoniazid Preventive Therapy
IRLs	:	Intermediate Reference Laboratories

JICA	:	Japan International Cooperation Agency
KAP	:	Knowledge, attitude and practice
LPA	:	Line Probe Assay
MDGs	:	Millennium Development Goals
MDR	:	Multi Drug Resistance
MoH	:	Ministry of Health
MoPH	:	Ministry of Public Health
MOU	:	memorandum of understanding
NACP	:	National AIDS Control Programme
NFM	:	New Funding Model
NGO	:	Non-Government Organization
NPTCCD	:	National Programme for Tuberculosis Control and Chest Diseases
NRL	:	National Reference Laboratories
NSP	:	National Strategic Plan
NTC	:	National Tuberculosis Centre
NTCP	:	National Tuberculosis Control Programme
NTP	:	National Tuberculosis Programme
NTRL	:	National TB Reference laboratory
PLHIV	:	People Living with HIV
PMDT	:	Programmatic Management of Drug-Resistant Tuberculosis
PPM	:	Public-private Mix
RCDC	:	Royal Centre for Disease Control
RNTCP	:	Revised National TB Control Programme
RR-TB	:	Rifampicin resistant tuberculosis
RTRL	:	Regional TB reference laboratory
SAARC	:	South Asian Association for Regional Cooperation
SCC	:	Short Course Chemotherapy
SDGs	:	Sustainable Development Goals
SLD	:	Second Line Drug
SOP	:	Standard Operating Procedure
STAC	:	SAARC TB and HIV/AIDS Centre
STC	:	SAARC Tuberculosis Centre
TB	:	Tuberculosis

TRL : TB Reference Laboratory
UHC : Upazila Health Complex
USAID : United States Agency for International Development
VCCT : Voluntary Counseling and Testing Centre
WHO : World Health Organization
XDR : Extensively Drug-Resistant Tuberculosis

EXECUTIVE SUMMARY

This is the fifteenth Report on tuberculosis (TB) situation of SAARC Region which is being published by SAARC Tuberculosis and HIV/AIDS Centre (STAC) in a series that started in 2003. However the name of the report has changed “SAARC Epidemiological Response on Tuberculosis” from year 2014. The main purpose of the report is to provide a comprehensive and up-to-date assessment of the TB epidemic and progress made in TB care and control at Global, SAARC Region and Member States level.

The incidence has been falling globally achieving the Millennium Development Goal target. Of estimated 10.4 million new cases of TB (140 per 100 000 Population), 6.6 million cases were notified in 2016, globally there was 3.8 million gap between incident and notified cases.

An estimated 600 000 people newly eligible for MDR-TB treatment, only about 129689 (22%) were enrolled. A total of approximately 1.3 million people died of TB in 2016 and an additional 0.37 million deaths from TB among people who were HIV-positive.

The SAARC region, with an estimated incidence of 3.7 million TB cases, carries 36% of the global burden of TB. Three of the eight Member Countries in the Region are among the 30 high burden countries (Bangladesh, India and Pakistan) together notified 96% of the region. India alone accounted to 73% of all notifications in the SAARC region.

In the year 2016, the SAARC region has 106918 total number of an estimated MDR/RR-TB cases among notified pulmonary TB cases and 25147 no. of MDR/RR TB cases tested for resistance to second line drugs

In 2016, a total 40255 TB patients with known HIV status has tested in which India accounts highest number of TB patients with known HIV status who are HIV positive. Total 39506 patients are on ART in the region which is around 98 % of total TB patients with known HIV status who are HIV positive in SAARC region.

The proportion of known HIV-positive TB patients on antiretroviral therapy (ART) was 85% globally, and above 90% in India. However Afghanistan and Maldives have 100 % TB patients on Antiretroviral Therapy (ART) in 2016.

As the large number of HIV infected persons are in the SAARC Region particularly in India,

Bangladesh and Pakistan with high rates of TB transmission and the presence of high TB prevalence, the HIV epidemic could have significant implications on TB control in the Region. Collaborative TB/HIV activities are critical in order to ensure that HIV positive TB patients are identified and treated and also to prevent active TB disease in latently infected HIV positive people. HIV testing for TB patients is a critical entry point for both treatment and prevention.

All the SAARC Member States have developed their strategic plans for expansion of TB/HIV collaborative activities and are in the expansion mode. While, all the SAARC Member States have initiated management of MDR-TB under the National TB Control Programme, one of the most important constraints to rapid expansion of diagnostic and treatment services for MDR-TB identified by all the SAARC Member States, is laboratory capacity. Constraints in availability and retention of adequately trained human resources, is one of the major concerns of all the SAARC Member States.

1. INTRODUCTION

1.1 Introduction of SAARC

SAARC is an organization of eight countries located in the South Asia and it stands for the South Asian Association for Regional Corporation (SAARC). This is an economic and geopolitical organization, established to promote socio-economic development, stability, welfare economics, and collective self-reliance within the Region. The first summit was held in Dhaka, Bangladesh on 7–8 December 1985 and was attended by the Government Representatives and Presidents from Bangladesh, Maldives, Pakistan and Sri Lanka, the Kings of Bhutan and Nepal, and the Prime Minister of India. The dignitaries signed the SAARC Charter on 8 December 1985, thereby establishing the regional association and to carry out different important activities required for the development of the Region. The summit also agreed to establish a SAARC secretariat in Kathmandu, Nepal and adopted an official SAARC emblem. Due to rapid expansion within the region, Afghanistan received full-member status and some countries are considered as observers. SAARC respects the principles of sovereign equality, territorial integrity, and national independence as it strives to attain sustainable economic growth.

1.2 SAARC TB and HIV/AIDS Centre (STAC)

The Centre was established in 1992 as SAARC Tuberculosis Centre (STC) and started functioning from 1994. The Centre had been supporting the National Tuberculosis Control Programmes of the SAARC Member States. The Thirty–first session of Standing Committee of SAARC held in Dhaka on November 09th – 10th 2005, appreciating the efforts of the centre on TB/HIV co-infection and other works related to HIV/AIDS discipline and approved the renaming of the Centre as SAARC Tuberculosis and HIV/AIDS Centre (STAC) with additional mandate to support SAARC Member States for prevention of HIV/AIDS. Since then with its efforts and effective networking in the Member States the Centre is contributing significantly for control of both TB and HIV/AIDS.

Vision, Mission, Goal and Objective of STAC

The vision of the Centre is to be the leading institute to support and guide SAARC Member States to make the region free of TB and HIV/AIDS and the mission is to support the efforts of National TB and HIV/AIDS Control Programmes through evidence based policy guidance, coordination and technical support.

The goal of the Centre is to minimize the mortality and morbidity due to TB and HIV/AIDS in the Region and to minimize the transmission of both infections until TB and HIV/AIDS cease to be major public health problems in the SAARC Region and the objective of the Centre is to work for prevention and control of TB HIV/AIDS in the Region by coordinating the efforts of the National TB Programmes and National HIV/AIDS Programmes of the SAARC Member Countries.

Role of STAC

- To act as a Regional Co-ordination Centre for NTPs and NACPs in the Region.
- To promote and coordinate action for the prevention of TB/HIV co-infection in the Region.
- To collect, collate, analyze and disseminate all relevant information regarding the latest development and findings in the field of TB and HIV/AIDS in the Region and elsewhere.
- To establish a networking arrangement among the NTPs and NACPs of Member States and to conduct surveys, researches etc.
- To initiate, undertake and coordinate the Research and Training in Technical Bio-medical, operational and other aspects related to control of Tuberculosis and prevention of HIV/AIDS in the Region.
- To monitor epidemiological trends of TB, HIV/AIDS and MDR-TB in the Region.
- To assist Member States for harmonization of policies and strategies on TB, HIV/AIDS and TB/HIV co-infection.
- To assist National TB Reference Laboratories in the Region in quality assurance of sputum microscopy and standardization of culture and drug sensitivity testing and implementation of bio-safety measures.
- To carry-out other important works identified by the Programming Committees/Governing Board.

2. GLOBAL BURDEN OF TUBERCULOSIS

2.1 Basic facts about TB

TB is an infectious disease caused by the bacillus *Mycobacterium tuberculosis*. It typically affects the lungs (pulmonary TB) but can also affect other sites (extrapulmonary TB). The disease is spread when people who are sick with pulmonary TB expel bacteria into the air, for example by coughing. Overall, a relatively small proportion (5–15%) of the estimated 1.7 billion people infected with *M. tuberculosis* will develop TB disease during their lifetime. However, the probability of developing TB disease is much higher among people infected with HIV, and also higher among people affected by risk factors such as under-nutrition, diabetes, smoking and alcohol consumption.

Diagnostic tests for TB disease include:

Diagnostic tests for TB disease include the following:

- *Rapid molecular tests* – The only rapid test for diagnosis of TB currently recommended by WHO is the Xpert® MTB/RIF assay (Cepheid, USA). It can provide results within 2 hours, and was initially recommended (in 2010) for diagnosis of pulmonary TB in adults. Since 2013, it has also been recommended for use in children and to diagnose specific forms of extrapulmonary TB. The test has much better accuracy than sputum smear microscopy;
- ❖ *Sputum smear microscopy* – Developed more than 100 years ago, this technique requires the examination of sputum samples using a microscope to determine the presence of bacteria. In the current case definitions recommended by WHO, one positive result is required for a diagnosis of smear-positive pulmonary TB;
- ❖ *Culture-based methods* – The current reference standard, they require more developed laboratory capacity and can take up to 12 weeks to provide results.
- ❖ *Sputum smears microscopy*. Sputum samples are examined under a microscope to see if bacteria are present. In the current case definitions recommended by WHO, one positive result is required for a diagnosis of smear-positive pulmonary TB;

2.2 The Sustainable Development Goals

In 2016, the MDGs were succeeded by a new set of goals, known as the Sustainable Development Goals (SDGs). Adopted by the UN in September 2015 following 3 years of consultations, the SDG framework of goals, targets and indicators is for the period 2016–2030.¹ The End TB Strategy was unanimously endorsed by all WHO Member States at the 2014 World Health Assembly, and is for the period 2016–2035.²

The consolidated goal on health is SDG 3. It is defined as “Ensure healthy lives and promote well-being for all at all ages”, and 13 targets have been set for this goal (**Box 2.1**). One of these targets, Target 3.3, explicitly mentions TB: “By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, waterborne diseases and other communicable diseases”. SDG 3 also includes a target (Target 3.8) related to universal health coverage (UHC) in which TB is explicitly mentioned.

¹ United Nations. Sustainable Development Goals (<https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals>, accessed 2 August 2017).

² Uplekar M, Weil D, Lonroth K, Jaramillo E, Lienhardt C, Dias HM, et al. WHO's new End TB Strategy. *Lancet*. 2015;385(9979):1799–1801 (<http://www.sciencedirect.com/science/article/pii/S0140673615605700?via%3Dihub>, accessed 2 August 2017).

Box No. 2.1

Sustainable Development Goal 3 and its 13 targets

SDG3: Ensure healthy lives and promote well-being for all at all ages

Targets

3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100 000 live births

3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortality to at least as low as 25 per 1000 live births

3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol

3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents

3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes

3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate

3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all

3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

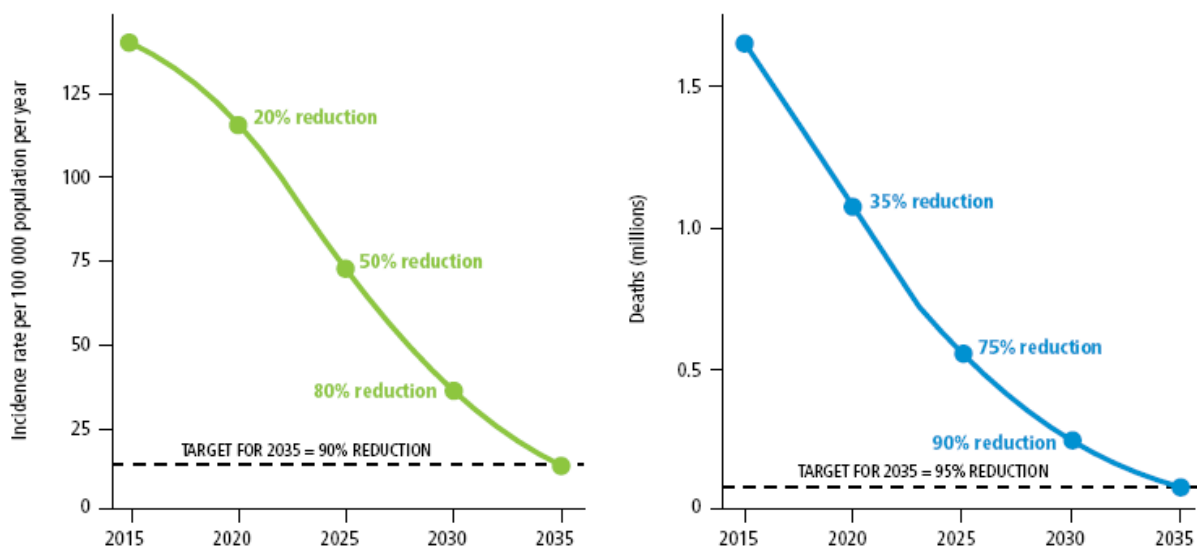
2.3 The End TB Strategy

The overall goal is to “End the global TB epidemic”, and there are three high-level, overarching indicators and related targets (for 2030, linked to the SDGs, and for 2035) and milestones (for 2020 and 2025). The three indicators are:

- ❖ The number of TB deaths per year;
- ❖ The TB incidence rate per year; and
- ❖ The percentage of TB-affected households that experience catastrophic costs as a result of TB disease.

The 2035 targets are a 95% reduction in TB deaths and a 90% reduction in the TB incidence rate, compared with levels in 2015. The 2030 targets are a 90% reduction in TB deaths and an 80% reduction in the TB incidence rate, compared with levels in 2015. The most immediate milestones set for 2020, are a 35% reduction in TB deaths and a 20% reduction in the TB incidence rate, compared with levels in 2015. The trajectories of TB incidence and TB deaths that are required to reach these milestones and targets are shown in **Figure 01**.

Figure 01: Projected incidence and mortality curves that are required to reach End TB Strategy targets and milestones, 2015–2035



Source: WHO Global Tuberculosis Report-2017

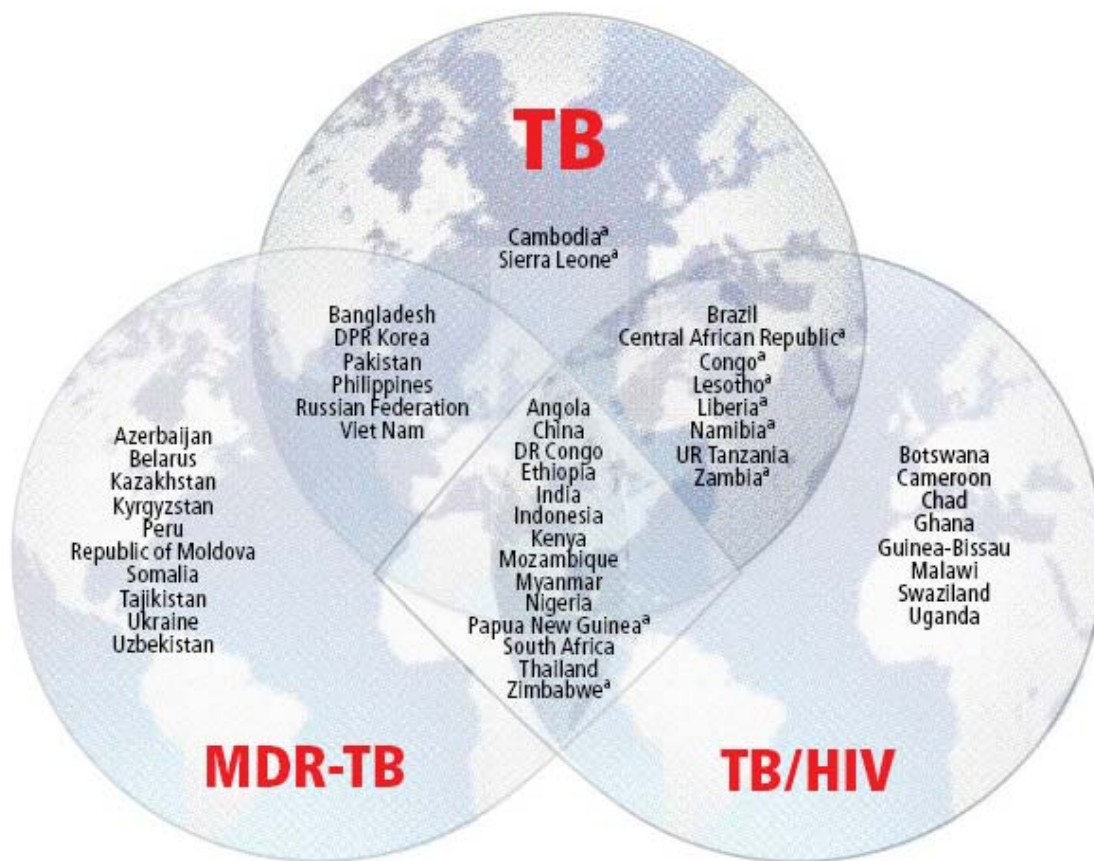
The End TB Strategy at a glance (2016–2035)

VISION	A WORLD FREE OF TB - zero deaths, disease and suffering due to TB			
GOAL	END THE GLOBAL TB EPIDEMIC			
INDICATORS	MILESTONES		TARGETS	
	2020	2025	SDG 2030 ^a	End TB 2035
Reduction in number of TB deaths compared with 2015 (%)	35%	75%	90%	95%
Reduction in TB incidence rate compared with 2015 (%)	20% (<85/100 000)	50% (<55/100 000)	80% (<20/100 000)	90% (<10/100 000)
TB-affected families facing catastrophic costs due to TB (%)	0	0	0	0
PRINCIPLES				
<ol style="list-style-type: none"> 1. Government stewardship and accountability, with monitoring and evaluation 2. Strong coalition with civil society organizations and communities 3. Protection and promotion of human rights, ethics and equity 4. Adaptation of the strategy and targets at country level, with global collaboration 				
PILLARS AND COMPONENTS				
1. INTEGRATED, PATIENT-CENTRED CARE AND PREVENTION				
<ol style="list-style-type: none"> A. Early diagnosis of TB including universal drug-susceptibility testing, and systematic screening of contacts and high-risk groups B. Treatment of all people with TB including drug-resistant TB, and patient support C. Collaborative TB/HIV activities, and management of co-morbidities D. Preventive treatment of persons at high risk, and vaccination against TB 				
2. BOLD POLICIES AND SUPPORTIVE SYSTEMS				
<ol style="list-style-type: none"> A. Political commitment with adequate resources for TB care and prevention B. Engagement of communities, civil society organizations, and public and private care providers C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control D. Social protection, poverty alleviation and actions on other determinants of TB 				
3. INTENSIFIED RESEARCH AND INNOVATION				
<ol style="list-style-type: none"> A. Discovery, development and rapid uptake of new tools, interventions and strategies B. Research to optimize implementation and impact, and promote innovations 				

^a Targets linked to the Sustainable Development Goals (SDGs)

During the period 1998 to 2015, the concept of an High Burden Countries (HBC) became familiar and widely used in the context of TB. In 2015, three HBC lists – for TB, TB/HIV and MDR-TB – were in use. (Fig;2) Three (viz. Bangladesh, India and Pakistan) of eight Member States in the SAARC Region are belongings to high TB and MDR-TB burden countries among 30 high burden countries. However, In SAARC Region, only India belongs to TB, MDR-TB and TB/HIV Co-infection among 30 high burden countries, which is shown in Figure 02.

Figure 02: Countries in the three high-burden country lists for TB, TB/HIV and MDR-TB being used by WHO during the period 2016–2020, and their areas of overlap



Source: WHO Global Tuberculosis Report-2017

2.4 Global Epidemiology

TB is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS. In 2016, there were an estimated 1.3 million TB deaths among HIV negative people (down from 1.7 million in 2000) and an additional 374 000 deaths among HIV-positive people.

An estimated 10.4 million people (90% adults; 65% male; 10% people living with HIV) fell ill with TB in 2016 (i.e. were incident cases).

Globally, the TB mortality rate is falling at about 3% per year. TB incidence is falling at about 2% per year; this needs to improve to 4–5% per year by 2020 to reach the first milestones of the End TB Strategy.

Globally, the proportion of people who develop TB and die from the disease (the case fatality ratio, or CFR) was 16% in 2016. This needs to fall to 10% by 2020 to reach the first milestones of the End TB Strategy.

Between 2000 and 2016, TB treatment averted an estimated 44 million deaths among HIV-negative people. Among HIV-positive people, TB treatment supported by ART averted an additional 9 million deaths.

Drug-resistant TB is a persistent threat, with 490 000 million cases of multidrug-resistant TB (MDR-TB) emerging in 2016 and an additional 110 000 cases that were susceptible to isoniazid but resistant to rifampicin (RR-TB), the most effective first-line anti-TB drug. The countries with the largest numbers of MDR/RR-TB cases (47% of the global total) were China, India and the Russian Federation.

Table 01: Global Epidemiological Burden of TB (2016)

TB Control Indicators	Global
Estimated Population	7.4 billion
Estimated Incidence	10.4 million (140 cases/100 000)
Estimated Deaths Due to TB	1.3 million (17 cases/100 000)
Total cases notified	6.6 million
New and relapse notified cases	6.3 million
Treatment Success Rate (2015 cohort)	83%
Estimated MDR/RR- TB cases among notified pulmonary TB cases	0.34 million
Patients with Known HIV Status who are HIV Positive	0.47 million
Patients with Known HIV Status who are HIV Positive on ART	0.4 million (85%)

Source: WHO Global Tuberculosis Report-2017

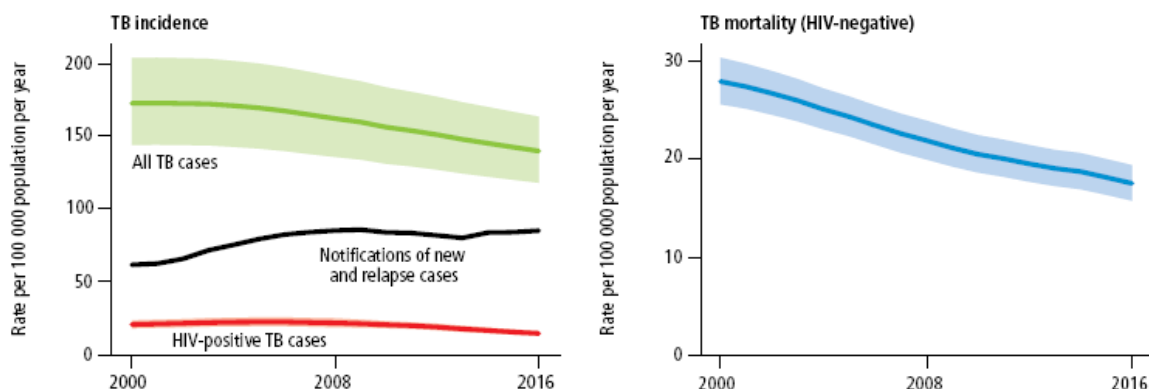
2.4.1 Estimates of TB incidence

Globally in 2016 there were an estimated 10.4 million incident cases of TB (range, 8.8 million to 12.2 million), equivalent to 140 cases per 100 000 population. Most of the estimated number of cases in 2016 occurred in the WHO South-East Asia Region (45%). The 30 high TB burden countries accounted for 87% of all estimated incident cases worldwide. The five countries that stood out as having the largest number of incident cases in 2016 were (in descending order) India, Indonesia, China, the Philippines and Pakistan.

2.4.2 TB Mortality

Globally, the absolute number of TB deaths among HIV negative people has been falling since 2000, from 1.7 million in 2000 to 1.3 million in 2016. The TB mortality rate (per 100 000 population) fell by 37% between 2000 and 2016 (**Fig. 3**), and by 3.4% between 2015 and 2016.

Figure 03: Global trends in estimated TB incidence and mortality rates, 2000–2016. Shaded areas represent uncertainty intervals.

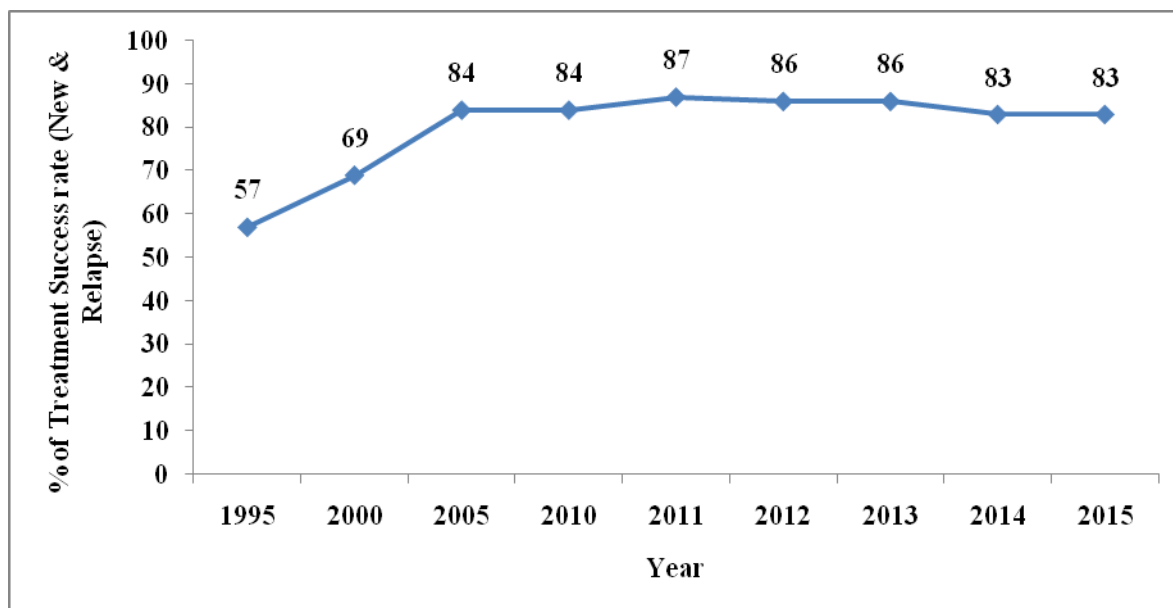


Source: WHO Global Tuberculosis Report-2017

2.4.3 Trend of Treatment Success Rate

The latest treatment outcome data show treatment success rates of 83% for TB (2015 cohort) (Figure 04), 78% for HIV-associated TB (2015 cohort), 54% for MDR/RR-TB (2014 cohort) and 30% for extensively drug-resistant TB (XDR-TB) (2014 cohort).

Figure 04: Trend of Treatment success rate for New Smear Positive Cases (2000 - 2015)



Source: Global Tuberculosis Report, WHO-2016

2.4.4 Drug-resistant TB

Drug-resistant TB threatens global TB care and prevention, and remains a major public health concern in many countries. Three major categories are used for global surveillance and treatment. MDR-TB is TB that is resistant to rifampicin and isoniazid, the two most powerful anti-TB drugs; it requires treatment with a second-line regimen. RR-TB also requires treatment with second-line drugs.

Globally in 2016, an estimated 4.1% (95% confidence interval [CI]: 2.8–5.3%) of new cases and 19% (95% CI: 9.8–27%) of previously treated cases had MDR/RR-TB. There were an estimated 600 000 (range, 540 000– 660 000) incident cases of MDR/RR-TB in 2016, with cases of MDR-TB accounting for 82% (490 000) of the total as per WHO Global Tuberculosis Report-2017.

3. BURDEN OF TUBERCULOSIS IN SAARC REGION

3.1 SAARC Epidemiology

The SAARC region, with an estimated annual incidence of 3.7 million TB cases equivalent to 215 cases per 100 000 (1.41 million females and 2.29 million males), carries 36% of the global burden of TB incidence (Table 02). Three of eight Member States in the SAARC Region are high TB and MDR-TB burden countries among 30 high burden countries. India accounting for 26% of the world's TB Cases. An estimated 0.5 million (31 cases per 100 000) TB deaths in the region, however, India accounted 31 % of Global TB deaths.

Table 02: Estimates of the burden of diseases caused by TB in the SAARC Region 2016

Country	Population ('000)	Incidence		Mortality (Excluding HIV)	
		Number ('000)	Rate *	Number ('000)	Rate *
Afghanistan	35000	65	189	11	33 (19-49)
Bangladesh	163000	360	221	66	40 (26-58)
Bhutan	802	1.4	178	0.16	20 (13-28)
India	1324000	2790	211	423	32 (24-40)
Maldives	379	0.21	49	0.017	3.9 (3.1-4.9)
Nepal	29000	45	154	6.5	22 (16-30)
Pakistan	193000	518	268	44	23 (19-29)
Sri Lanka	21000	13	65	1.2	6 (4.3-8.0)
Total	1766181	3793	215	552	31

Source:, WHO Global Tuberculosis report-2017

* Rates are per 100 000 Population

3.2 Notifications and Treatment Success

A total 2.6 million TB cases were notified in 2016 in the SAARC region. Table 03 shows, 77 % treatment success rate among 2.4 million total new and relapse cases.

Table 03: TB Case notifications (2016) and Treatment Success Rate (2015 Cohort) in SAARC Region

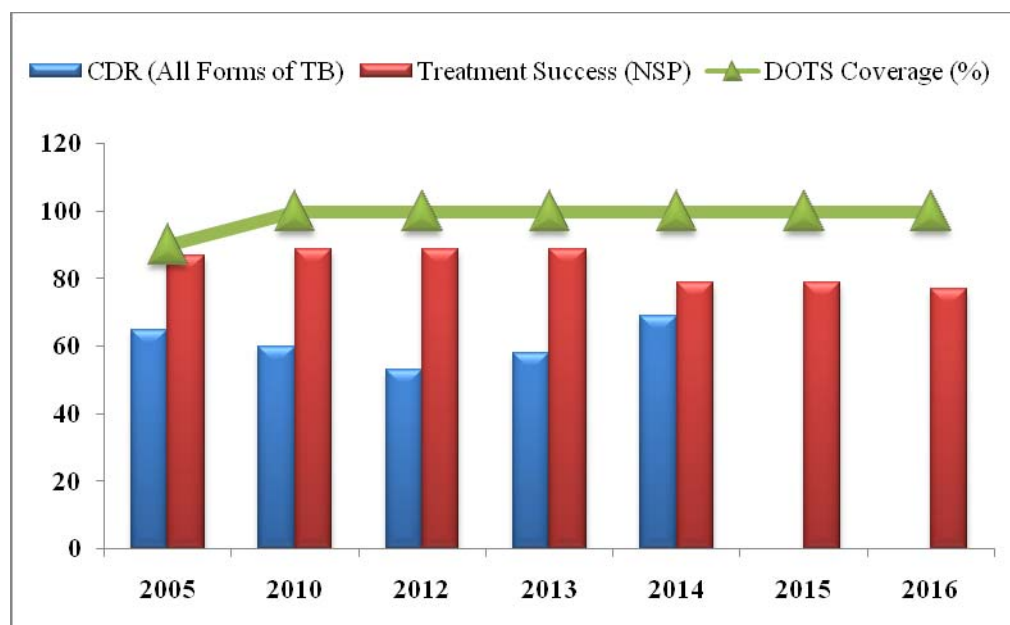
Country	Population ('000)	Total Case	Total (New and	Treatment
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		notified	relapse cases)	Success (%)
Afghanistan	35000	43046	41954	88
Bangladesh	163000	223921	222248	93
Bhutan	802	1145	1139	92
India	1324000	1936158	1763876	72
Maldives	379	169	169	83
Nepal	29000	32056	31371	92
Pakistan	193000	366061	356390	93
Sri Lanka	21000	8886	8664	85
Total	1766181	2611442	2425811	77

Source: WHO Global Tuberculosis Report 2017

A remarkable progress has been made for DOTS since its inception in 1993 in the SAARC Region. By 1997 all Member States started DOTS strategy for TB control. DOTS coverage within the SAARC region has steadily increased since 2000. Population coverage in 1997 was 11%, since then it has increased and reached 99% in 2006 and since 2007 it is 100% (Figure 05). Regarding treatment success, the WHO target was achieved in 2005. The treatment success rate for new smear positive cases were 77% (2015 cohort) in the SAARC Region.

Figure 05: Progress in TB Control in SAARC Region, (2000-2016)



Source: WHO Global TB Report-2017, SAARC Epidemiological Response on Tuberculosis-2016

3.3 Drug Resistance TB

In the year 2016, the SAARC region has 106918 total number of an estimated MDR/RR-TB cases among notified pulmonary TB cases. In the Region, laboratory confirmed cases in the same

year were 43539 MDR/RR-TB cases and 2619 XDR-TB cases. However, 37322 MDR/RR-TB and 2576 XDR-TB patients started on treatment (Table 04).

Table 04: Estimates of Drug-resistant TB care in the SAARC Region, 2016

Country	Estimated MDR/RR-TB cases among notified pulmonary TB cases (Total Number)** *	% of TB cases with MDR-TB		Laboratory confirmed cases		Patients started on treatment****	
		New	Previously Treated	MDR/RR-TB	XDR-TB	MDR/RR-TB	XDR-TB
Afghanistan	1600	4.1	16	1472	1	149 (10%)	0
Bangladesh	5300	1.6	29	969	9	918 (95%)	8 (89%)
Bhutan	70	11	18	55	0	55 (100%)	0
India	84000	2.8	12	37258	2464	32914 (88%)	2475
Maldives	1	1.7	0	1	0	2	0
Nepal	900	2.5	15	430	19	386	17 (4%)
Pakistan	15000	4.2	16	3331	126	2881 (86%)	76 (60%)
Sri Lanka	47	0.5 4	3.1	23	0	17 (74%)	0
Regional	106918			43539	2619	37322 (86%)	2576 (86%)

*** Includes cases with unknown previous TB Treatment history

**** Includes patients diagnosed before 2016 and patients who were not laboratory-confirmed

Source: WHO Global Tuberculosis Report-2017

3.4 TB/HIV Co-infection

In 2016, the region has 40255 TB Patients with known HIV status, among them 39506 (98%) were on Antiretroviral Therapy. India accounts 39815 TB patients with known HIV status, 98% patients were on ART, however, Afghanistan and Maldives had provided 100% ART to TB patients with Known HIV status in the region. In the SAARC region 29% Children (age <5) household contacts of bacteriologically-confirmed TB cases on Isoniazid treatment (Table 05)

Table 05: Estimates of TB/HIV case in new and relapse TB patients, 2016

Country	Patients with known HIV status who are HIV positive		patients on Antiretroviral Therapy (ART)		Children (age <5) household contacts of bacteriologically-confirmed TB cases on preventive treatment
	Number	%	Number	%	%
Afghanistan	8	<1	8	100	79
Bangladesh	87	2	69	79	17
Bhutan	6	<1	3	50	6.3
India	39815	3	39123	98	1.9
Maldives	1	100	1	100	100
Nepal	255	4	227	89	na
Pakistan	71	<1	68	96	na
Sri Lanka	12	<1	7	58	27
Regional	40255		39506	98	29

Source: WHO Global TB Report, 2017

The estimated Population of SAARC region in year 2016 was 1.76 billion which 24% of global Population. In 2016, there were 3.7 million estimated incidences of TB cases, which carries 36% of global burden of TB diseases. There is an estimated deaths due to TB in the region was 0.5 million, which is 31% of global deaths due to TB in year 2016 (Table 07).

Table 07: Global vs. SAARC Region on TB Indicators, 2016

TB Control Indicators	Global	SAARC	% of Global
Estimated Population	7.4 billion	1.76 billion	24
Estimated Incidence	10.4 million (140 cases/100 000)	3.7 million (215 cases/100 000)	36
Estimated Deaths Due to TB	1.3 million (17 cases/100 000)	0.5 million (31 cases/100 000)	31
Total cases notified	6.6 million	2.6 million	39
New and relapse notified cases	6.3 million	2.4 million	38
Treatment Success Rate (2015 cohort)	83%	77%	-
Estimated MDR/RR- TB cases among notified pulmonary TB cases	0.34 million	0.1 million	29
Patients with Known HIV Status who are HIV Positive	0.47 million	0.04 million	8.5
Patients with Known HIV Status who are HIV Positive on ART	0.4 Million (85%)	0.039 million (98%)	10

Source: WHO Global TB Report- 2017

4. PROGRESSES ON TB CONTROL IN SAARC MEMBER STATES

AFGHANISTAN

MALDIVES

BANGLADESH

NEPAL

BHUTAN

PAKISTAN

INDIA

SRI LANKA

Islamic Republic of Afghanistan is one of the eight countries of the SAARC Region. Afghanistan officially the Islamic Republic of Afghanistan, is a landlocked country located within South Asia and Central Asia. It has Population of approximately 35 million (WHO Global Tuberculosis Report-2017). It is bordered by Pakistan in the south and east; Iran in the west; Turkmenistan, Uzbekistan, and Tajikistan in the north; and China in the far northeast.

TB Epidemiology

Tuberculosis is a major health problem in Afghanistan. Despite many challenges, the National Tuberculosis Programme (NTP) has chosen to address the problem with interventions that are proving successful. Earlier Afghanistan was in WHO 22 high TB burden countries list. But in 2015 WHO has removed Afghanistan from their high burden TB countries list.

In Afghanistan, an estimated annual incidence 65000 (CI: 42000-93000) TB cases equivalent to 189 cases per 100,000 populations and 11000 TB mortality equivalents to 33 cases per 100,000 populations in 2016. The TB case notifications 43046 and 88% treatment success were registered in the year 2016. Total 1600 (CI: 790-2400) an estimated MDR/RR- TB cases among notified pulmonary TB cases, 1472 MDR/RR-TB and 1 XDR-TB cases were registered in 2016. There were 8 number of TB patients with known HIV status who are HIV positive and 100% ART provided to these patients.

Major Achievements

- ❖ Revision of national TB guidelines (According to WHO new definitions)
- ❖ Revision of National Strategic Plan for year s of 2017-2021.
- ❖ Standard Operation procedure (SOP) for extra pulmonary TB case detection and TB Diabetes road map developed, new recording and reporting formats revised.
- ❖ Securing fund from JICA to procure 50% of first and 59% of second line drug for TB for 2018-2020.
- ❖ Commitment from USAID to support TB program for next three years (2017-2019).
- ❖ Sustainable Technical assistance from WHO and JICA, USAID.

- ❖ Detection and Diagnosis of MDR-TB facilities decentralized in country

Challenges

- ❖ Improvement of MDR program Management capacity at national and provincial level
- ❖ Improvement of laboratory system including culture and DST
- ❖ Program management in cross border areas
- ❖ Sustainability of bilateral support is questionable

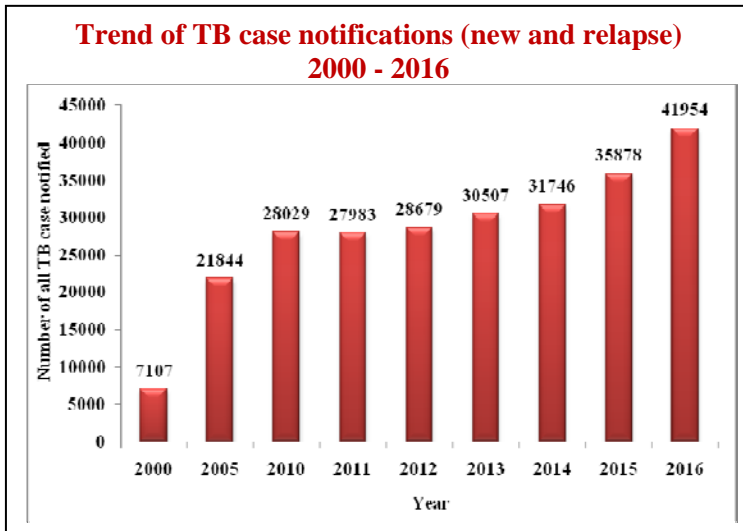
New Initiatives:

- ❖ Introducing of Gene Xpert for diagnosis of MDR – TB
- ❖ TB Screening among IDPs and prisoners by digital mobile x-ray

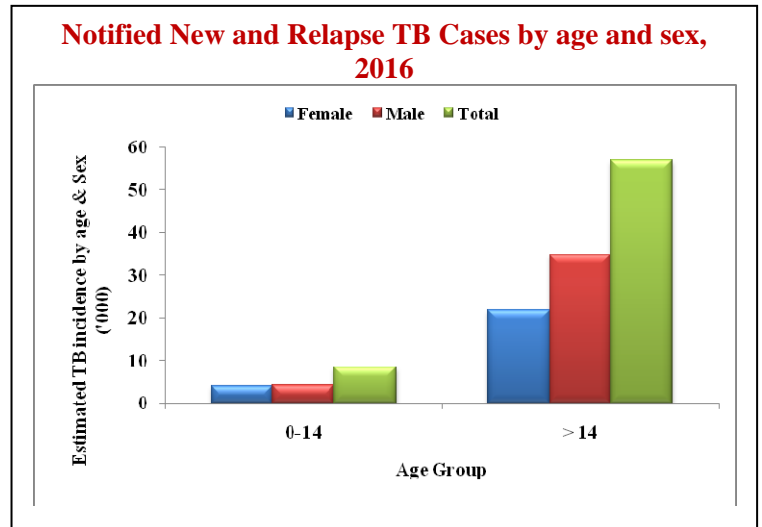
Future Plans:

- ❖ Expand MDR TB Management
- ❖ Promote New Technology in line with WHO recommendation (Gene X-pert)
- ❖ Promote and sustain TB case findings (active and passive)
- ❖ Addressing latent TB (contact investigation and INH preventive therapy)

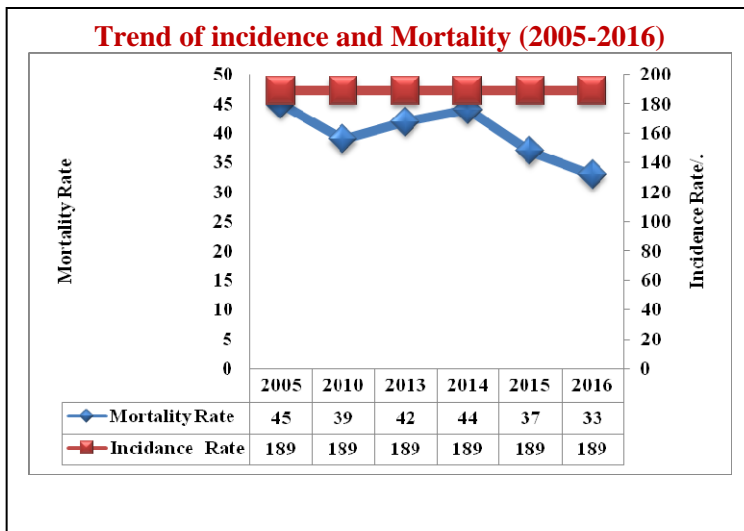
Graphical presentations, Afghanistan



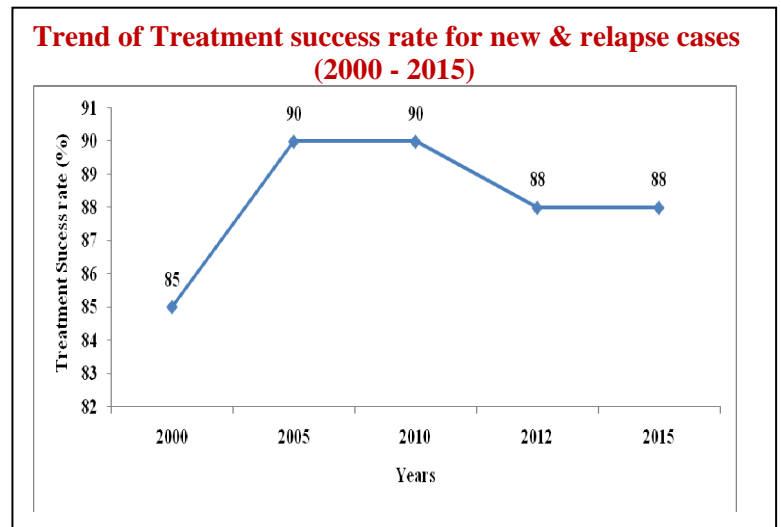
Source: WHO Global Tuberculosis Report-2017, SAARC Epidemiological Response on Tuberculosis -2016



Source: WHO Global Tuberculosis Report- 2017



Source: WHO Global Tuberculosis Report-2017, SAARC Epidemiological Response on Tuberculosis -2016



Source: WHO Global Tuberculosis Report-2017, SAARC Epidemiological Response on Tuberculosis -2016

TB Epidemiology 2016, Afghanistan

Population (2016)		35 million	
Estimates of TB burden * 2016		Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)		11 (6.7-17)	33 (19-49)
Mortality (HIV+TB only)		0.096 (0.016-0.24)	0.28 (0.05-0.71)
Incidence (includes HIV+TB)		65 (42-93)	189 (122-270)
Incidence (HIV+TB only)		0.28 (0.18-0.41)	0.82 (0.53-1.2)
Incidence (MDR/RR-TB)**		3.3 (1.2-5.4)	9.5 (3.6-15)
Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	>14 years	Total
Females	4.1 (2.5-5.7)	22 (14-31)	26 (16-37)
Males	4.3 (2.6-6)	35 (21-48)	39 (24-54)
Total	8.4 (5.1-12)	57 (35-79)	65 (42-93)
TB case notifications, 2016			
Total cases notified			43046
Total new and relapse			41954
-% tested with rapid diagnostics at time of diagnosis			
-% with known HIV status			39%
- % pulmonary			74%
- % bacteriologically confirmed among pulmonary			63%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2016			64% (45-99)
TB cases fatality ratio (estimated mortality/estimated incidence), 2016			0.18 (0.09-0.3)
TB/HIV Care in new and relapse TB patients, 2016		Number	%
Patients with known HIV status who are HIV positive		8	<1%
- On antiretroviral therapy		8	100%
Drug- resistant TB care, 2016	New cases	Previously treated cases	Total Number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			1600 (790-2400)
Estimated % of TB cases with MDR/RR-TB		16% (13-18)	
% notified tested for rifampicin resistance		58%	1472
MDR/RR-TB cases tested for resistance to second line drugs			86
Laboratory confirmed cases		MDR/RR-TB: 86	XDR-TB:3
Patients started on treatment****		MDR/RR-TB: 149	XDR-TB:0
Treatment success rate and cohort size		Success	Cohort
New and relapse cases registered in 2015		88%	36042
Previously treated cases, excluding relapse, registered in 2015		89%	959
HIV-positive TB cases, all types, registered in 2015			

MDR/RR-TB cases started on second line treatment in 2014	65%	86
XDR-TB cases started on second-line treatment in 2014		0
TB Preventive treatment, 2016		
% of HIV+ people (newly enrolled in care) on preventive treatment		5%
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		79% (73-87)

* Ranges represent uncertainty intervals

** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin

*** Includes cases with unknown previous TB Treatment history

****Includes patients diagnosed before 2016 and patients who were not laboratory- confirmed

Source: WHO Global Tuberculosis Report-2017

People's Republic of Bangladesh is a country in South Asia. It is bordered by India to its west, north and east; Myanmar (Burma) to its southeast; and is separated from Nepal and Bhutan by the Chicken's Neck corridor. To its south, it faces the Bay of Bengal. The total area of the country is 147,570 km². Population of Bangladesh is 163 million (WHO Global Tuberculosis Report-2017) and it is one of the most densely populated countries in the world.

TB Epidemiology

Bangladesh is among countries with the high burden of TB and MDR-TB. The estimated mortality and incidence rates of all forms of tuberculosis were 40 (CI: 26-58) and 221 (CI: 161-291) per 100 000 population respectively in 2016. WHO has estimated 36000 (CI: 262000-474000) incident cases in 2016.

Total 222248 notified new and relapse cases were detected in 2016, among the notified new and relapse cases 36000 cases aged less than 15 years.

The treatment success rate among new and relapse cases is above 90% since 2007, and it was 93% in 2015 cohort. But in 2015 cohort, the treatment success rate among HIV positive TB cases was only 68% and MDR/RR cases started on second line treatment in 2014 showed a 74% treatment success rate. The same figure for XDR TB cases started on second line treatment in 2014 was 0%.

In Bangladesh, FIND has supported establishment of one Liquid Culture & DST and one Line Probe Assay (LPA) laboratory at NRL Dhaka by providing equipment, consumables and essential supplies through the EXPAND-TB project.

Following the WHO recommendation, NTP plans to gradually replace the light microscopes with LED to improve the capacity and quality of sputum microscopy. To support this national initiative, TB CARE II procured and distributed 200 LED microscopes in the country. To use the new microscopes, over 300 staff were trained on LED microscopy.

Xpert MTB/RIF was first introduced in Bangladesh in March 2012 with the support of the TB

CARE II project. Till December 2016, a total of 56 Xpert MTB/ RIF machines were functioning at different settings in the country, including six machines in Dhaka city.

Achievements

- ❖ Revision of National Guidelines and operational manual on childhood TB (2nd Edition) :
- ❖ Revision of National Guidelines on TB/HIV Management and Program Collaboration and Implementation Manual (2nd Edition) :
- ❖ Global Fund TB Grant under (NFM : Signed and started implementing)
- ❖ Number of microscopy lab were increased from 1104 to 1106
- ❖ NTP made MOU with Challenge TB (CTB) to provide TB control services in Bangladesh.
- ❖ Signed MOU with IRD, Bangladesh and NIDCH for introducing new anti-TB drugs : Bedaquiline and delamanid for selective DR-TB patents
- ❖ Developed SOP for managing DR-TB patients with Bedaquiline and delamanid
- ❖ Updated and printed NTP supervision check list

Major Challenges:

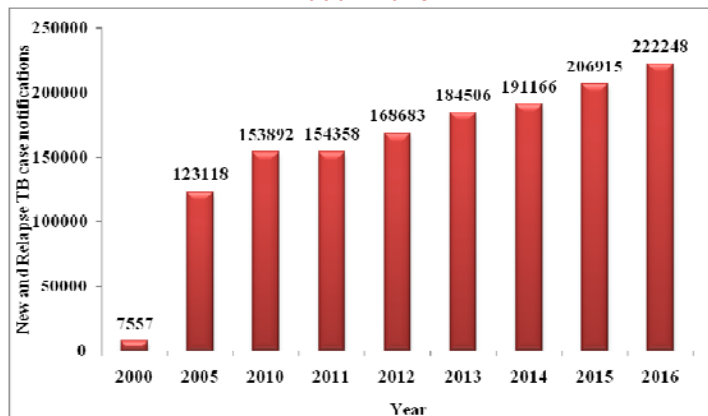
- ❖ Sustaining the quality DOTS
- ❖ Further strengthening laboratory services including expansion of culture and DST and GeneXpert
- ❖ Further improving case notification of smear-negative, extra-pulmonary TB cases
- ❖ Improving capacity for diagnosis and management of child TB cases
- ❖ Expansion of PPM related activities to detect and notify the 43% missing cases
- ❖ Effective engagement of private sector and operationalization of mandatory notification of TB cases
- ❖ Scaling up management of MDR-TB patients
- ❖ Treatment success of MDR TB is low.
- ❖ Ensuring un-interrupted supply of quality drugs and logistics.
- ❖ Ensuring adequate space and ideal condition for storage of drugs and logistics
- ❖ Sustaining partnerships with NGOs, private sector, academic institutes and work place in TB Control

Future Plan

- ❖ Expansion newer laboratory techniques
- ❖ Establish more RTRL (in Barisal, Sylhet and Rangpur division)
- ❖ Awareness-raising programme on TB with special attention to child TB
- ❖ Scale-up of contact tracing and IPT
- ❖ Improvement of drug storage facility
- ❖ Expansion of e-TB manager
- ❖ Strengthening supervision and monitoring
- ❖ Operationalization of the Gazette on mandatory case notifications and involvement of private sector through systematic referral linkage
- ❖ Conduct Drug Resistance Survey (DRS)
- ❖ Piloting universal access to drug-susceptibility testing (DST) for all smear-positive TB cases
- ❖ Conduct joint monitoring mission in 2017

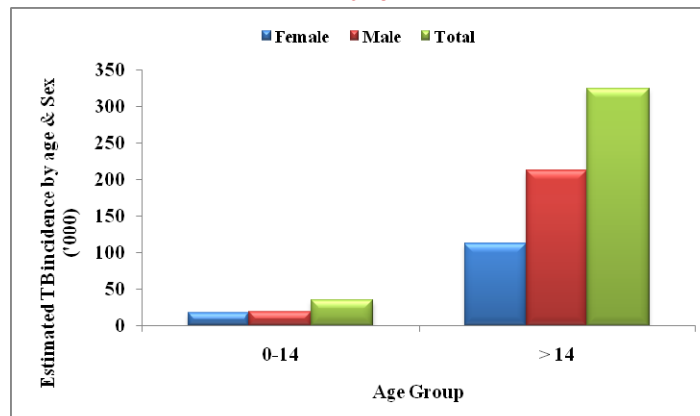
Graphical presentations, Bangladesh

**Trend of TB case notification (new and relapse)
2000 - 2016**



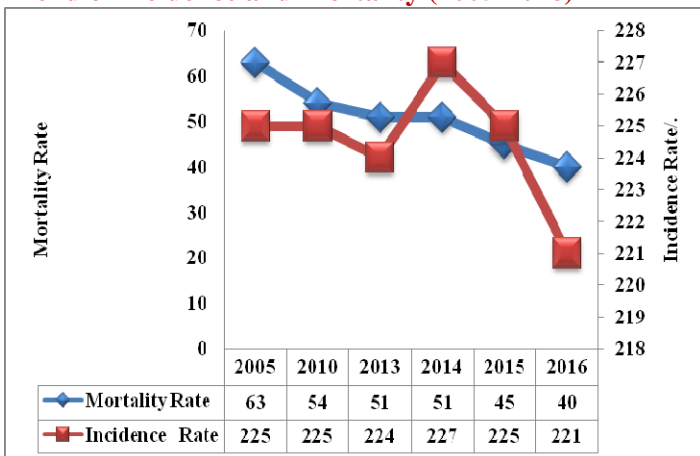
Source: WHO Global Tuberculosis Report-2017, SAARC Epidemiological Response on Tuberculosis -2016

**Notified New and Relapse TB Cases by age and sex,
2016**



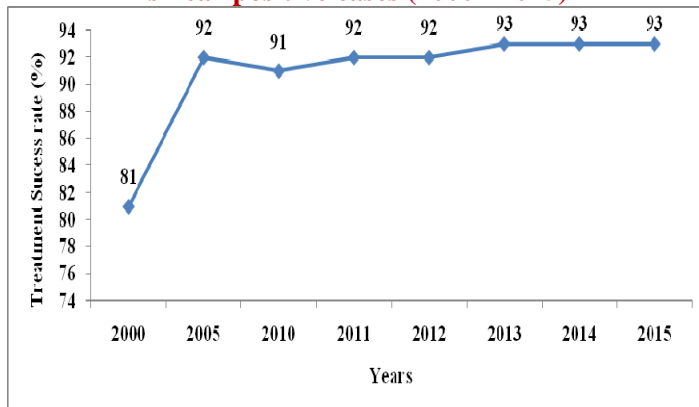
Source: WHO Global Tuberculosis Report- 2017

Trend of incidence and Mortality (2005-2016)



Source: WHO Global Tuberculosis Report-2017, SAARC Epidemiological Response on Tuberculosis -2016

Case detection rate and Treatment success rate for new smear positive cases (2000 - 2015)



Source: WHO Global Tuberculosis Report-2017, SAARC Epidemiological Response on Tuberculosis -2016

TB Epidemiology 2016, Bangladesh

Population (2016)		163 million	
Estimates of TB burden * 2016		Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)		66 (43-94)	40 (26-58)
Mortality (HIV+TB only)		0.18 (0.086-0.3)	0.11 (0.05-0.18)
Incidence (includes HIV+TB)		360 (262-474)	221 (161-291)
Incidence (HIV+TB only)		0.5 (0.25-0.84)	0.31 (0.15-0.52)
Incidence (MDR/RR-TB)**		8.8 (4.8-13)	5.4 (2.9-7.8)
Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	>14 years	Total
Females	17 (12-22)	112 (79-144)	129 (91-167)
Males	19 (14-25)	212 (150-275)	232 (164-300)
Total	36 (26-47)	324 (229-419)	360 (262-474)
TB case notifications, 2016			
Total cases notified		223921	
Total new and relapse		222248	
-% tested with rapid diagnostics at time of diagnosis			
-% with known HIV status		2%	
- % pulmonary		80%	
- % bacteriologically confirmed among pulmonary		72%	
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2016		62% (47-85)	
TB cases fatality ratio (estimated mortality/estimated incidence), 2016		0.19 (0.11-0.29)	
TB/HIV Care in new and relapse TB patients, 2016		Number	%
Patients with known HIV status who are HIV positive		87	2%
- On antiretroviral therapy		69	79%
Drug- resistant TB care, 2016	New cases	Previously treated cases	Total Number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			5300 (3500-7200)
Estimated % of TB cases with MDR/RR-TB	1.6% (0.59-2.6)	29% (22-36)	
% notified tested for rifampicin resistance	16%	62%	43991
MDR/RR-TB cases tested for resistance to second line drugs		139	
Laboratory confirmed cases		MDR/RR-TB: 969	XDR-TB:9
Patients started on treatment****		MDR/RR-TB: 918	XDR-TB:8
Treatment success rate and cohort size		Success	Cohort
New and relapse cases registered in 2015		93%	206907
Previously treated cases, excluding relapse, registered in 2015		86%	2518
HIV-positive TB cases, all types, registered in 2015		68%	72

MDR/RR-TB cases started on second line treatment in 2014	74%	946
XDR-TB cases started on second-line treatment in 2014	0%	3
TB Preventive treatment, 2016		
% of HIV+ people (newly enrolled in care) on preventive treatment		
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		17% (16-19)
* Ranges represent uncertainty intervals		
** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin		
*** Includes cases with unknown previous TB Treatment history		
****Includes patients diagnosed before 2016 and patients who were not laboratory- confirmed		
Source: WHO Global Tuberculosis Report-2017		

** Ranges represent uncertainty intervals*

*** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin*

**** Includes cases with unknown previous TB Treatment history*

*****Includes patients diagnosed before 2016 and patients who were not laboratory- confirmed*

Source: WHO Global Tuberculosis Report-2017

Bhutan officially the Kingdom of Bhutan, is a landlocked country in South Asia at the eastern end of the Himalayas. It is bordered to the north by China and to the south, east and west by India. To the west, it is separated from Nepal by the Indian state of Sikkim, while farther south it is separated from Bangladesh by the Indian states of Assam and West Bengal. Bhutan's capital and largest city is Thimphu. It has a land area of 38,394 square kilometers and the altitude varying from 180m to 7,550 m above sea level. The total Population of Bhutan was estimated to be 802000 in the year 2016.

TB Epidemiology

National Tuberculosis Control Program under the Department of Public Health started in the year 1986. NTCP is responsible for programming, planning, resource mobilization, monitoring and evaluation. National Referral/ Regional Referral and District hospitals diagnose and start the treatment for TB. The health workers in the basic health units report cases, follow up and refer TB suspects to the district hospitals for confirmation. In 1991, a tuberculin survey measured the annual risk of tuberculosis infection to be 1.5%. Bhutan piloted Short Course Chemotherapy (SCC) in three districts in 1994 and was implemented nationwide in the same year. In 1997 the Directly Observed Treatment Short Course (DOTS) strategy was adopted nationwide.

The estimated mortality and incidence rates of all forms of tuberculosis were 20 (CI: 13-28) and 178 (CI: 137-226) per 100 000 population respectively in 2016. WHO has estimated 1400 (CI: 1100-1800) incident cases in 2016. Total 1139 notified new and relapse cases were detected in 2016, among the notified new and relapse cases 170 cases aged less than 15 years.

The treatment success rate among new and relapse cases is above 91% since 2005, and it was 92% in 2015 cohort. MDR/RR cases started on second line treatment in 2014 showed a 90% treatment success rate.

Achievements

- ❖ Achieved MDGs TB related targets in 2015
- ❖ Substantial increase in number of RR/MDR-TB cases diagnosed and initiated on treatment
- ❖ Treatment success rate among NSP sustained at 92%
- ❖ MDR/RR –TB cases started on second line treatment , Treatment success rate achieved at 90%
- ❖ Strengthened Laboratory capacity with the introduction of Liquid Culture and DST plus LPA facilities
- ❖ Procured FLDs and SLDs through GDF/GLC
- ❖ Refurbished one MDR-TB Ward at RRH

Challenges:

- ❖ Low detection of TB in children.
- ❖ Delay in sample shipment from districts to National TB Reference Laboratory (TRL).
- ❖ Infection control practices inadequate, threatening transmission to community and healthcare workforce.
- ❖ Frequent staff turnover.
- ❖ Inadequate follow-up and monitoring.
- ❖ Limited implementation of TB/HIV collaborative activities.
- ❖ Limited or no operational research on key priority areas.
- ❖ Sustaining financial resources for disease control programme.

Future Plan

- ❖ Procurement of Gene Xpert machines
- ❖ Procurement reagents and consumables for solid, liquid culture and DST and LPA
- ❖ Procurement of FLDs and SLDs
- ❖ Capacity building of health workers
- ❖ Routine surveillance for MDR-TB
- ❖ Refurbishment of MDR-TB wards

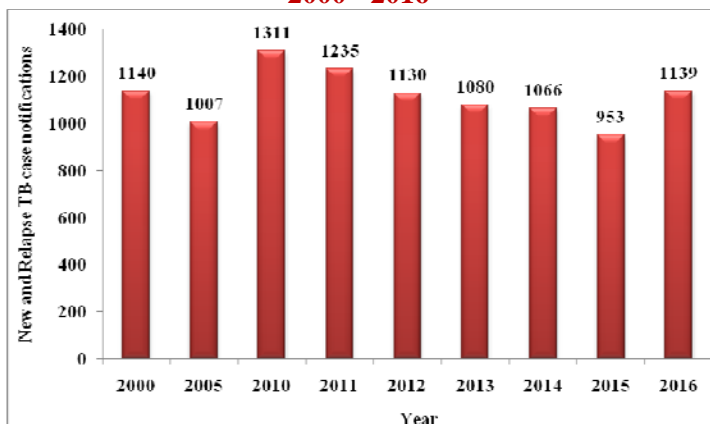
New initiatives/ Best practices:

- ❖ Follow up of TB patients through mobile phone has been initiated through the support of TB NFM grant.
- ❖ Line Probe Assay established in Royal Centre for Disease Control (RCDC)

- ❖ Expansion of rapid diagnostic tool to other sites
- ❖ Plan to establish SL DST in RCDC
- ❖ Adopt any newer diagnostic tools as per WHO recommendations

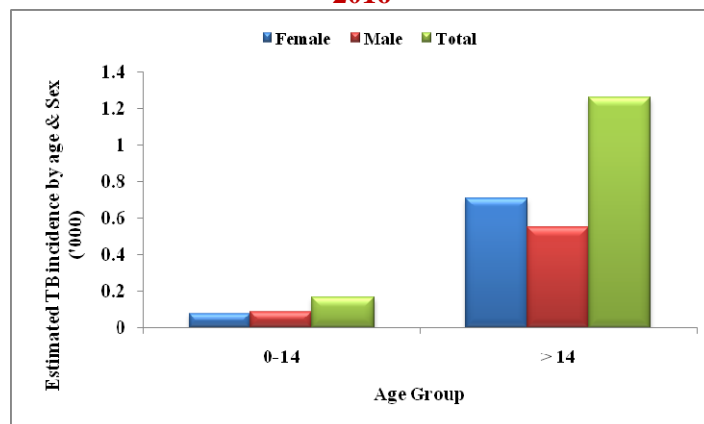
Graphical presentations, Bhutan

**Trend of TB case notification (new and relapse)
2000 - 2016**



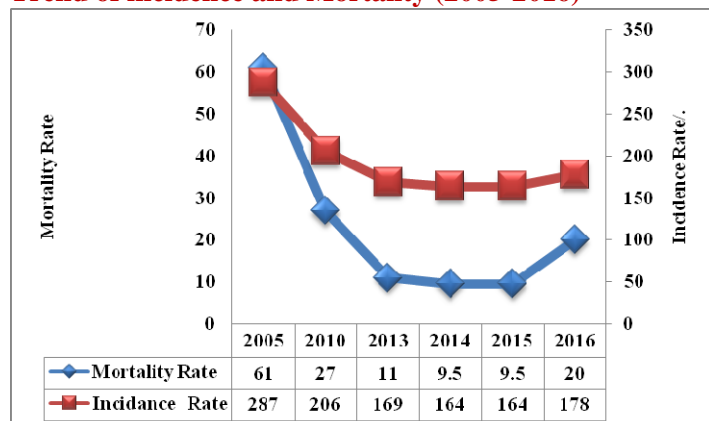
Source: WHO Global Tuberculosis Report-2017, SAARC Epidemiological Response on Tuberculosis -2016

**Notified New and Relapse TB Cases by age and sex,
2016**



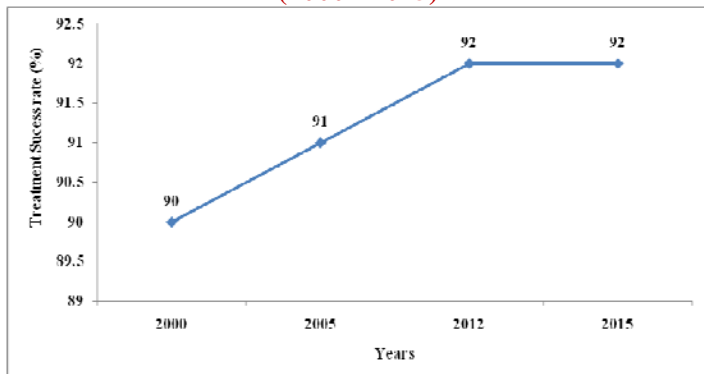
Source: WHO Global Tuberculosis Report- 2017

Trend of incidence and Mortality (2005-2016)



Source: WHO Global Tuberculosis Report-2017, SAARC Epidemiological Response on Tuberculosis -2016

**Treatment success rate for new smear positive cases
(2000 - 2015)**



Source: WHO Global Tuberculosis Report-2017, SAARC Epidemiological Response on Tuberculosis -2016

TB Epidemiology 2016, Bhutan

Population (2016)			802000
Estimates of TB burden * 2016		Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)		0.16 (0.1-0.22)	20 (13-28)
Mortality (HIV+TB only)		<0.01 (<0.01- <0.01)	0.2 (0.15-0.27)
Incidence (includes HIV+TB)		1.4 (1.1-1.8)	178 (137-226)
Incidence (HIV+TB only)		<0.01 (<0.01- 0.011)	0.94 (0.61-1.3)
Incidence (MDR/RR-TB)**		0.19 (0.13-0.24)	23 (16-31)
Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	>14 years	Total
Females	0.08 (0.06-0.1)	0.71 (0.53-0.88)	0.79 (0.59-0.98)
Males	0.09 (0.067-0.11)	0.55 (0.41-0.69)	0.64 (0.48-0.8)
Total	0.17 (0.13-0.21)	1.3 (0.94-1.6)	1.4 (1.1-1.8)
TB case notifications, 2016			
Total cases notified			1145
Total new and relapse			1139
-% tested with rapid diagnostics at time of diagnosis			26%
-% with known HIV status			100%
- % pulmonary			51%
- % bacteriologically confirmed among pulmonary			76%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2016			80% (63-100)
TB cases fatality ratio (estimated mortality/estimated incidence), 2016			0.11 (0.07-0.17)
TB/HIV Care in new and relapse TB patients, 2016		Number	%
Patients with known HIV status who are HIV positive ^a		6	<1%
- On antiretroviral therapy		3	50%
Drug- resistant TB care, 2016	New cases	Previously treated cases	Total Number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			70 (52-87)
Estimated % of TB cases with MDR/RR-TB	11 % (8.5-15)	18 % (7.7-34)	-
% notified tested for rifampicin resistance	100%	100%	1145
MDR/RR-TB cases tested for resistance to second line drugs			55
Laboratory confirmed cases		MDR/RR-TB: 55	XDR-TB:0
Patients started on treatment****		MDR/RR-TB: 55	XDR-TB:0
Treatment success rate and cohort size		Success	Cohort
New and relapse cases registered in 2015		92%	963
Previously treated cases, excluding relapse, registered in 2015		75%	12
HIV-positive TB cases, all types, registered in 2015			0

MDR/RR-TB cases started on second line treatment in 2014	90%	61
XDR-TB cases started on second-line treatment in 2014		0
TB Preventive treatment, 2016		
% of HIV+ people (newly enrolled in care) on preventive treatment		-
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		6.3% (5.8-7)

* Ranges represent uncertainty intervals

** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin

*** Includes cases with unknown previous TB Treatment history

****Includes patients diagnosed before 2016 and patients who were not laboratory- confirmed

Source: WHO Global Tuberculosis Report-2017

India, officially the Republic of India is a country in South Asia. It is the seventh-largest country by area, the second-most populous country with 1324 million people (WHO Global Tuberculosis Report-2017), and the most populous democracy in the world. The land area is 3,287,263 square kilometers. Bounded by the Indian Ocean on the south, the Arabian Sea on the south-west, and the Bay of Bengal on the south-east, it shares land borders with Pakistan to the west; China, Nepal, and Bhutan to the north-east; and Myanmar and Bangladesh to the east. In the Indian Ocean, India is in the vicinity of Sri Lanka and the Maldives; in addition, India's Andaman and Nicobar Islands share a maritime border with Thailand and Indonesia.

TB Epidemiology

India accounts for one fourth of the global TB burden. In 2016, an estimated 2.79 (CI: 1.4-4.5) million cases occurred and 0.42 (CI: 0.32-0.53) million people died due to TB. The estimates of TB for India has been revised upwards based on the newer evidences gained. This apparent increase in the disease burden reflects the incorporation of more accurate data. With backward calculations, both tuberculosis incidence and mortality rates are decreasing from 2000 to 2016. The incidence of TB has reduced from 289 per lakh per year in 2000 to 211 per lakh per year in 2016 and the mortality due to TB has reduced from 56 per lakh per year in 2000 to 32 per lakh per year in 2016. Moreover, these revisions are interim in nature, with further changes likely when India conducts its first national tuberculosis prevalence survey in 2017–18.

Achievements

- ❖ National Reference Laboratories (NRL): There are six NRLs under the programme.
- ❖ Intermediate Reference Laboratory (IRL): There are 28 IRL and
- ❖ Culture and DST Laboratories(C & DST): There are 37 Culture and DST labs.
- ❖ CB NAAT (Cartridges Based Nucleic Acid Amplification Test) Laboratories: RNTCP has deployed the 628 CB NAAT machines across the country
- ❖ Designated Microscopy Centre (DMC): There are 13888 DMC across the country.
- ❖ Innovative intensified TB case finding and treatment at high-burden antiretroviral therapy (ART) centres
- ❖ India started a project for better diagnosis of childhood TB in four urban sites. Consistent

treatment success rate of more than 85% among all new and relapse cases

- ❖ Number of XDR-TB cases being diagnosed also consistently increasing with increasing accessibility to second-line DST.
- ❖ In addition to IRLs, the programme also involves the Microbiology Department of Medical colleges for providing diagnostic services for drug resistance Tuberculosis, Extra-Pulmonary Tuberculosis (EP-TB) and research.
- ❖ Digitalization of Microscopy Centers in Andhra Pradesh – ‘E-Lab Register’
- ❖ Nutritional Supplementation for Tribal TB patients

New Initiatives:

- ❖ Revision of Technical and Operational Guidelines
- ❖ Targeted Strategy for High Priority Districts
- ❖ Universal Access to TB Care (intervention to engage private providers)
- ❖ Engaging chemists and druggists
- ❖ NPCDCS and NTCP Advocacy Communication & Social Mobilization

Challenges:

- ❖ India has the highest burden of Tuberculosis and multi-drug-resistant TB (MDR-TB) in the world, disproportionately high even for India’s population.
- ❖ Recent evidences indicate that India’s TB burden may be reducing, but only very slowly.
- ❖ There is wide geographical variation in the epidemic and its trends
- ❖ Poorly served by one-size policy prescription
- ❖ Severe local epidemics are hidden behind inadequate data and surveillance systems, which miss most privately-treated patients.
- ❖ Delay in diagnosis, inadequate treatment, high rates of recurrent TB, drug resistant TB
- ❖ TB programme structure unable to cope with the growing demands for ending TB
- ❖ Limited human resource at the central TB division which severely limits programme management at the National level.
- ❖ Private sector involvement in public health actions related to TB control is not commensurate to its size and dominance in TB care.

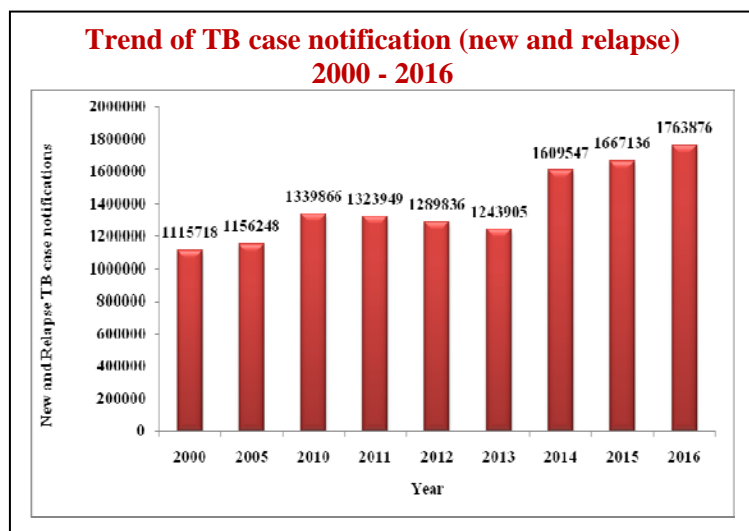
Future Plans:

- ❖ RNTCP is developing its National Strategic Plan for TB elimination in India (2017-25),

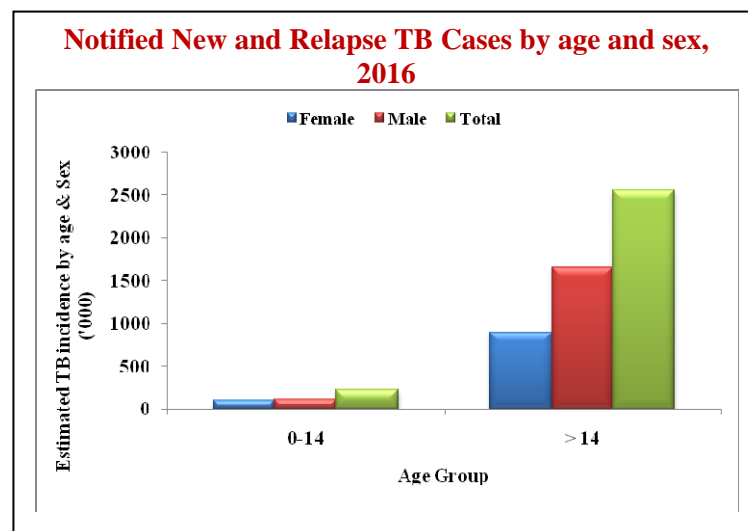
five years ahead of the Sustainable Development Goals (SDGs).

- ❖ External Quality Assessment for CBNAAT is being planned to be rolled out in the country.
- ❖ Introduction of daily FDC for DS TB patients
- ❖ Lab expansion as per the plan
- ❖ DST guided treatment
- ❖ Expansion of PPM initiatives
- ❖ Expansion of TB surveillance through NIKSHAY and other ICT tools
- ❖ Expansion of paediatric TB services
- ❖ Transitioning towards daily regimen
- ❖ Introduction of bedaquiline under RNTCP
- ❖ DST guided treatment

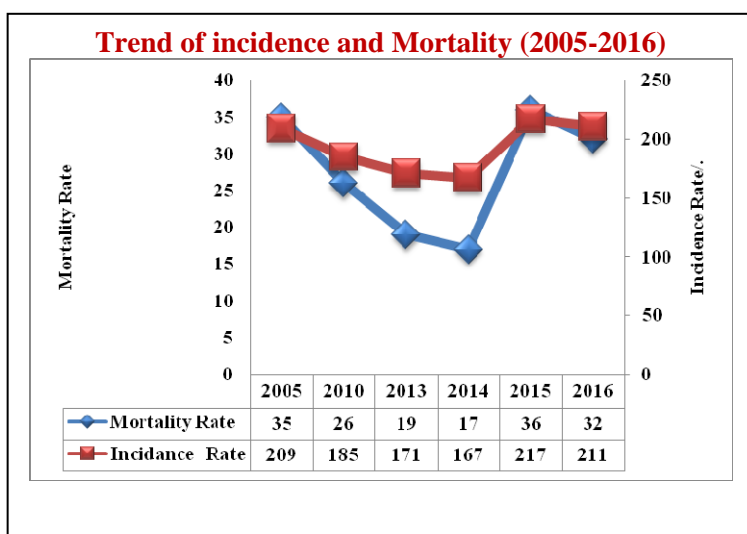
Graphical presentations, India



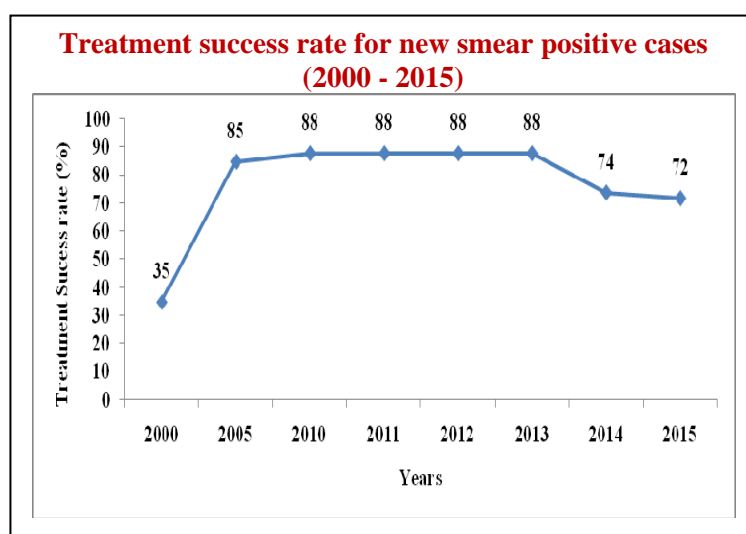
Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016



Source: WHO Global Tuberculosis Report- 2017



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

TB Epidemiology 2016, India

Population (2016)			1324 million
Estimates of TB burden * 2016		Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)		423 (324-534)	21 (24-40)
Mortality (HIV+TB only)		12 (6.6-19)	0.9 (0.5-1.5)
Incidence (includes HIV+TB)		2790 (1440-4570)	211 (109-345)
Incidence (HIV+TB only)		87 (56-125)	6.6 (4.3-9.4)
Incidence (MDR/RR-TB)**		147 (95-199)	11 (7.2-15)
Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	>14 years	Total
Females	107 (47-167)	897 (391-1400)	1000 (437-1570)
Males	120 (52-188)	1660 (725-2600)	1780 (778-2790)
Total	227 (99-355)	2560 (1120-4010)	2790 (1440-4570)
TB case notifications, 2016			
Total cases notified			1936158
Total new and relapse			1763876
-% tested with rapid diagnostics at time of diagnosis			17%
-% with known HIV status			72%
- % pulmonary			84%
- % bacteriologically confirmed among pulmonary			63%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2016			63 % (39-120)
TB cases fatality ratio (estimated mortality/estimated incidence), 2016			0.17 (0.09-0.27)
TB/HIV Care in new and relapse TB patients, 2016		Number	%
Patients with known HIV status who are HIV positive		39815	3%
- On antiretroviral therapy		39123	98%
Drug- resistant TB care, 2016	New cases	Previously treated cases	Total Number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			84000 (72000-95000)
Estimated % of TB cases with MDR/RR-TB		12 % (10-13)	
% notified tested for rifampicin resistance		67%	580438
MDR/RR-TB cases tested for resistance to second line drugs			22492
Laboratory confirmed cases		MDR/RR-TB: 37258	XDR-TB:2464
Patients started on treatment****		MDR/RR-TB: 32914	XDR-TB:2475
Treatment success rate and cohort size		Success	Cohort

New and relapse cases registered in 2015	72%	1656233
Previously treated cases, excluding relapse, registered in 2015	66%	69823
HIV-positive TB cases, all types, registered in 2015	78%	44191
MDR/RR-TB cases started on second line treatment in 2014	46%	22524
XDR-TB cases started on second-line treatment in 2014	29%	1397
TB Preventive treatment, 2016		
% of HIV+ people (newly enrolled in care) on preventive treatment		5%
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		1.9% (1.7-2)

* Ranges represent uncertainty intervals

** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin

*** Includes cases with unknown previous TB Treatment history

****Includes patients diagnosed before 2016 and patients who were not laboratory- confirmed

Source: WHO Global Tuberculosis Report-2017

Republic of Maldives is an island country formed by a number of natural atolls and a few islands in the Indian Ocean consisting of a double chain of twenty-six atolls, The islands are located southwest of the Indian subcontinent stretching 860 km north to south and 80 – 129 km east to west. The population of Maldives was over 379000 of which approximately one third of the Population is living in the island of Male, the capital. The remaining two-thirds of the Population are spread out over 198 islands. The economy of the Maldives depends mainly on tourism, fishing trade, shipping and construction. Resort islands and modern hotels in Male are the main attractions for the increasing numbers of tourists.

TB Epidemiology

With increased case notification and treatment coverage, there is high political commitment towards ending TB in the country. Diagnosis and treatment guidelines adopted by the NTP are in line with WHO recommended standards. New and more convenient paediatric formulation for childhood TB cases introduced. Gene Xpert testing services initiated. Quality assured anti-TB drugs are procured using domestic funding. All TB services are provided free of charge. Case detection among risk groups (prisons, home for people with special needs, migrants) strengthened through collaboration between related agencies.

The estimated mortality and incidence rates of all forms of tuberculosis were 3.9 (CI: 3.1-4.9) and 49 (CI: 38-62) per 100 000 population respectively in 2016. WHO has estimated 210 (CI: 160-270) incident cases in 2016. Total 169 notified new and relapse cases were detected in 2016, among the notified new and relapse cases 22 cases aged less than 15 years.

Achievements

- ❖ Conduct outreach programs through NGOs and peer educators to the target groups and incarcerated populations to increase awareness and advocating for early screening and the availability of treatment free of charge .
- ❖ Development of special IEC materials to reach the migrant population in different languages.

- ❖ Development and implementation of mobile application for self risk assessment
- ❖ Awareness for expatriate recruiting agencies on migrant health issues.

Challenges

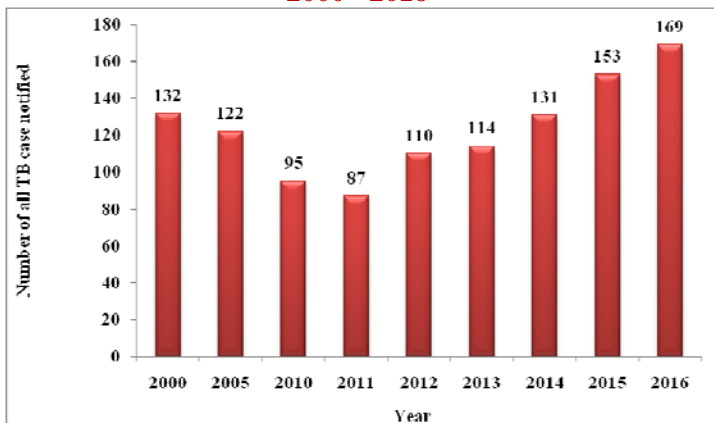
- ❖ Shortage of financial and human resources to implement TB related activities in the country.
- ❖ Culture and DST services not available, proper sputum transportation system not established.
- ❖ Regular supervision and monitoring of TB centres at the regional, atoll and island level is arduous.
- ❖ Social stigma of TB still lingers at the community level.
- ❖ Patients seek medical care from abroad, may lead to emergence of drug resistance.
- ❖ Diagnosis and treatment of drug-resistant TB has long turnaround time. Current capacity to manage such patients is limited.

Future Plans

- ❖ To look for innovation in TB response; bringing new learning's and interventions.
- ❖ Ensure availability of quality-assured TB services, in line with current international standards and provided by qualified personnel. The government's policy approach is to provide free treatment for TB and take all measures possible that they follow and complete the treatment, including migrants, irrespective of their legal status.
- ❖ Maldives takes migrant health seriously, and ensure migrants have access to free TB services, by launching national programme for universal screening and care for TB among migrants and at risk population by 2018.
- ❖ Maldives will support regional cross border initiatives, and information systems to be in place to ensure migrants have uninterrupted treatment, and similar regimens are offered to avoid drug resistance.
- ❖ Maldives will launch its revised national TB strategic plan with targets to end TB by 2030, or even sooner, with new case detection and treatment targets, including identification and management of latent TB infection in high risk groups.
- ❖ Roll out nationwide campaigns to end TB mortality to less than 1 per 100,000 by 2020 with enhanced community and stakeholder engagement

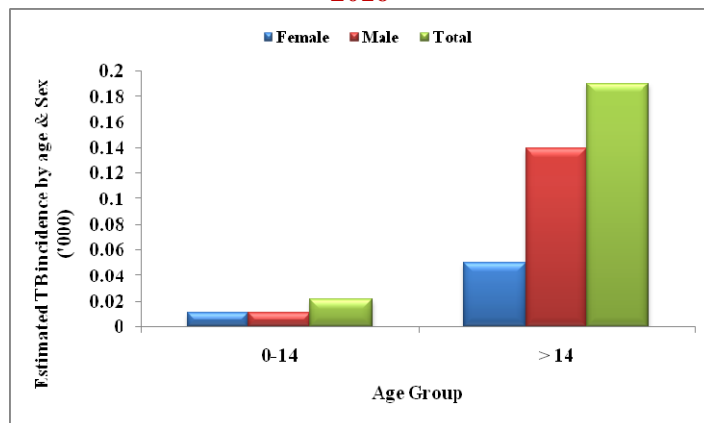
Graphical presentations, Maldives

**Trend of TB case notification (new and relapse)
2000 - 2016**



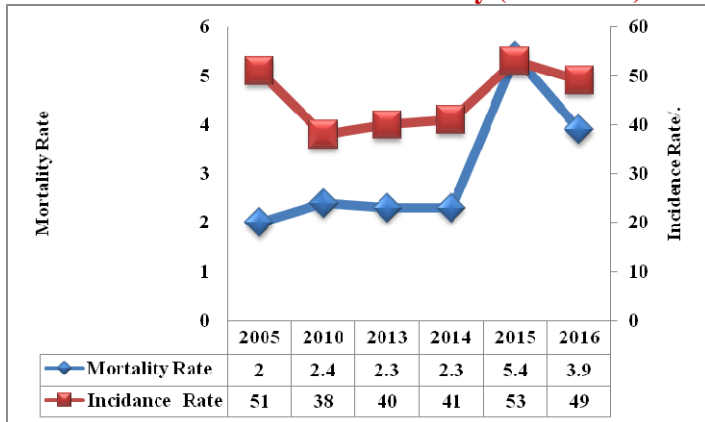
Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

**Notified New and Relapse TB Cases by age and sex,
2016**



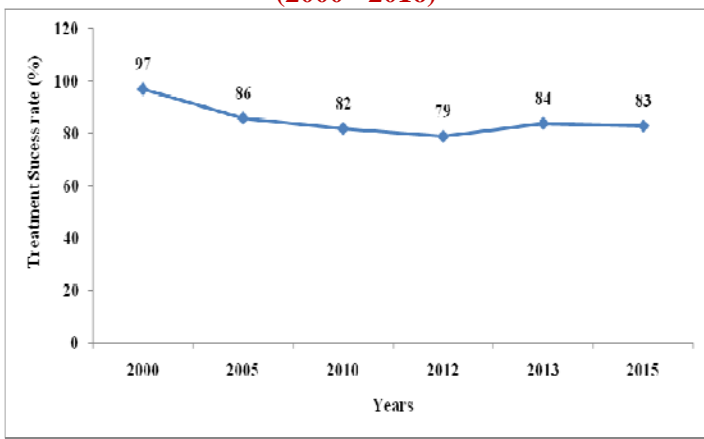
Source: WHO Global Tuberculosis Report- 2017

Trend of incidence and Mortality (2005-2016)



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

**Treatment success rate for new smear positive cases
(2000 - 2016)**



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

TB Epidemiology 2016, Maldives

Population (2016)			379000
Estimates of TB burden * 2016		Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)		0.017 (0.013-0.021)	3.9 (3.1-4.9)
Mortality (HIV+TB only)		0	0
Incidence (includes HIV+TB)		0.21 (0.16-0.27)	49 (38-62)
Incidence (HIV+TB only)		<0.01 (<0.01-<0.01)	0.23 (0.15-0.33)
Incidence (MDR/RR-TB)**		<0.01 (0-0.011)	0.95 (0-2.6)
Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	>14 years	Total
Females	0.011 (<0.01-0.013)	0.05 (0.037-0.062)	0.06 (0.045-0.076)
Males	0.011 (<0.01-0.014)	0.14 (0.1-0.17)	0.15 (0.11-0.19)
Total	0.022 (0.017-0.028)	0.19 (0.14-0.24)	0.21 (0.16-0.27)
TB case notifications, 2016			
Total cases notified			169
Total new and relapse			169
-% tested with rapid diagnostics at time of diagnosis			0%
-% with known HIV status			<1%
- % pulmonary			46%
- % bacteriologically confirmed among pulmonary			100%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2016			80% (63-100)
TB cases fatality ratio (estimated mortality/estimated incidence), 2016			0.08 (0.06-0.11)
TB/HIV Care in new and relapse TB patients, 2016		Number	%
Patients with known HIV status who are HIV positive		1	100%
- On antiretroviral therapy		1	100%
Drug- resistant TB care, 2016	New cases	Previously treated cases	Total Number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			1 (0-4)
Estimated % of TB cases with MDR/RR-TB	1.7 (0.04-9.1)	0% (0-0)	
% notified tested for rifampicin resistance	36%	0%	59
MDR/RR-TB cases tested for resistance to second line drugs			0
Laboratory confirmed cases		MDR/RR-TB: 1	XDR-TB:0
Patients started on treatment****		MDR/RR-TB: 2	XDR-TB:0
Treatment success rate		Success	Cohort
New and relapse cases registered in 2015		83%	153
Previously treated cases, excluding relapse, registered in 2015			0
HIV-positive TB cases, all types, registered in 2015			0
MDR/RR-TB cases started on second line treatment in 2014			0
XDR-TB cases started on second-line treatment in 2014			0

TB Preventive treatment, 2016		
% of HIV+ people (newly enrolled in care) on preventive treatment		
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		100% (93-100)

** Ranges represent uncertainty intervals*

*** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin*

**** Includes cases with unknown previous TB Treatment history*

*****Includes patients diagnosed before 2016 and patients who were not laboratory- confirmed*

Source: WHO Global Tuberculosis Report-2017

Nepal is a landlocked country and is located in the Himalayas and bordered to the north by the China and to the south, east, and west by the India. Nepal is divided into 7 states and 77 districts. It has an area of 147,181 square kilometers and Population of approximately 29 million (WHO Global Tuberculosis Report-2017). The urban Population is largely concentrated in the Kathmandu valley.

TB Epidemiology

Tuberculosis (TB) is still a major public health problem in Nepal. In 2016 WHO has estimated 45000 (CI: 39000-50000) incident cases with the rate of 154 (CI: 136-174) per 100,000 population)). At the same year mortality was 6500 (CI: 4600-8700) with the rate of 22 (CI: 16-30 per 100,000 population). In 2016, total of 31371 new and relapse cases of TB were registered. Among them, 75% were pulmonary bacteriological confirmed (PBC). The Case Notification Rate (CNR) all forms was 112 per 100,000 populations this year trend was decreased in comparison with previous years.

Key Constraint & Challenges

The Nepal NTP has regularly been facing several challenges and constraints, which influence inability to expand and sustain the vision of the programme. Following are the key challenges and constraints faced by the NTP in order to reach intended goals and targets of the programme in last fiscal year.

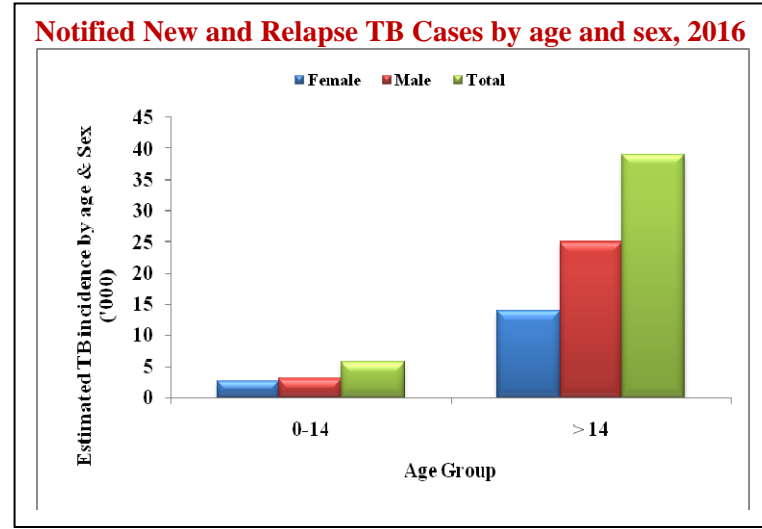
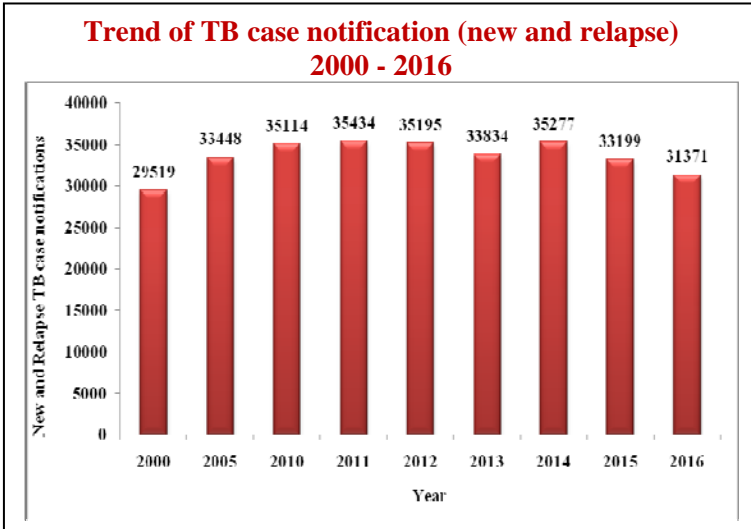
Challenges:

- ❖ Insufficient income generation program for patient and their family members.
- ❖ Inadequate TB management training to medical doctors
- ❖ Minimum interventions for strengthening PPM component
- ❖ Lack of operational research regarding increasing retreatment cases
- ❖ Lack of patient friendly TB treatment service
- ❖ Existing courier system for slide- not adequate
- ❖ Inadequate TB IEC materials
- ❖ Difficult to coordinate with regional and provincial hospitals.

Action to be taken:

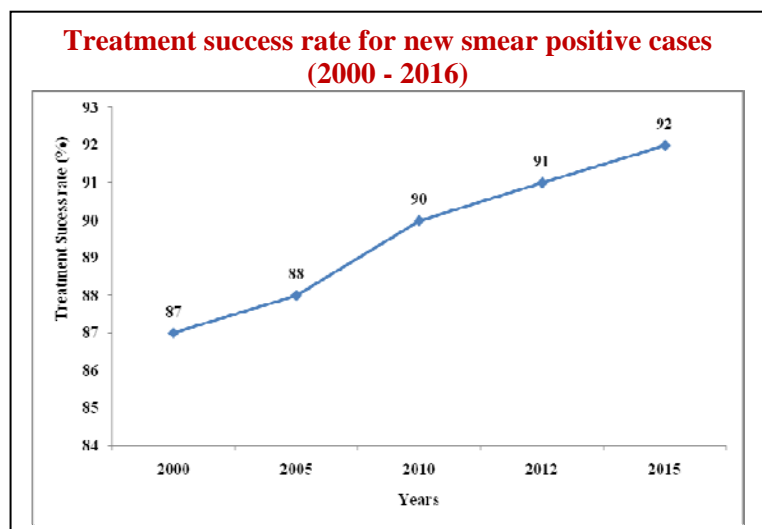
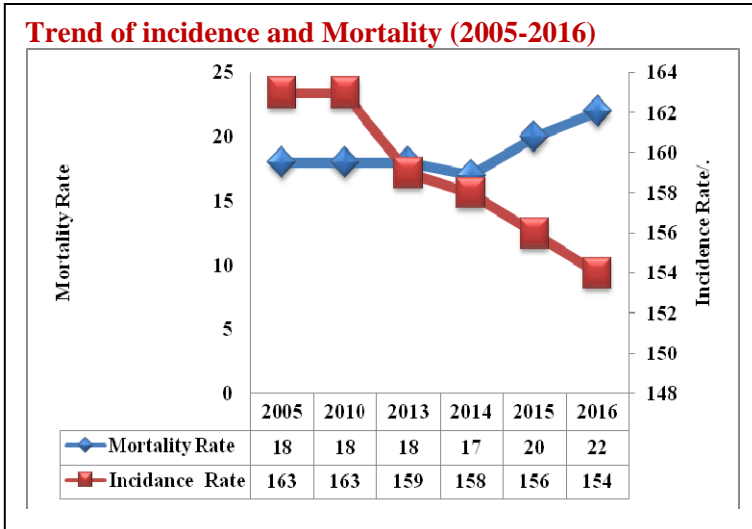
- ❖ Expansion of CBDOT programme in the country
- ❖ Strengthen Public Private Mix approach
- ❖ Strengthen the Community Support System programme
- ❖ Plan for operational research on TB
- ❖ Develop and distribute patients centered TB IEC materials
- ❖ Pilot patient friendly treatment centers in the country

Graphical presentations, Nepal



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

Source: WHO Global Tuberculosis Report- 2016



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

TB Epidemiology 2016, Nepal

Population (2016)			29 million
Estimates of TB burden * 2016		Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)		6.5 (4.6-8.7)	22 (16-30)
Mortality (HIV+TB only)		0.27 (0.15-0.44)	0.95 (0.5-1.5)
Incidence (includes HIV+TB)		45 (39-50)	154 (136-174)
Incidence (HIV+TB only)		0.95 (0.52-1.5)	3.3 (1.8-5.2)
Incidence (MDR/RR-TB)**		1.5 (0.91-2.1)	5.1 (3.1-7.1)
Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	>14 years	Total
Females	2.7 (2.3-3)	14 (13-16)	17 (15-19)
Males	3 (2.6-3.3)	25 (22-28)	28 (24-31)
Total	5.6 (4.9-6.3)	39 (34-44)	45 (39-50)
TB case notifications, 2016			
Total cases notified			32056
Total new and relapse			31371
-% tested with rapid diagnostics at time of diagnosis			
-% with known HIV status			18%
- % pulmonary			73%
- % bacteriologically confirmed among pulmonary			75%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2016			70 % (62-80)
TB cases fatality ratio (estimated mortality/estimated incidence), 2016			0.15 (0.11-0.21)
TB/HIV Care in new and relapse TB patients, 2016		Number	%
Patients with known HIV status who are HIV positive		255	4%
- On antiretroviral therapy		227	89%
Drug- resistant TB care, 2016	New cases	Previously treated cases	Total Number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			900 (540-1300)
Estimated % of TB cases with MDR/RR-TB		2.2 % (0.98-3.4)	15 % (6.7-24)
% notified tested for rifampicin resistance		2%	33%
MDR/RR-TB cases tested for resistance to second line drugs			0
Laboratory confirmed cases		MDR/RR-TB: 430	XDR-TB:19
Patients started on treatment****		MDR/RR-TB: 386	XDR-TB:17
Treatment success rate and cohort size		Success	Cohort
New and relapse cases registered in 2015		92%	32459
Previously treated cases, excluding relapse, registered in 2015		88%	1124

HIV-positive TB cases, all types, registered in 2015	9%	179
MDR/RR-TB cases started on second line treatment in 2014	70%	286
XDR-TB cases started on second-line treatment in 2014		
TB Preventive treatment, 2016		
% of HIV+ people (newly enrolled in care) on preventive treatment		
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		

* Ranges represent uncertainty intervals

** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin

*** Includes cases with unknown previous TB Treatment history

****Includes patients diagnosed before 2016 and patients who were not laboratory- confirmed

Source: WHO Global Tuberculosis Report-2017

Islamic Republic of Pakistan is the second largest country in the South Asia. It is bordered by India to the east, China in the far northeast, Afghanistan to the west and north, Iran to the southwest and Arabian Sea in the south. The land area of the country is 796,095 square kilometers. Population of Pakistan was approximately 193 million (WHO Global Tuberculosis Report-2017) at the end of 2016.

TB Epidemiology

Pakistan is among countries with the high burden of TB and MDR-TB. The estimated mortality and incidence rates of all forms of tuberculosis were 23 (CI: 18-29) and 268 (CI: 174-383) per 100,000 population respectively in 2016. WHO has estimated 518000 (CI: 335000-741000) incident cases and 44000 (CI: 34000-55000) deaths in 2016.

Total 356390 notified new and relapse cases were detected in 2016, among the notified new and relapse cases 51000 (CI: 31000-71000) cases aged less than 15 years. Out of this notified number 80% were pulmonary TB cases. Among Pulmonary cases 48% were bacteriologically confirmed.

Achievements

- ❖ National Strategic Plan: National Strategic Plan (2017-2020) developed and is aligned with End TB Strategy.
- ❖ Core DOTS: National TB control Programme has notified more than 3 million TB cases during the last 15 years and provided free of cost diagnostic and treatment services.
- ❖ MDR-TB: 30 PMDT sites established.
- ❖ Laboratory: The Country wide network of microscopy centres, WRDs and Culture & DST facilities.
- ❖ Public Private Mix: Four models of PPM are being implementd (GPs, NGOs, Private Hospitals)
- ❖ CHTB: Revised CHTB guidelines, introduction of Child friendly medicines.
- ❖ Mandatory TB Notifications: The Provincial assemblies of three provinces have passed the mandatory TB notification bill.

- ❖ TB/HIV: 40 sentinel sites established for managing TB/HIV co-infection.
- ❖ Capacity building of the various cadres of health care workers.
- ❖ TB Drug Management: e-based TB drug management information system (TB-DMIS & TB WMIS)
- ❖ E-Surveillance system (MIS-DOTS): State of the art country DHIS-2 is under process of development through technical support of WHO.

Challenges

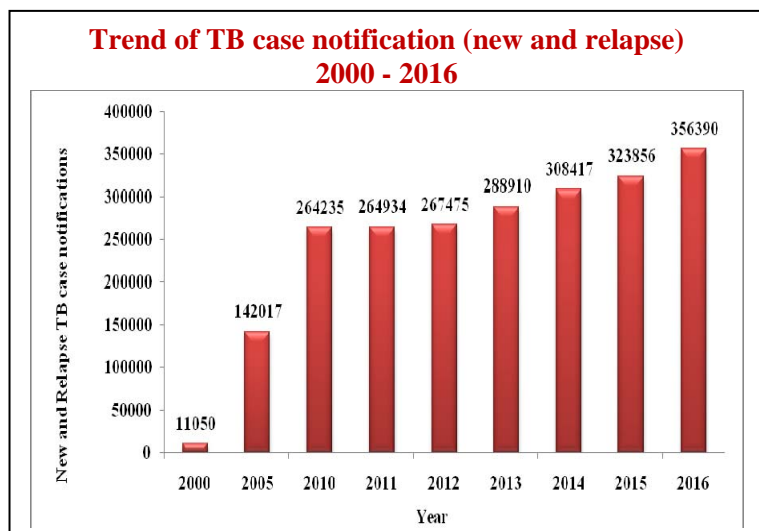
- ❖ Missed TB cases (30%)
- ❖ Fiscal capacity for domestic Co-financing
- ❖ Donor dependence
- ❖ Social Protection for patients-Potential for catastrophic costs
- ❖ Mandatory TB cases notification-Implementation
- ❖ Weak referral linkages/spicemen transport systems limiting access to TB care and Universal DST.
- ❖ Wider Involvement of Private sector.
- ❖ Interventions for marginalized and vulnerable Population.
- ❖ Implementation of preventive treatment for high risk groups and infection control

Future Plan

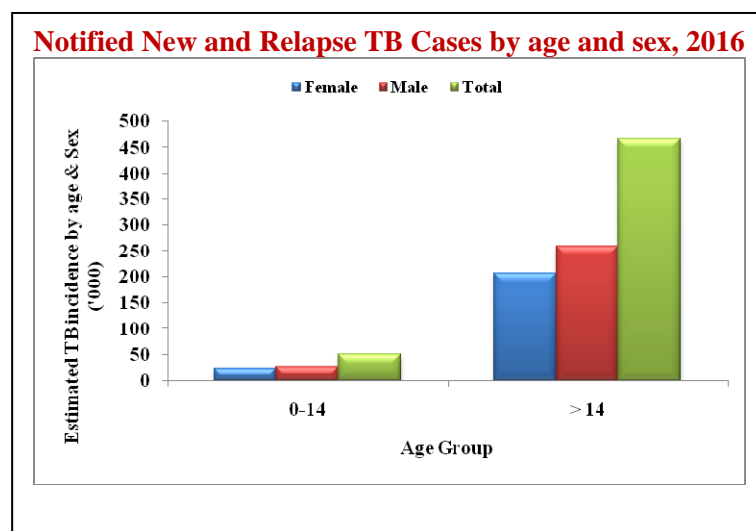
- ❖ Increase and continuous political commitment and involvement of all relevant stake holders to ensure the insatiability of the intervention.
- ❖ TB/HIV Co-infection is included as a full module for the NFM Grant.
- ❖ To revise the training modules, revised guidelines for the health care provider (Managers, doctors and paramedics) in NTP To adopt and incorporate the revised reporting and recording tools according to WHO recommendation and incorporate the changes revised and updated training modules.
- ❖ The National Strategic plan 2020 envisages a major contribution from private sector through expansion in partnership and innovative approaches
- ❖ Research is a key strategic area identified in the National strategic and operational (PC1) plans as well as the new stop TB strategy.
- ❖ The current plan envisages social mobilization to contribute towards high utilization of desired TB services through private sector partner organization operating in communities.

- ❖ Plan to manage 80% of estimated DR-TB patients by 2017 and 100% by 2020 in line with MDR expansion plan and National Strategic plan.

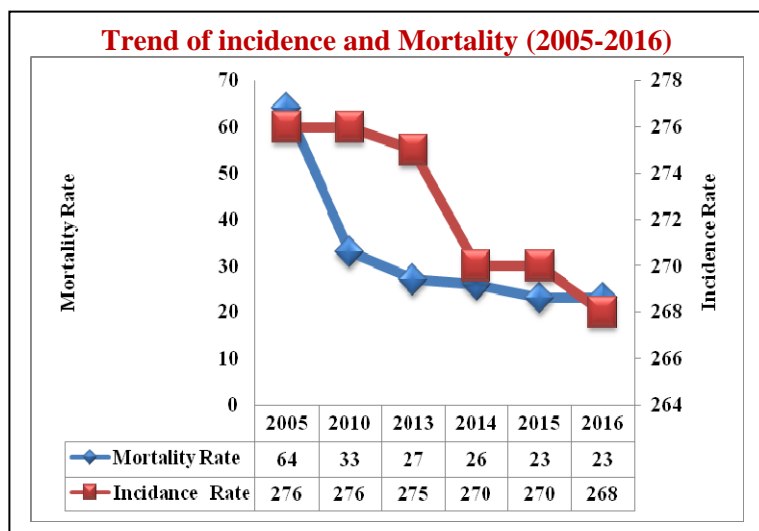
Graphical presentations, Pakistan



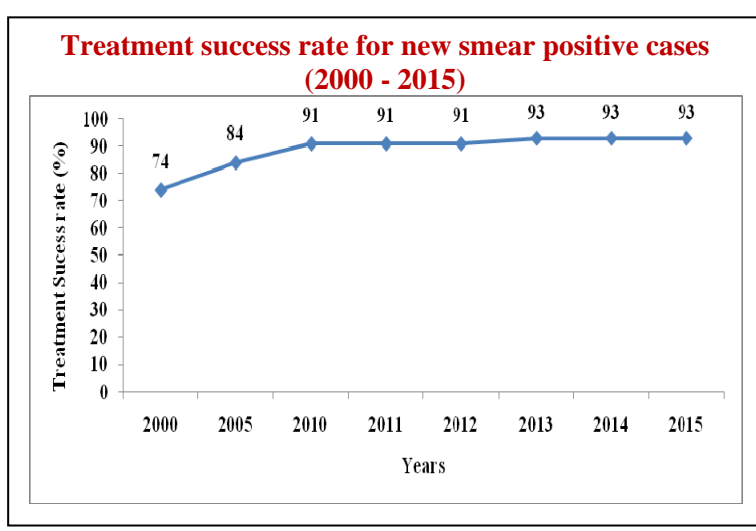
Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016



Source: WHO Global Tuberculosis Report-2017



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

TB Epidemiology 2016, Pakistan

Population (2016)		193million	
Estimates of TB burden * 2016		Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)		44 (34-55)	23 (18-29)
Mortality (HIV+TB only)		2.1 (0.98-3.6)	1.1 (0.51-1.9)
Incidence (includes HIV+TB)		518 (335-741)	268 (174-383)
Incidence (HIV+TB only)		6.9 (3.2-12)	3.5 (1.6-6.2)
Incidence (MDR/RR-TB)**		27 (17-37)	14 (8.8-19)
Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	>14 years	Total
Females	24 (15-34)	207 (126-288)	230 (141-322)
Males	27 (17-38)	260(158-362)	287 (175-400)
Total	51 (31-71)	467 (284-650)	518 (335-741)
TB case notifications, 2016			
Total cases notified			366061
Total new and relapse			356390
-% tested with rapid diagnostics at time of diagnosis			
-% with known HIV status			4%
- % pulmonary			80%
- % bacteriologically confirmed among pulmonary			48%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2016			69 % (48-110)
TB cases fatality ratio (estimated mortality/estimated incidence), 2016			0.09 (0.06-0.14)
TB/HIV Care in new and relapse TB patients, 2016		Number	%
Patients with known HIV status who are HIV positive		71	<1%
- On antiretroviral therapy		68	96%
Drug- resistant TB care, 2016		Previously treated cases	Total Number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			15000 (12000-18000)
Estimated % of TB cases with MDR/RR-TB		4.2 % (3.2-5.3)	16% (15-17)
% notified tested for rifampicin resistance		3%	50%
MDR/RR-TB cases tested for resistance to second line drugs			2364
Laboratory confirmed cases		MDR/RR-TB: 3331	XDR-TB:126
Patients started on treatment****		MDR/RR-TB: 2881	XDR-TB:76
Treatment success rate and cohort size		Success	Cohort
New and relapse cases registered in 2015		93%	323267

Previously treated cases, excluding relapse, registered in 2015	83%	8091
HIV-positive TB cases, all types, registered in 2015		-
MDR/RR-TB cases started on second line treatment in 2014	65%	2565
XDR-TB cases started on second-line treatment in 2014	42%	78
TB Preventive treatment, 2016		
% of HIV+ people (newly enrolled in care) on preventive treatment		-
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		-

* Ranges represent uncertainty intervals

** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin

*** Includes cases with unknown previous TB Treatment history

****Includes patients diagnosed before 2016 and patients who were not laboratory- confirmed

Source: WHO Global Tuberculosis Report-2017

The Democratic Socialist Republic of Sri Lanka is an island in the Indian Ocean with an area of 65,610 square kilometers. Sri Lanka has maritime borders with India to the northwest and the Maldives to the southwest. Population in Sri-Lanka was 21 millions in 2016 (WHO Global Tuberculosis Report-2017).

TB Epidemiology

A middle-burden country, around 25% of total TB cases are from Colombo District, predominantly affecting males in the productive age group (15–54 years). Multidrug resistant TB is not a major problem and TB/HIV co-infection remains low. Treatment success rate above 85% since 2005. Incidence remains stable but case notification among new and relapse cases decreased since 2013. Loss to follow-up is low (<5%). The National Strategic Plan 2015–2020 finalized following Joint Monitoring Mission in 2014. National TB Reference Laboratory (NTRL) upgraded to Biosafety level III in 2015. Gene Xpert services being expanded, a 16-module machine to be placed at NTRL and 4-module machines at four more sites.

The estimated mortality and incidence rates of all forms of tuberculosis were 6 (CI: 4.3-8) and 65 (CI: 48-84) per 100 000 population respectively in 2016. WHO has estimated 13000 (CI: 9900-18000) incident cases in 2016. Total 8664 notified new and relapse cases were detected in 2016, among the notified new and relapse cases 1500 cases aged less than 15 years.

Achievements

- ❖ Availability of END TB 2016-2020 Strategic Plan (Draft)
- ❖ Identification of the requirement of Technical and Financial support to use modeling tool to achieve End TB 2020 Target.
- ❖ Case detection among high-risk categories (prisons and drug addicts) were strengthened and intersectoral collaboration between related agencies were strengthened.
- ❖ Able to strengthen PMDT activities by establishing central and site committees for PMDT
- ❖ Monitoring and evaluation of TB control activities at both central and regional levels were strengthened

Challenges

- ❖ Static case detection
- ❖ TB cases getting older: 39% of cases notified in 2014 were 45+, 43% in 2016
- ❖ Under reporting of childhood TB.
- ❖ High burden in prisoners (1.68%)
- ❖ Uncertain burden in diabetics, smokers, malnourished
- ❖ Treatment success <85%
- ❖ Poor Infection control at DCCs

Actions are being planned

- ❖ Advocacy meetings with stakeholders including provincial health administrators and provincial health professionals
- ❖ Advocacy meetings with stakeholders to improve actions for high risk groups
- ❖ Advocacy meetings with private health sector NGO sector and business community

Actions being implemented

- ❖ Conduct of Advisory Committee on Tuberculosis regularly
- ❖ Regular reviews with District Tuberculosis Control Officers
- ❖ Supervision visits by NPTCCD staff to all districts
- ❖ District and Provincial reviews
- ❖ Participating in Oversight Committee Supervisory visits lead by DGHS
- ❖ Two researches of STAC in Sri Lanka has completed

Main areas to be focused

- ❖ Improve Case Detection-
- ❖ Strengthen Contact Tracing
- ❖ Strengthen Prophylactic Treatment

Future Plan

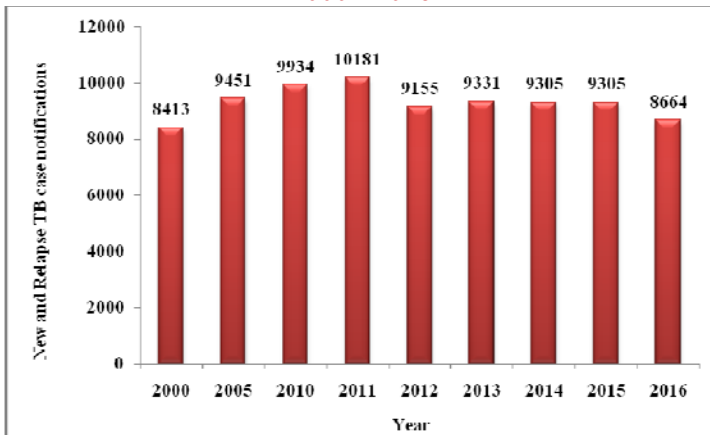
- ❖ Enhance case detection among high-risk groups through estate and urban coordinators

and involvement of non-NTP stakeholders

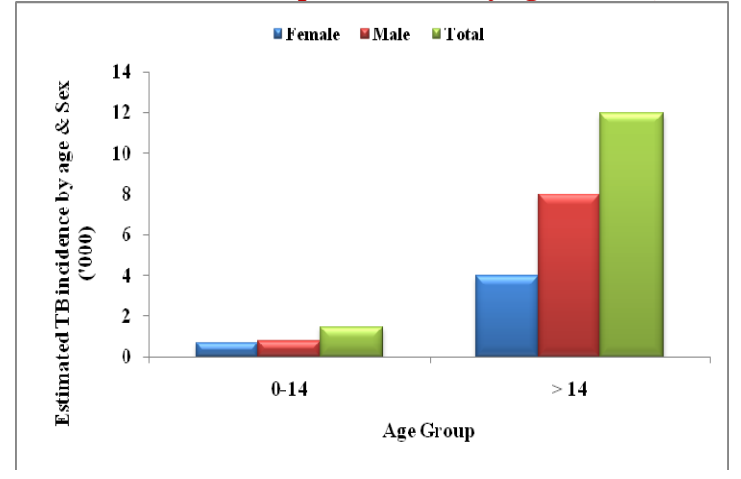
- ❖ Prepare guidelines and SOPs for community awareness and referral, screening of high-risk categories
- ❖ Continue supply of anti-TB drugs
- ❖ Conduct a DRS survey
- ❖ Strengthen monitoring through supervision of chest clinics / laboratories and programme reviews
- ❖ Build capacity of health staff
- ❖ Take evidence-based approaches in TB control through operational research
- ❖ Strengthen PPM through engaging private health-care providers in TB control in a phase-out manner
- ❖ Provide social support for needy TB patients and all MDR TB patients
- ❖ Prepare a ACSM plan following KAP survey and implementation

Graphical presentations, Sri-Lanka

**Trend of TB case notification (new and relapse)
2000 - 2016**



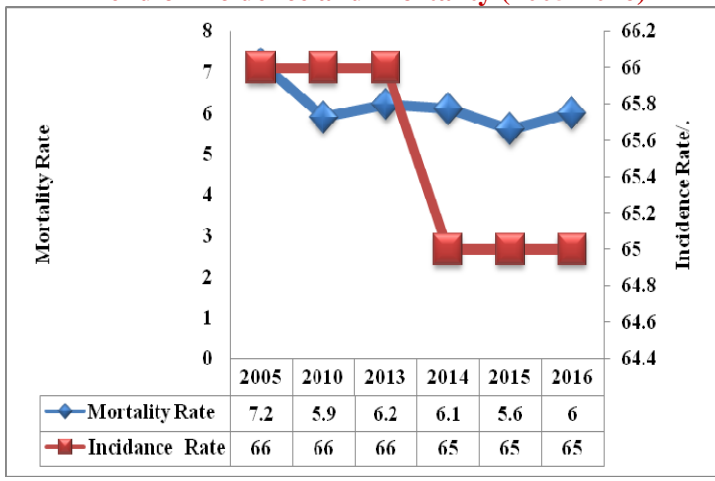
Notified New and Relapse TB Cases by age and sex, 2016



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

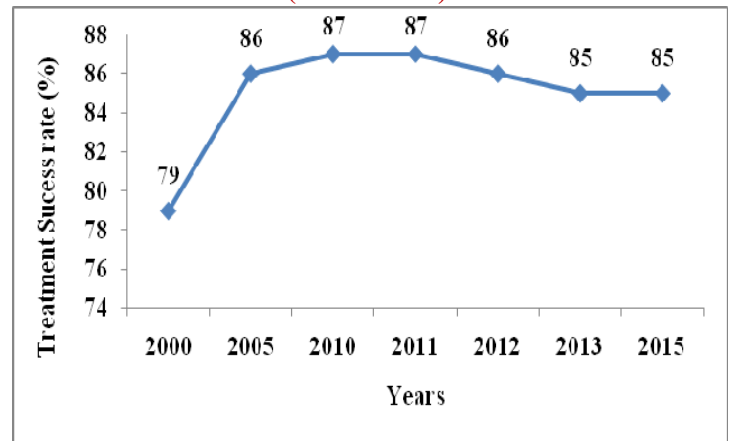
Source: WHO Global Tuberculosis Report-2017

Trend of incidence and Mortality (2005-2016)



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

**Treatment success rate for new smear positive cases
(2000 - 2015)**



Source: WHO Global Tuberculosis Report-2017 & SAARC Epidemiological Response on Tuberculosis-2016

TB Epidemiology 2016, Sri Lanka

Population (2016)		21 million	
Estimates of TB burden * 2016		Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)		1.2 (0.89-1.7)	6 (4.3-8)
Mortality (HIV+TB only)		<0.01 (<0.01- <0.01)	0.03 (0.02-0.04)
Incidence (includes HIV+TB)		13 (9.9-18)	65 (48-84)
Incidence (HIV+TB only)		0.02 (0.015-0.027)	0.1 (0.07-0.13)
Incidence (MDR/RR-TB)**		0.093 (0-0.20)	0.45 (0-0.95)
Estimated TB incidence by age and sex (thousands)*, 2016			
	0-14 years	>14 years	Total
Females	0.69 (0.49-0.88)	4 (2.9-5.2)	4.7(3.4-6.1)
Males	0.78 (0.56-1)	8 (5.7-10)	8.7 (6.3-11)
Total	1.5 (1-1.9)	12 (8.6-15)	13 (9.9-18)
TB case notifications, 2016			
Total cases notified			8886
Total new and relapse			8664
-% tested with rapid diagnostics at time of diagnosis			19%
-% with known HIV status			89%
- % pulmonary			70%
- % bacteriologically confirmed among pulmonary			71%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2016			64 % (49-87)
TB cases fatality ratio (estimated mortality/estimated incidence), 2016			0.1 (0.06-0.14)
TB/HIV Care in new and relapse TB patients, 2016		Number	%
Patients with known HIV status who are HIV positive		12	<1%
- On antiretroviral therapy		7	58%
Drug- resistant TB care, 2016		New cases	Previously treated cases
Estimated MDR/RR-TB cases among notified pulmonary TB cases			47 (1-93)
Estimated % of TB cases with MDR/RR-TB		0.54%(0-1.3)	3.1 % (1.6-5.4)
% notified tested for rifampicin resistance		15%	47%
MDR/RR-TB cases tested for resistance to second line drugs			11
Laboratory confirmed cases		MDR/RR-TB: 23	XDR-TB:0
Patients started on treatment****		MDR/RR-TB: 17	XDR-TB:0
Treatment success rate and cohort size		Success	Cohort
New and relapse cases registered in 2015		85%	9293
Previously treated cases, excluding relapse, registered in 2015		68%	282

HIV-positive TB cases, all types, registered in 2015	76%	25
MDR/RR-TB cases started on second line treatment in 2014	69%	13
XDR-TB cases started on second-line treatment in 2014	-	0
TB Preventive treatment, 2016		
% of HIV+ people (newly enrolled in care) on preventive treatment		10%
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		27 % (25-30)

* Ranges represent uncertainty intervals

** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin

*** Includes cases with unknown previous TB Treatment history

****Includes patients diagnosed before 2016 and patients who were not laboratory- confirmed

Source: WHO Global Tuberculosis Report-2017

5. TB/HIV CO-INFECTION

TB HIV Co-infection poses a critical challenge for the health-sector and for people living with HIV and TB. Starting in the 1980s, the HIV epidemic led to a major upsurge in TB cases and TB mortality in many countries.

In 2016, there were an estimated 1.3 million TB deaths among HIV-negative people (down from 1.7 million in 2000) and an additional 374 000 deaths among HIV-positive People.

Globally in 2016, 57% of notified TB patients had a documented HIV test result, up from 55% in 2015. The treatment success rate for HIV-associated TB (2015 cohort) was 78% and for extensively drug-resistant TB (XDRTB) (2014 cohort) it was 30%.

Improvements in the coverage and quality of data for this indicator are necessary to track the impact of HIV care, especially antiretroviral therapy (ART), on the burden of TB in people living with HIV.

Preventing TB deaths among HIV-positive people requires intensified scale-up of TB prevention, diagnosis and treatment interventions, including earlier initiation of ART among people living with HIV and those with HIV-associated TB. Increased efforts in joint TB and HIV programming could facilitate further scale-up and consolidation of collaborative TB/HIV activities.

Joint activities between national TB and HIV/AIDS programmes are crucial to prevent, diagnose and treat TB among people living with HIV and HIV among people with TB. These include establishing mechanisms for collaboration, such as coordinating bodies, joint planning, surveillance and monitoring and evaluation; decreasing the burden of HIV among people with TB (with HIV testing and counseling for individuals and couples, co-trimoxazole preventive therapy, antiretroviral therapy and HIV prevention, care and support); and decreasing the burden of TB among people living with HIV (with the three I's for HIV and TB: intensified case-finding; TB prevention with isoniazid preventive therapy and early access to antiretroviral therapy; and infection control for TB). Integrating HIV and TB services, when feasible, may be an important approach to improve access to services for people living with HIV, their families

and the community.

Table 08: Estimates of TB/HIV care in new and relapse TB patients, 2016

Country	Patients with known HIV status who are HIV positive		patients on Antiretroviral Therapy (ART)	
	Number	%	Number	%
Afghanistan	8	<1	8	100
Bangladesh	87	2	69	79
Bhutan	6	<1	3	50
India	39815	3	39123	98
Maldives	1	100	1	100
Nepal	255	4	227	89
Pakistan	71	<1	68	96
Sri Lanka	12	<1	7	58
Regional	40255		39506	98

Source: WHO Global TB Report, 2017

In 2016, a total 40225 TB patients with known HIV status has tested in which India accounts highest number of TB patients with known HIV status who are HIV positive. Total 39506 patients are on ART in the region which is around 98 % of total TB patients with known HIV status who are HIV positive in SAARC region.

The proportion of known HIV-positive TB patients on antiretroviral therapy (ART) was 85% globally, and above 90% in India. However Afghanistan and Maldives have 100 % patients on Antiretroviral Therapy (ART) in 2016.