

**HIV AND
SEXUALLY TRANSMITTED
INFECTIONS IN THE
WESTERN PACIFIC
REGION**

2000–2010



**World Health
Organization**

Western Pacific Region

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WHO Library Cataloguing in Publication Data

HIV and sexually transmitted infections in the Western Pacific Region: 2000-2010

1. Acquired immunodeficiency syndrome – prevention and control. 2. HIV infections – epidemiology, prevention and control. 3. Sexually transmitted diseases – epidemiology, prevention and control. World Health Organization Regional Office for the Western Pacific.

ISBN 978-92-9061-572-9 (NLM Classification: WC 503)

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ACKNOWLEDGEMENTS

We thank the Member States of the Western Pacific Region for providing HIV surveillance and programme data over the years. We are grateful to experts from Member States and partner agencies for their contributions to and suggestions on the early draft of the report. We appreciate the contribution of colleagues in the Regional Office for the Western Pacific (WPRO) and WHO country offices in preparing this report: Teodora Wi, Zhao Pengfei, Yu Dongbao, Masami Fujita, Graham Shaw, Nicole Seguy, Zhang Lan, Dominique Ricard, Harpal Singh, Narantuya Jadambaa, Madeline Salva, Fabian Ndenzako, Fabio Mesquita, Masaya Kato, David Jacka, Keith Sabin and Nguyen Thi Minh Thu. Many thanks are due to WHO and UNAIDS colleagues for the global estimation data.

We would like to express our gratitude to Virginia Loo for writing the draft report. Bandana Malhotra and Jhoney Barcarolo edited, and Netra Shyam typeset and designed the report. Rowena Yapp and Meda Manuel provided administrative assistance. Yu Dongbao coordinated the overall development of the report.

FOREWORD



It has been 12 years since the last report on HIV and sexually transmitted infection (STI) was published by the Regional Office for the Western Pacific (WPRO) of the World Health Organization in 1999. This report documents the achievements and challenges of the Region's health sector response to the epidemic over the past decade. It identifies key technical recommendations to further reduce the number of new infections, and prolong and improve the quality of life of people living with HIV in the Region.

An estimated 1.3 million adults and children were living with HIV in the Western Pacific Region (WPR) as of 2010. Over the past decade, the rate of new HIV infections in WPR has decelerated and the HIV epidemic is plateauing. The number of new infections has stabilized at around 130 000 a year. As the epidemics have matured, the number of annual AIDS-related deaths has risen, but has remained stable over the past four years.

Overall, there is greater awareness and implementation of effective and evidence-informed prevention approaches, and remarkable advances have been made in treatment and prevention with new tools and techniques over the past decade. Good progress has been made in reducing the heterosexual transmission of HIV through 100% Condom Use Programmes and community-led interventions. There has been a tremendous increase in the number of people receiving antiretroviral therapy, from barely a few hundred at the beginning of the decade to more than 200 000 in 2010, covering 43% of all those in need.

However, challenges remain and there are important gaps to be filled. The majority of people are not aware of their HIV infection status, particularly among key populations, such as people who inject drugs, sex workers and men who have sex with men. Appropriate and effective technologies are available to prevent mother-to-child transmission (PMTCT) of HIV, but the coverage is still inadequate to eliminate paediatric HIV in countries. There are considerable barriers to providing tailored and user-friendly health-care services to affected populations, which include stigma, discrimination and marginalization of people living with HIV, sex workers, men who have sex with men, transgender persons and people who inject drugs. Moreover, many countries have a shortfall of funds for their HIV programmes, which might be worsened by the looming global financial crisis. This may seriously limit international funding to countries' HIV programmes.

Countries, together with the international community, need to make concerted efforts to win the battle against HIV/AIDS by strengthening their political commitment, increasing domestic funding to HIV programmes, and scaling up the coverage of prevention, treatment and care services.



ACRONYMS AND ABBREVIATIONS

100% CUP	100% Condom Use Programme
3TC	lamivudine
ABC	abacavir
AEM	Asian Epidemic Model
AMR	antimicrobial resistance
ANC	antenatal care
ART	antiretroviral therapy
ARV	antiretroviral
AZT/ZDV	zidovudine
BSS	behavioural surveillance survey
CBO	community-based organization
CoC	continuum of care
CoPC	continuum of prevention and care
CPT	co-trimoxazole prophylaxis therapy
CQI	continuous quality improvement
d4T	stavudine
DBS	dried blood spot
ddI	didanosine
EFV	efavirenz
EPP	Estimation and Projection Package
EWI	early warning indicator
FHI	Family Health International
FSW	female sex worker
GASP	Gonococcal Antimicrobial Surveillance Programme
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HCV	hepatitis C virus
HIVDR	HIV drug resistance
HSS	HIV sentinel surveillance
IBBS	integrated biological and behavioural survey
IC	infection control
ICF	intensified case-finding
IDV	indinavir
IEC	information, education and communication
IHBSS	integrated HIV behavioural and serological surveillance
IPT	isoniazid preventive therapy
LPV/r	lopinavir/ritonavir
MCH	maternal and child health
MDG	Millennium Development Goal
MDR-TB	multidrug-resistant tuberculosis
MMT	methadone maintenance therapy
MNCH	maternal, newborn and child health
MOH	Ministry of Health



MOT	Modes of Transmission (model)
MSM	men who have sex with men
MTCT	mother-to-child transmission (of HIV)
NAC	National AIDS Council (the Philippines)
NCAIDS	National Center for AIDS/STD Control and Prevention (China)
NCHADS	National Center for HIV/AIDS, Dermatology and STD (Cambodia)
NDOH	National Department of Health (Papua New Guinea)
NGO	nongovernmental organization
NNRTI	non-nucleoside reverse transcriptase inhibitor
NRTI	nucleoside reverse transcriptase inhibitor
NSP	needle and syringe programme
NVP	nevirapine
OI	opportunistic infection
OST	opioid substitution therapy
PCR	polymerase chain reaction
PDCA	plan, do, check and act
PEPFAR	United States President's Emergency Plan for AIDS Relief
PITC	provider-initiated testing and counselling
PLHIV	people living with HIV
PMTCT	prevention of mother-to-child transmission (of HIV)
PRSIP	Pacific Regional Strategic Implementation Plan
PSDN	Pacific Sexual Diversity Network
PWID	people who inject drugs
RAR	rapid assessment and response
SARS	severe acute respiratory syndrome
SHC/COMBI	strategic health communication/communication for behavioural impact
SGS	second generation surveillance
SQV	saquinavir
SRH	sexual and reproductive health
SW	sex worker
TB	tuberculosis
TDF	tenofovir disoproxil fumarate
TDR	transmitted drug resistance
TG	transgender person
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNGASS	United Nations General Assembly Special Session (on HIV/AIDS)
UNICEF	United Nations Children's Fund
VCT	voluntary counselling and testing
WHO	World Health Organization
WPR	Western Pacific Region
WPRO	Regional Office for the Western Pacific (of WHO)

INTRODUCTION

1

It has been 12 years since the last report on HIV and sexually transmitted infection (STI) was published by the Western Pacific Region (WPR) of the World Health Organization (WHO).¹ Since then, the epidemic has evolved considerably, and countries have mounted vigorous and innovative responses to the epidemic, often led by the health sector. The focus of this Regional report on HIV and STI in the Western Pacific, 2000–2010 is to bridge this gap in knowledge and history.

This report documents the achievements and challenges of the Region's health sector response to the epidemic over the past decade. It identifies best practices and important opportunities to further reduce the number of new infections, and prolong and improve the quality of life of people living with HIV (PLHIV) in WPR. Many of the issues described in this report are not unique to the Region, but the specific context of WPR countries and examples are used to underscore the challenges and opportunities.

This report is based on a review of the available data and the relevant technical literature, existing policies and country documentation covering the past ten years of the response. This report relies on primary data from a number of key sources:

- Annual reporting to WHO, United Nations Children's Fund (UNICEF) and Joint United Nations Programme on HIV/AIDS (UNAIDS) on the progress of health sector's response towards universal access²
- Indicators reported biennially and consolidated by the UNAIDS Secretariat to monitor commitments to the United Nations General Assembly Special Session on HIV/AIDS (UNGASS)³
- Individual country reports and studies sharing experiences and lessons learned
- Presentations made at Regional meetings and conferences by country representatives (primary data sources are cited wherever possible)
- The AIDS Data Hub for Asia–Pacific⁴ as a warehouse of source documents and cross-country analyses of data.

This report was developed under the leadership and auspices of the HIV/AIDS and STI Unit of the WHO's Regional Office for the Western Pacific (WPRO), and benefited extensively from consultations with and inputs from Regional and country teams. It is expected that this document will serve as a useful reference for programme managers and the international community to trace and contextualize the developments in the health sector's response to HIV and STI in the Region over the past 10 years, and to develop technical policies and programmes for the next phase of the health sector's response to HIV and STI.



ANNEX 1 provides updated epidemiological information on the Region's HIV and STI epidemics.

ANNEX 2 presents the Regional progress in expanding the availability and uptake of HIV testing and counselling.

ANNEX 3 discusses progress in scaling up health sector interventions for HIV prevention among key populations at higher risk for acquiring HIV.

ANNEX 4 presents Regional progress in scaling up access to treatment and care for PLHIV.

ANNEX 5 presents Regional progress towards scaling up HIV services for women and children, including interventions to prevent mother-to-child transmission (MTCT) of HIV.

ANNEX 6 provides updated data on Regional strategies and programmes for controlling STIs.

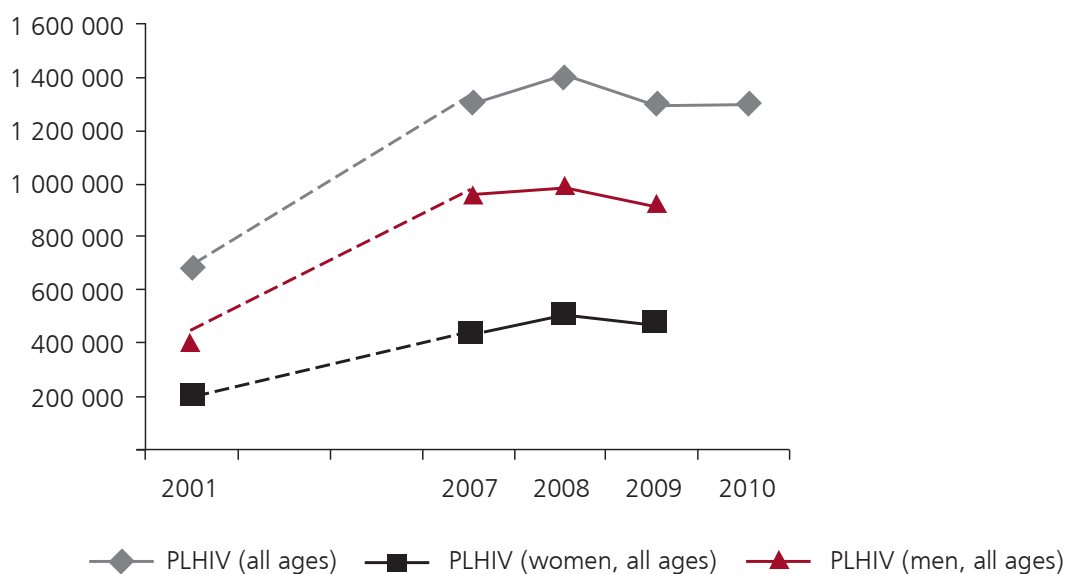
ANNEX 7 summarizes available information on health systems and the response to HIV in the Region.

MAJOR ACHIEVEMENTS AND CHALLENGES

2

In 2010, an estimated 1 300 000 [1 100 000–1 500 000] adults and children were living with HIV in the Region, yielding a Regional HIV prevalence rate of 0.1% among adults and children. Over the past decade, the rate of new HIV infections in WPR has decelerated and the HIV epidemic has shown tentative signs of stabilizing across the Region. As the epidemic matured, the number of annual AIDS-related deaths rose from 33 000 in 2001 to 80 000 in 2010, but has been stable over the past five years, 2007–2011. Though still high, the incidence of new HIV infections has declined from 150 000 per year at the beginning of the decade to 130 000 [88 000–190 000] in 2009 and 2010⁵ (Figure 1).

Figure 1a. Estimated number of people living with HIV in WPR countries, 2001 and 2007–2010

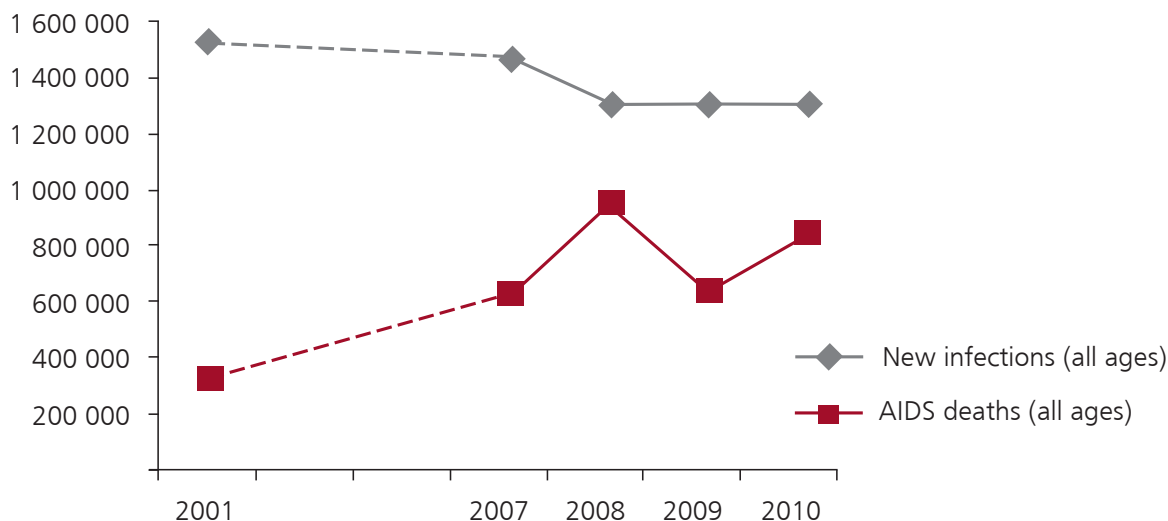


Sources: UNAIDS/WHO, *AIDS epidemic updates*, 2001–2010. Projections for all years are generated with the 2008 version of the Estimation and Projection Package (EPP).

The health sector has played an essential role in national responses across the Region, as services provided in health facilities constitute a major entry point for a wide array of services, including testing and counselling, prevention, care and treatment. The Region has made great strides in expanding and enhancing the health sector's response to the HIV epidemic in the past eleven years.



Figure 1b. Estimated number of new infections and AIDS-related deaths among WPR countries, 2001 and 2007–2010



Sources: UNAIDS/WHO, *AIDS epidemic updates*, 2001–2010. Projections for all years are generated with the 2008 version of the Estimation and Projection Package (EPP).

➔ TESTING AND COUNSELLING

Among 13 reporting countries in 2010, nine had national guidelines for implementing provider-initiated testing and counselling (PITC), and 10 out of 13 reporting countries had guidelines recommending that providers target key affected populations with HIV testing and counselling in 2010.

Availability of HIV testing and counselling has continued to increase in WPR. Among nine reporting countries, the number of sites providing HIV testing and counselling services rose by over 260% between 2007 and 2010, from 7008 to 18 539.

Uptake of HIV testing and counselling also increased between 2009 and 2010. In eight reporting countries, 2 769 563 people received HIV testing and counselling in 2010 compared with 2 299 303 a year earlier.

However, the coverage of HIV testing and counselling services targeting key populations at higher risk for HIV should be improved, such as sex workers (SWs), people who inject drugs (PWID), men who have sex with men (MSM) and transgender people (TG).

➔ PREVENTION INTERVENTIONS AMONG KEY POPULATIONS

Most countries in WPR have low-level or concentrated epidemics, making the implementation of prevention interventions for key populations, in particular, MSM, PWID, and female sex workers (FSWs) and their clients, an essential component of national HIV control efforts.



Targeted interventions for FSWs, including peer education and outreach, 100% condom use programme (100% CUP), and HIV and STI services have been scaled up and implemented in some high-prevalence countries in WPR since the late 1990s. This has contributed to containing the HIV and STI epidemic among FSWs in the Region.

However, coverage of key populations with prevention interventions remains low across the Region, especially for PWID, MSM and TG. Providing comprehensive and quality services targeted at key populations are particular challenges for the health systems in countries. These include providing HIV testing and counselling, and managing co-morbidities with STI, tuberculosis (TB) and hepatitis C virus (HCV) infection for SWs, PWID, MSM and TG. More efforts are needed to implement other structural interventions at the policy level through changing laws to decriminalize or legalize sex work and changing the sexual behaviours of MSM. At the local level, the social, economic and political power of key populations should be increased by empowering them to alter their local environment and, consequently, their risk for STIs and HIV to sustain prevention efforts.

➔ TREATMENT AND CARE

As of December 2010, an estimated 203 000 people were receiving antiretroviral therapy (ART) in WPR, a more than tenfold increase from the 17 000 observed in 2004. More than 90% of the people receiving ART in 2010 lived in five high-priority countries: Cambodia, China, Malaysia, Papua New Guinea and Viet Nam.

In 2010, coverage of ART across the Region reached 43% [39%–51%] of the estimated number of people eligible for ART, according to WHO's 2010 treatment guidelines. This is lower than the global ART coverage of 47% [44%–50%].

Approximately 9700 children below the age of 15 years were on ART in the Region in 2010. These accounted for about 42% [36%–49%] of the estimated number eligible for treatment, which is higher than the average global coverage of 23% [20%–25%].

Over 80% of patients were alive and still on therapy at 12 months after ART initiation in the Region's five high-priority countries in 2010.

Implementation of TB/HIV collaborative activities, including the *Three I's for HIV/TB*,⁶ is still limited in most countries across the Region. Only 16% of TB/HIV coinfecting patients received ART in 2010 (compared to 37% globally), and 64% had access to co-trimoxazole prophylaxis (compared to 75% globally).⁷

➔ PREVENTION OF MOTHER-TO-CHILD TRANSMISSION

About 5200 pregnant women living with HIV had received antiretrovirals (ARVs) for the prevention of mother-to-child transmission (PMTCT) in 2010, accounting for an estimated coverage of 36% [30%–43%] in the Region, which is significantly lower than the global



PMTCT coverage of 59%. Coverage with ARVs for PMTCT of HIV varied considerably among reporting countries in 2010. While coverage was estimated at 10% in Lao People's Democratic Republic (Lao PDR) and the Philippines, it stood at 89% and 88%, respectively, in Malaysia and Fiji.

In 2010, coverage of syphilis screening remained relatively low in most countries of the Region. The results of syphilis screening suggest that the risk of congenital syphilis is highly heterogeneous across countries.

➔ **STI CONTROL PROGRAMME**

Control of chlamydial infection and gonorrhoea is particularly challenging due to the large proportion of infections that are asymptomatic. Research data suggest that presumptive treatment for chlamydial infection and gonorrhoea may have a positive impact on the prevalence levels of these infections.

A gonococcal antimicrobial resistance surveillance programme (GASP) has been in place in several Asia-Pacific countries, which annually tests a sample of gonococcal specimens diagnosed. The results have led to a Regional recommendation to use third-generation cephalosporins to address the high rates of antimicrobial resistance.

➔ **HEALTH SYSTEMS STRENGTHENING**

Linkages between HIV and other health programmes, including TB, STI, hepatitis, and maternal and child health have been developed, but should be further strengthened and deepened to enhance coverage, promote uptake, optimize programme management and reach unassisted populations. Moreover, linkages will ensure sustainable delivery of HIV services. Additional efforts are needed to ensure that all patients across the Region, especially those from key populations, can access appropriate health-care services on site or through referral to promote optimal treatment, monitoring and management.

Key populations and PLHIV continue to face high levels of stigma and discrimination in health-care settings across the Region, negatively impacting on their ability and willingness to seek care and treatment.

The achievements mentioned above are the result of national efforts to translate global strategies and normative guidance into policies and guidelines that are appropriate for the specific epidemic contexts found in countries of WPR.

While epidemiological patterns and socioeconomic contexts vary greatly across the Region, all countries in the Western Pacific must continue to focus on the provision of prevention, treatment and care services, particularly for key populations and their regular partners. These populations are considered "key" by virtue of being the groups most affected by



the epidemic and among whom the epidemic has the greatest potential to spread. For this reason, the need to pay particular attention to key populations is a theme running through each of the key challenges and recommendations described in the main body of this report.

The recent global economic downturn may limit the availability of resources from development partners and potentially put additional strain on domestic budgets to cover any shortfall. The next decade will bring greater pressure on national programmes to design models of service which are affordable and sustainable within a government-funded context. Moreover, improving the health systems will be essential for the scale-up of HIV services such as strengthening integrated procurement and supply management to reduce costs and ensure access to affordable ARVs. Many models of cost effectiveness are already under development, and these approaches include integrating and linking HIV services into other health sector programmes, and decentralization where appropriate (Box 1).

BOX 1. WHO'S GLOBAL HEALTH SECTOR STRATEGY ON HIV/AIDS, 2011–2015

WHO's global health sector strategy on HIV/AIDS, 2011–2015, approved by the World Health Assembly in May 2011,⁸ provides the overarching strategic framework for the Region's response. The global strategy lays out a comprehensive approach to meeting the challenges of the epidemic in the next phase of the response, and for achieving the goal of universal access. Some of the approaches that are particularly relevant to WPR include the following:

- Moving away from vertical systems, both within HIV programming and with respect to integrating HIV services and interventions into the broader health system;
- Crafting responses tailored to prevailing epidemiological patterns, prioritizing groups and geographical areas which are most affected by the epidemic;
- Protecting and promoting human rights, particularly of those populations at higher risk for HIV infection and PLHIV, to ensure that they can access services and that resources are allocated equitably;
- Employing evidence-informed policies and programmes to ensure the optimal use of limited resources and a more sustainable response.

3

KEY RECOMMENDATIONS

This report identifies five critical issues and recommended actions to achieve and sustain universal access by 2015 in countries of WPR. The recommendations contained herein are consistent with global strategies and normative guidance, including WHO's global health sector strategy on HIV/AIDS 2011–2015,⁸ but have been developed taking into account the Regional epidemic context and needs.

KEY RECOMMENDATIONS

1. Increasing the coverage of effective, evidence-informed and rights-based prevention interventions and uptake of HIV testing and counselling among key populations are essential to prevent new HIV infections, and ensure timely diagnosis and early treatment for those infected.
2. Renewed efforts and commitment are necessary to achieve and sustain universal access to ART, and ensure that national programmes keep up with changes in standards of care.
3. Integrating HIV-related services (PMTCT, TB/HIV and hepatitis C) into the broader health system is a sustainable strategy for scaling up health services in the epidemic settings of the Region.
4. Systems for STI detection, management and surveillance must be strengthened and appropriately linked to comprehensive HIV and STI prevention strategies. Particular attention is needed to stem the spread of drug-resistant gonococcal strains.
5. Data from HIV surveillance systems must be more effectively used to trigger programmatic action.



3.1 KEY RECOMMENDATION 1: *Increasing the coverage of effective, evidence-informed and rights-based prevention interventions and uptake of HIV testing and counselling among key populations are essential to prevent new HIV infections, and ensure timely diagnosis and early treatment for those infected.*

3.1.1 Background of the issue

Most countries in WPR have low-level or concentrated epidemics. The majority of PLHIV are members or regular partners of key populations, including SWs, MSM, PWID and



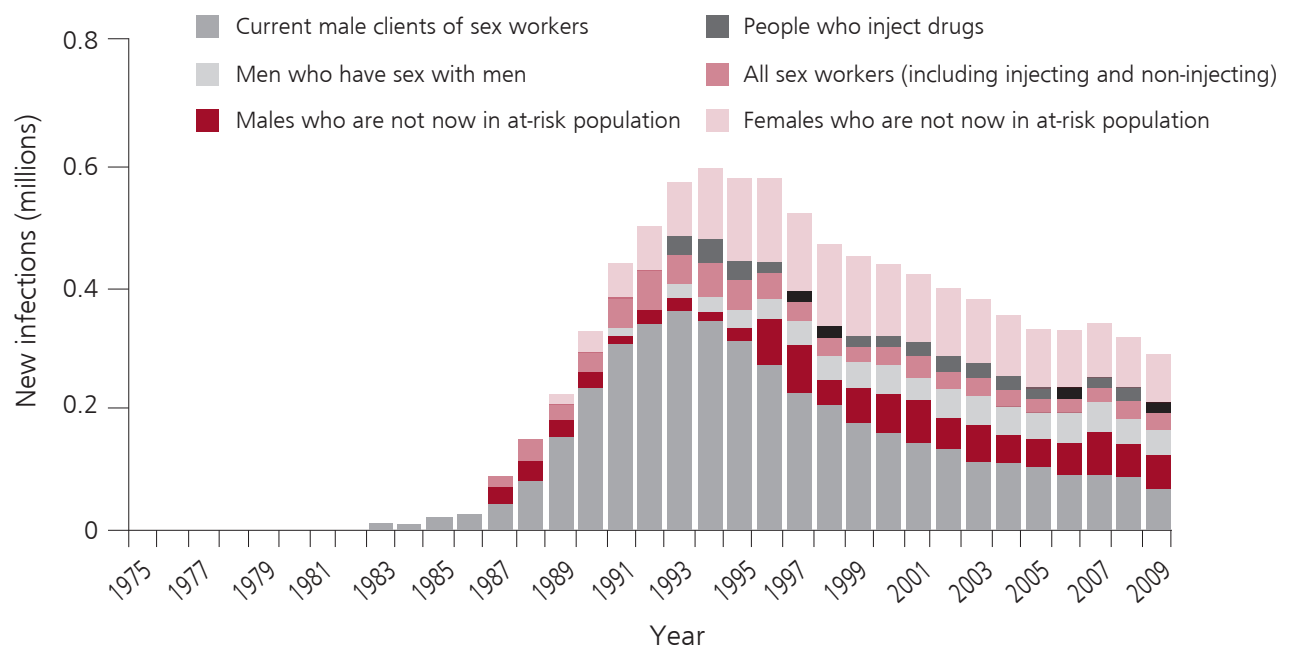
TG. In order to further reduce the number of new HIV infections, coverage with effective prevention interventions must be expanded and maintained at sufficiently high levels in order to achieve a population-level impact. Meanwhile, although the uptake of HIV testing and counselling in the Region has increased considerably in the past five years, a substantial number of PLHIV remain undiagnosed and, even those who are diagnosed, are not always successfully referred to care and treatment services in a timely manner. The recognition that early treatment initiation is an important prevention tool makes the expansion of early HIV diagnosis and provision of strong referral linkages to care and treatment essential to reduce mortality as well as incidence.

With the exception of Cambodia, most recent survey data show that less than 50% of key populations have been tested for HIV in the past year in four of the five high-priority countries in WPR.

In addition, many countries where sex work is an important mode of transmission do not have methods for either targeting or tracking HIV testing among the large numbers of clients of SWs, who are themselves at risk for infection as well as for transmitting infection to their regular sexual partners.

In particular, epidemic models suggest that, as concentrated epidemics mature, large proportions of new infections occur among regular partners of populations at higher risk for HIV infection, including partners of clients of SWs (Figure 2).⁹ Yet, insufficient attention is paid to developing programmes that encourage PLHIV to bring in their partners for counselling and testing or to offer other types of prevention services for serodiscordant couples.

Figure 2. Epidemic models projecting the distribution of new infections among different groups over time (based on data from epidemics in China and Viet Nam)



Source: Adapted from Commission on AIDS in Asia, 2008



3.1.2 Taking action

Expand and maintain sufficient coverage of effective prevention interventions for key populations to further reduce the number of new infections.

Interventions to increase condom use, including peer outreach and structural interventions such as the 100% CUP, have been successfully expanded and implemented in Cambodia, Viet Nam, Mongolia and China, and have contributed to containing the epidemic among FSWs. In addition to stimulating condom use, second-generation intervention programmes with SWs should emphasize the meaningful involvement of SWs and empowerment of the community.

In spite of considerable progress, coverage of prevention interventions among key populations remains insufficient in countries of the Region, especially for PWID and MSM. Considerable additional investments are needed to expand and maintain sufficient coverage of effective prevention interventions for populations at higher risk of HIV infection. Barriers to accessing PWID and MSM, such as legal policies and stigma and discrimination in the health sector, should be addressed in the long term.

Improve case-finding by increasing coverage of HIV testing and counselling among key populations.

A key objective of HIV testing and counselling is to improve case-finding so as to refer newly diagnosed patients to early care and treatment. In particular, countries in WPR should actively work to increase coverage of HIV testing and counselling among key populations. This implies employing strategies to enhance the user-friendliness and accessibility of testing for these groups, such as offering HIV testing and counselling through community-based organizations (CBOs) that work with SWs, MSM and PWID. Awareness of the availability of confidential and free or low-cost care and treatment can also motivate marginalized populations by providing them with a direct personal benefit linked to knowing their status. Regular voluntary HIV testing and counselling among key populations should also be promoted in light of their increased risk for HIV acquisition.

Countries should pilot and scale up effective approaches to targeting services for clients of SWs, including through services they may already use. For instance, clinics providing STI services often serve male populations who are likely to be clients of SWs, or those who otherwise engage in higher-risk sexual behaviours. As such, one important strategy to increase the uptake of HIV testing and counselling among clients of SWs involves developing policies and allocating resources to ensure that all STI clinic patients undergo HIV testing. Another strategy involves engaging private sector STI service providers and pharmacists in promoting counselling and testing. National programmes can also develop protocols for PITC at clinics that serve occupational groups in which a large proportion of members are clients of SWs, such as truckers, factory workers and military/police personnel.



Increase focus on services for regular partners of people living with HIV.

Services for regular partners of PLHIV should be expanded in order to enhance potential case-finding and referral, as needed, for care and treatment, as well as to introduce interventions to prevent transmission between discordant couples. The first step in service provision for regular partners is to invite them for testing and counselling once an individual is found to be HIV-positive. The sensitivity around disclosure of HIV status by PLHIV to their partners requires adequately trained, high-quality counselling and support services, and appropriate supervision and support for those providing HIV testing and counselling.

Ensure that linkages between HIV testing and counselling and other services are well established to maximize uptake of prevention and treatment interventions.

HIV testing and counselling is intended to be an entry point for prevention and treatment services, rather than as an end in itself. Current indicators of progress in HIV testing and counselling focus on what proportion of the population receives an HIV test and knows the results. However, as coverage of testing increases, programmes must also begin to assess how successfully individuals are linked with other essential services. National programmes must pay greater attention, for example, to what proportion of those diagnosed as positive are enrolled in care and treatment, and what proportion of those testing negative receive appropriate prevention services. Only when programmes are able to fully leverage HIV testing and counselling to achieve lower morbidity and incidence levels can HIV testing and counselling be considered a success.



3.2 KEY RECOMMENDATION 2: Renewed efforts and commitment are necessary to achieve and sustain universal access to antiretroviral therapy and to ensure that national programmes are able to keep up with changes in standards of care.

3.1.2 Background of the issue

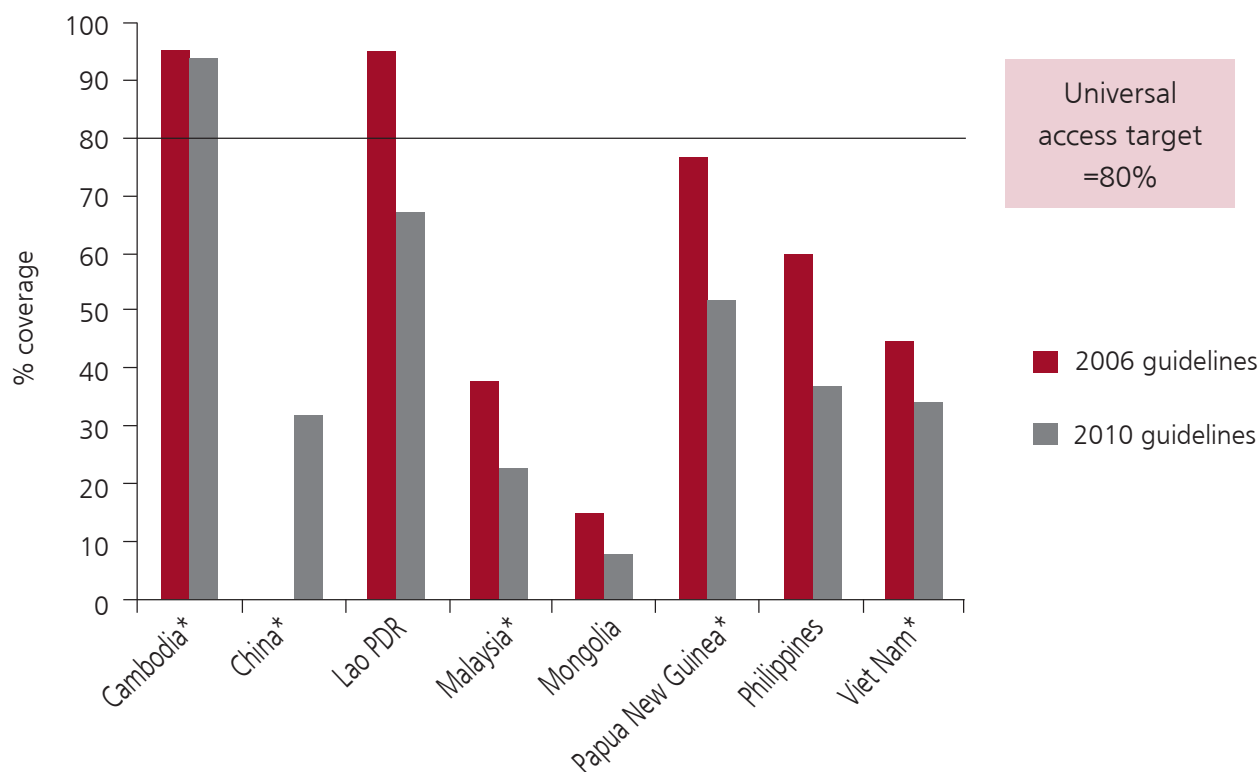
Over the past decade, ART programmes in WPR have been expanded considerably and provided life-saving ART to 203 000 PLHIV as of December 2010 (Figure 3).¹⁰ Yet, this represents only 43% of the 470 000 people who are estimated to be HIV-positive and eligible for ART according to the 2010 WHO treatment guidelines.^{11,12}

Over 90% of all HIV infections in the Region occur in five high-priority countries, namely, Cambodia, China, Malaysia, Papua New Guinea and Viet Nam. As such, universal access targets in WPR depend considerably on the extent to which these countries' health systems are able to identify and provide ART to all those in need.

Low coverage of HIV testing (see section 3.1), especially among key populations, means that most ART-eligible patients are not diagnosed and, among those who are, most initiate

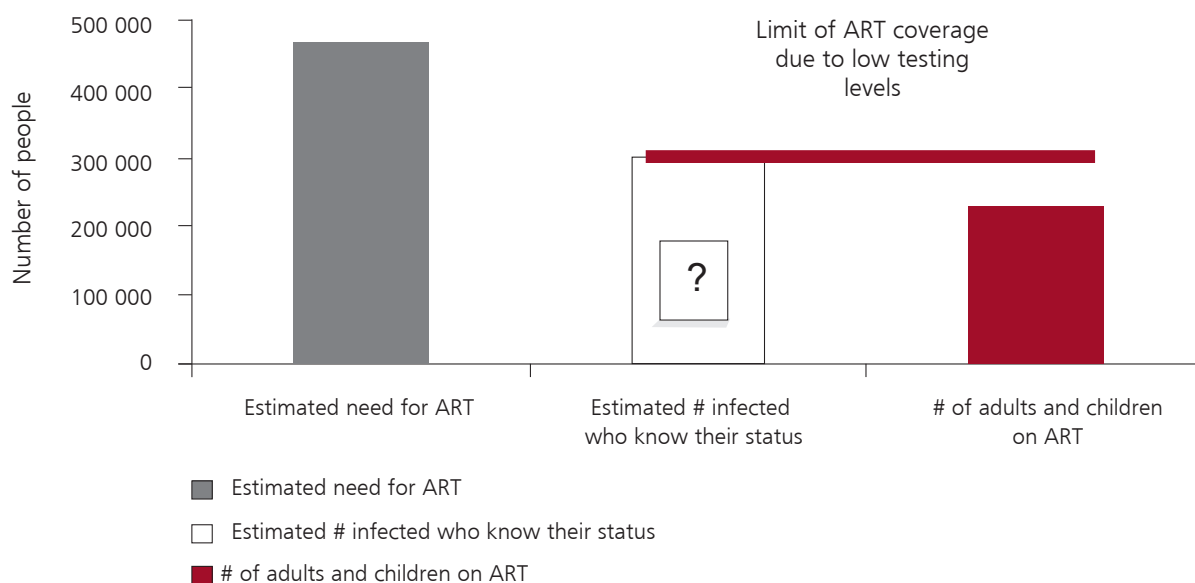


Figure 3. Estimated ART coverage in 2009, based on different WHO treatment guidelines



Source: www.aidsdatahub.org, based on *Universal access reporting*, 2010
* indicates a high-priority country; Lao PDR: Lao People's Democratic Republic

Figure 4. Gap between the number of people who are ART-eligible, who are aware of their serostatus and who actually receive ART among the five high-priority countries in WPR, 2009



Source: WHO, *Universal access reporting*, 2011; based on *WHO treatment guidelines*, 2010



treatment when they are at a late stage of the disease. The considerable gap between the number of people who should be receiving ART and those who are aware of their serostatus continues to limit progress towards universal access (Figure 4).^{11,12}

In addition to more effective and timely case-finding, there are challenges in regularly following up HIV-positive patients prior to their becoming eligible for ART, resulting in high rates of loss to follow up. Meeting the expected increase in total expenditures associated with the universal provision of ART is an additional challenge that programme managers must adequately envisage and plan for. First, about 130 000 new infections occur per year, increasing the number of people who will eventually require treatment. Second, global treatment guidelines since 2010 recommend initiating treatment at an earlier stage of the disease (i.e. when CD4 cell counts are at or below 350 cells/mm³, compared to 200 cells/mm³ according to previous guidelines).¹² Third, recommendations for new first-line treatment regimens tend to be more expensive than current first-line combinations. Fourth, as an increasing number of patients have been on ART for several years, they may develop resistance to first-line regimens, and the number of patients requiring more expensive second-line regimens will grow. Finally, the relatively low prevalence of HIV in many parts of the Region makes it expensive to establish ART sites in locations that are convenient for all eligible patients.

In order to help countries address these challenges, WHO and the UNAIDS Secretariat launched the *Treatment 2.0* initiative in 2011,¹³ designed to improve the efficiency and impact of HIV care and treatment programmes in resource-limited countries. It builds on the evidence and experience of the past 10 years in scaling up ART globally, and seeks to simplify and optimize HIV diagnosis, treatment and care through a series of innovations and efficiency gains in five priority areas:

- Optimize drug regimens by designing effective, affordable, easier-to-use ARV regimens with minimal toxicity or drug interactions and high barriers to resistance.
- Develop and provide access to point-of-care and other simplified diagnostics and monitoring tools.
- Further reduce the costs of commodities and drugs so that they are no longer a barrier to accessing care.
- Adapt service delivery systems so that HIV care and treatment programmes are decentralized and appropriately integrated with other HIV and non-HIV health services, with increased community engagement in service delivery and improved retention in care.
- Mobilize communities of PLHIV and key populations at higher risk for HIV infection to be fully involved in demanding, creating, planning, delivering and evaluating HIV care and treatment programmes.



BOX 2. ACHIEVING UNIVERSAL ACCESS IN CAMBODIA

Some countries in WPR have had considerable success in expanding the coverage of ART. As of December 2010, an estimated 92% of eligible adults received ART in Cambodia, with high levels of retention on ART at 12, 24 and 36 months after treatment initiation. In the same year, the country received a Millennium Development Goal (MDG) Award of Excellence due to its achievements in ART scale-up. The service delivery model adopted by Cambodia is based on the following:

- Mobilizing high-level, broad-based political will to address the urgency of the problem;
- Leveraging the strength and capacity of CBOs to provide care and develop a strong referral system linked to treatment services;
- Adopting a *continuum-of-care* approach that links testing, care, treatment and community-based support;
- Establishing networks of health facilities to optimize the availability of qualified health-care providers and laboratory infrastructure.

3.2.2 Taking action

Incorporate the goals and strategies of the Treatment 2.0 initiative into national ART programmes to accelerate progress towards universal access.

In order to expand access to and coverage of ART, countries in WPR should incorporate the goals and strategies of the Treatment 2.0 initiative into their national ART programmes. Some countries have already begun this process. Regional meetings held in July and November 2011 allowed countries to share their experiences and plans on how to accelerate progress. For example, Viet Nam shared its plan to implement a year-long pilot for a new approach with Treatment 2.0 principles for ART scale-up in two provinces. Following an evaluation and adjustment of the approach, this model will be rolled out to the remaining provinces between 2012 and 2015. Initiatives are under way to reduce costs through strengthening procurement and supply management, decentralizing services and ensuring the availability of affordable ART through exploring flexibility in the Trade-Related Aspects of Intellectual Property Rights (TRIPS).



Continuously monitor and improve the quality and reach of services, especially for key populations and their partners, in order to ensure optimal treatment outcomes.

As ART scale-up continues, carefully monitoring the quality of service provision is key, particularly as more patients start receiving therapy, the number of health facilities offering ART increases and services are decentralized to become more accessible to patients. This means continued efforts to streamline protocols and investments in appropriate monitoring and supervision, including with respect to stigma and discrimination in health-care settings, which may discourage eligible patients from seeking treatment at local facilities.

Continuum-of-care models, as employed by several countries in the Region, including Cambodia and Viet Nam, provide a structure to link health facilities, laboratories and health providers, and garner the resources of local communities and other branches of the health system. The continuum-of-care model may need to be broadened to incorporate CBOs and nongovernmental organizations (NGOs) already working with populations at higher risk for HIV on prevention and other health services, such as methadone clinics for PWID. Indeed, special efforts are needed to provide services for these key populations, who are likely to be more economically vulnerable, more mobile, and may be dealing with other health conditions that render the management of HIV more difficult.

Maintain political commitment to ensure continued financing of treatment.

Over the past decade, significant resources have been mobilized from global as well as domestic sources to fund the scale-up of HIV programmes, in particular, of ART. In an environment of scarcer economic resources, it is essential that policy-makers recognize the importance of sustaining funding for ART in order to protect current achievements, and enhance treatment and prevention outcomes. Making treatment available to all those in need, including populations at higher risk for HIV infection, is an ethical decision that lies at the core of all successful, rights-based national responses. Efforts at advocacy and costing ART needs will be needed to mobilize local support. An integrated, comprehensive approach can decidedly lower incidence and mortality rates and prevent low-level or concentrated epidemics from deepening and spreading.



3.3 KEY RECOMMENDATION 3: *Integrating HIV-related services, including PMTCT, elimination of congenital syphilis, TB/HIV, and hepatitis C management, into the broader health system is a sustainable strategy for scaling up health services in the epidemic settings of the Region.*

3.3.1 Background of the issue

A number of important co-morbidities associated with HIV also affect a large number of people in the low-level and concentrated epidemic settings of the Region. For example, WPR has one third of the global TB burden, but a much smaller fraction of the global HIV burden. Similarly, each year, the number of children who acquire congenital syphilis largely outnumbers the number of children infected with HIV through maternal transmission. In addition, the prevalence of hepatitis C, another viral and often fatal disease, is much higher and spreads more efficiently than HIV among PWID.

At the same time, as the HIV epidemic matures, the number of PLHIV requiring long-term care and treatment will continue to increase, requiring often large infrastructures to provide comprehensive services to patients who may be spread across large geographical areas.

Under these circumstances, responses to HIV can and should leverage and strengthen the health sector's response to the prevention and clinical management of each of these diseases to build a more sustainable model for service provision and to substantially enhance the effects of investments. This can be accomplished by, where appropriate, integrating HIV services and funds with other disease programmes in the context of broader health systems strengthening.

This approach has already been recognized by WPR in the context of programmes for PMTCT of HIV and elimination of congenital syphilis. Available data indicate that screening pregnant women for both HIV and syphilis is reaching less than half the number of HIV-exposed infants. In 2011, all countries in the Region committed to the expansion of PMTCT and elimination of congenital syphilis to reduce new paediatric HIV infections by 90% in 2015, and avert the 75 000 cases of congenital syphilis that occur each year.¹⁴

Regional efforts recognize the importance of these programmes for improving broader maternal and child health outcomes, which are the focus of Millennium Development Goals 4 and 5. Achieving higher levels of coverage with interventions to prevent parent-to-child transmission of HIV as well congenital syphilis depend on efforts to improve the proportion of women who seek early antenatal care (ANC) and who give birth in health-care facilities. By delivering services and resources through strengthened national health systems, HIV responses can become both more efficient and sustainable. Similarly, depending on national circumstances, synergies can be found between HIV, TB and hepatitis services in multiple areas, including laboratory infrastructure, human resources, monitoring and evaluation, and health information systems.



3.3.2 Taking action

Further integrate PMTCT and elimination of congenital syphilis into sexual and reproductive health including maternal and child health programmes.

An essential component of efforts to eliminate both MTCT of HIV and congenital syphilis is the regular provision of effective follow-up services throughout the pre- and postnatal period, by maternal and child health programmes. This includes incorporating HIV and syphilis screening as part of routine ANC services, encouraging pregnant women to come in for multiple ANC visits, developing mechanisms for high-risk births to be conducted within health facilities, and proactively providing reproductive health and support services to women who are already known to be HIV-positive. Improving the follow up of mothers and their infants also requires making better use of community-based structures and outreach workers. Keeping mothers alive and healthy is essential for the health and well-being of their infants and children, and requires extending services, including ART, to all eligible women.

Develop stronger linkages between TB and HIV programmes to ensure appropriate referral and treatment for coinfecting patients.

Improving the outcomes of TB/HIV coinfection requires that individuals newly diagnosed with HIV be screened for TB through intensified case-finding (ICF), provided appropriate ART for those co-infected and isoniazid preventive therapy (IPT) for those who do not yet have active TB, as well as ensuring infection control (IC) in health-care facilities. Stronger integration of TB/HIV services can have an important beneficial impact on reducing AIDS-related mortality rates, as well as preventing infections acquired due to poor infection control in health-care facilities. TB/HIV collaborative activities should be strengthened through improving communication and sharing of information between programmes, and defining clear roles and responsibilities and areas of synergy.

Build on the service infrastructure for HIV prevention to increase treatment coverage of hepatitis C.

Increasing the coverage of needle-syringe exchange programmes and other harm reduction services for PWID can help reduce the number of new HIV and hepatitis C infections. Investments in HIV prevention for PWID have supported not only the establishment of networks of NGOs and CBOs – which can often reach these populations more effectively – but also the implementation of clinical services for PWID, such as daily opioid substitution therapy (OST) and ART. As such, service integration can help ensure that PWID with comorbidity receive the optimal treatment regimens for both HIV and HCV. As the availability and coverage of prevention programmes for PWID improve, opportunities to provide testing for hepatitis C and deliver the required 6–12-month treatment course for infected patients may become more feasible.



Develop and implement more cost-efficient models of service delivery.

Integration of services requires strong partnerships between HIV programmes and other departments within the health sector to develop and pilot more cost-efficient approaches to leverage and maximize cross-programmatic benefits. This includes, *inter alia*, selecting pilot sites in geographical areas that are epidemiologically relevant for multiple disease areas.

Building more efficient and effective models of service delivery entails developing stronger management structures to coordinate and supervise programme operations and track progress. For example, expanding joint TB/HIV collaborative activities requires strong political commitment of both programmes to develop and implement the required interventions, a clear definition of roles and responsibilities with respect to the different aspects of service management, greater sharing of information on coverage and case-finding rates between programmes, and establishing a functional referral mechanism.

As countries deploy new models and strategies to improve the effectiveness and efficiency of service delivery, best practices and field experiences should be shared actively between low-prevalence countries in the Region.



3.4 KEY RECOMMENDATION 4: Systems for STI detection, management and surveillance must be strengthened and appropriately linked to comprehensive HIV and STI prevention strategies. Particular attention is needed to stem the spread of drug-resistant gonococcal strains.

3.4.1 Background of the issue

STI treatment and control is an important strategy and a cross-cutting issue for HIV prevention, treatment and care. Historically, a number of countries were able to achieve substantial reductions in the prevalence levels of syphilis and gonorrhoea. However, as resources for STI control dwindled, STI has resurged in several countries.

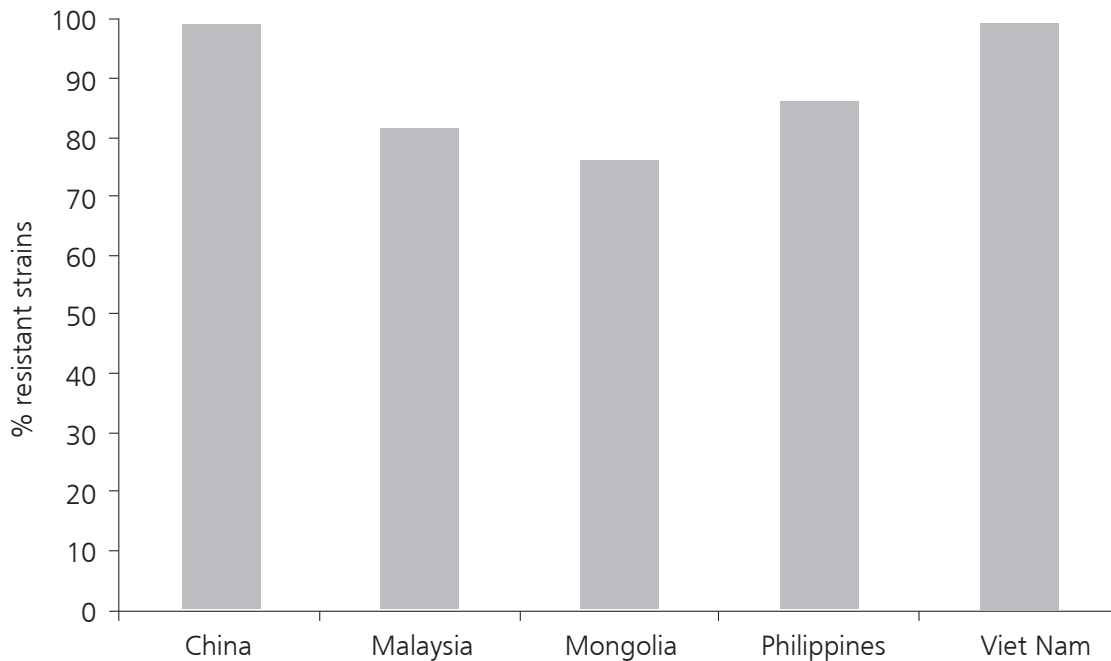
STI control programmes have often been chronically underfunded and require greater attention from public health systems. Developing tailored, effective STI control programmes requires reliable STI surveillance data. However, current data on the epidemiology of STIs in the Region are limited. Due to the large proportion of asymptomatic STIs, STI case-finding and screening programmes for key populations and pregnant women should be strengthened, especially for syphilis, for which cheap point-of-care tests are available. However, this is often constrained by the lack of cheap and reliable point-of-care tests for chlamydial and gonococcal infection.

A critical issue for STI control in the Region is the large proportion of gonococcal strains which are resistant to quinolones and, increasingly, to third-generation cephalosporins,



which are the current first-line treatments in many countries of the Region. The Gonococcal Antimicrobial Surveillance Programme (GASP) has identified different patterns of resistance across the Region, and programmatic action must be taken in response to the surveillance data (Figure 5).¹⁵

Figure 5. Quinolone resistance detected through the Gonococcal Antimicrobial Surveillance Programme (GASP) in 2008



Source: Wi T, 2010

3.4.2 Taking action

Increase the use of newer diagnostic tools, such as rapid syphilis tests, to improve patient management.

New testing diagnostics for syphilis are now more affordable and allow service providers to screen patients and provide same-day specific treatment for syphilis, rather than relying only on syndromic treatment approaches. Screening for syphilis should be integrated with HIV testing.

Leverage investments in HIV prevention to expand and improve STI control efforts, especially in low HIV-prevalence countries.

Investments in STI control programmes in low HIV-prevalence countries can help prevent the spread of HIV by identifying and providing interventions for groups with higher-risk sexual behaviour. In order to maximize their impact on HIV prevention, STI control programmes



in these countries should combine effective STI case management with proactive outreach and promotion of condom use among groups who are at higher risk for acquiring HIV infection. The provision of STI services for key populations should be expanded to address other sexual and reproductive health needs.

Prioritize STI surveillance activities that are most appropriate for countries in WPR.

New strategies and guidance for STI surveillance have recently been released by WHO and provide a clear pathway for countries to strengthen their systems.¹⁶ Countries in the Region can combine efforts to develop more cost-effective STI surveillance approaches, with special emphasis on enhancing the use of surveillance data to improve prevention efforts, particularly in areas where the HIV epidemic has not yet been established. Where feasible, STI surveillance should be integrated with HIV surveillance (e.g. integrated behavioural and biological surveys every five years)

Implement proactive monitoring and intervention efforts alongside campaigns to encourage more rational drug use to slow the spread of drug-resistant gonococcal strains in the Region.

As more WPR countries participate in gonococcal antimicrobial resistance surveillance, WPR must act on early surveillance data to keep gonorrhoea treatment protocols relevant and effective. Countries must work and learn together to avoid widespread resistance to third-generation cephalosporins, which are the basis of current first-line treatment regimens for *Neisseria gonorrhoeae* in most countries.



3.5 KEY RECOMMENDATION 5: *Data from HIV surveillance systems must be more effectively used to trigger programmatic action.*

3.5.1 Background of the issue

Over the past decade, important developments have considerably strengthened surveillance and monitoring and evaluation systems in WPR. Through broad-based investments in capacity building and the establishment of reporting systems to monitor progress towards UNGASS and health sector universal access goals, countries in the Region have generated large amounts of data that provide a clearer assessment of how the Region has been able to respond to the HIV epidemic.

However, as the epidemic continues to evolve in the Region, it is critical to maintain strong surveillance systems to characterize the epidemic and anticipate emerging issues and areas in order to optimally allocate resources to design a sustainable and efficient response. This requires robust surveillance systems at the subnational level in order to adequately capture the epidemic's diverse dynamics.



This type of analysis can be highly informative to guide programme planning and implementation, but it requires a systematic collection of data at lower geographical levels (e.g. provincial level), and capacity building to use the surveillance data to inform management decisions. This is especially relevant as many countries are moving towards decentralized implementation of HIV/AIDS activities in recognition of the fact that local managers may be in a better position to craft responses based on local needs and priorities.

3.5.2 Taking action

Strengthen country capacity to obtain regular and reliable population size estimates for key affected populations in all parts of the country.

Population size estimates are essential to assess the coverage of interventions and understand how the epidemic may shift over time. Integrating population size estimation methods into the action plans of agencies implementing prevention interventions as well as into probability surveys of key affected populations can be a cost-efficient approach to obtaining size estimates for a larger number of at-risk groups and geographical areas.

In countries with growing epidemics among men who have sex with men and transgender persons, establish a regular, robust and representative surveillance system for this population group.

As countries begin to recognize that unprotected sex between men is an important mode of HIV transmission, both prevention programming and efforts to monitor the epidemic must be scaled up. In addition to developing regular HIV prevalence measures, surveillance efforts should also seek to estimate the size of the MSM and TG population, and characterize where they meet sexual partners and other risk practices such as having multiple partners. This requires the development of robust human rights frameworks to ensure that MSM can be freely approached and their behaviour is not criminalized.

Empower and build the capacity of local managers to collect and use data for programmatic action.

Surveillance data must be seen as a tool for local managers and health officers to improve their understanding of epidemiological dynamics, and to assist them in the design and implementation of effective programmatic actions. As such, surveillance data must be analysed, interpreted and disseminated in a way that is useful and timely for local managers. As most surveillance data are collected through decentralized systems, a clearer understanding of how such data are used for programme design, in addition to standardized tools and guidelines, can greatly improve their quality and usefulness. Moreover, by understanding the data collection process and developing the tools and skills to use them, local managers will be better positioned to identify epidemiological conditions in the geographical areas they oversee and develop appropriately targeted



strategies. This is particularly relevant in low HIV-prevalence settings in order to adequately respond to emerging epidemics and avoid their spread.

Countries with low-prevalence epidemics can tailor their surveillance data to serve as early warning systems.

Key examples of such use include leveraging HIV/AIDS case reporting as well as HIV testing and counselling data to investigate local areas reporting unusual numbers of PLHIV, and making better use of STI surveillance data to anticipate where STIs are most likely to occur.

Countries with low-level epidemics, such as Pacific island countries, may have particular difficulty in mobilizing resources for surveillance activities, including case reporting of HIV and STIs. However, in this epidemic context, strengthening case reporting remains a cost-effective approach for monitoring the epidemic's status and detecting emerging pockets of infection.

EPIDEMIOLOGY OF HIV AND STIs

ANNEX 1

1.1 OVERVIEW OF THE HIV EPIDEMIC

Most of the countries in WPR have low-level or concentrated HIV epidemics, affecting predominantly the key populations such as SWs, PWID, MSM and TG. As of 2010, WPR had an estimated 1 300 000 (1 100 000–1 500 000) PLHIV,¹¹ which has been steady since 2007, though this number has almost doubled as compared with the estimated number of 680 000 in 2001 using a comparable modelling methodology. The estimated number of annual new infections remained relatively steady at around 130 000–150 000 for most of the past decade and has shown signs of a decline since 2007. The estimated number of AIDS-related deaths increased from 2001 to 2007, but fluctuated at around 60 000–90 000 annually since 2007. Gender-wise, the number of men living with HIV continues to greatly outnumber women by more than 2 to 1 throughout the Region and throughout the years since 2001 (Figure 1.1).⁵

Figure 1.1. Number of people living with HIV in the Western Pacific Region, 2001–2010

	2001	2007	2008	2009	2010
Living with HIV (all ages)	680 000	1 300 000	1 400 000	1 300 000	1 300 000
[Range]	[560 000 – 830 000]			[1 100 000 – 1 600 000]	[1 100 000 – 1 500 000]
–Women	210 000	340 000	410 000	380 000	
–Children	14 000	21 000	31 000	24 000	39 000
HIV prevalence in adults	0.1%	0.1%	0.1%	0.1%	0.1%
–HIV prev. young women				< 0.1%	
–HIV prev. young men				< 0.1%	
New infections (all ages)	150 000	145 500	130 000	130 000	130 000
–Children	4200	4500	57 000	*	5000
Adult incidence (%)	< 0.1%			< 0.1%	
AIDS-related deaths (all ages)	33 000	60 000	90 000	61 000	80 000
–Children	2100	3000	2500	*	2700

Source: Adapted from UNAIDS/WHO, *AIDS epidemic update, 2001–2011*

Regional statistics mask important variations in HIV prevalence levels among and within countries. Across the Region, national HIV prevalence levels among adults aged 15–49 years range from less than 0.1% in Mongolia and others to 0.9% in Papua New Guinea.



Among lower- and middle-income countries in the Region, more than 90% of PLHIV are from five countries: China, Malaysia, Viet Nam, Cambodia and Papua New Guinea (Table 1.1). These five countries constitute the high-priority countries of the Region with respect to HIV/AIDS.

Table 1.1. Estimated burden of disease among countries in the Western Pacific Region in 2009

Country	Estimated number of PLHIV (all ages)	Estimated HIV prevalence among, adults 15–49 years (%)	Estimated range of newly infected adults and children	Estimated number of AIDS-related deaths (all ages)
Low- and middle-income countries				
Cambodia	63 000	0.5	<1000–4200	3100
China	740 000	0.1	47 000–140 000	26 000
Fiji	<1000	<0.1	<100–<200	<100
Lao People's Democratic Republic	8500	0.2	<1000–3400	<200
Malaysia	100 000	0.5	8400–13 000	5800
Mongolia	<500	<0.1	<100–<200	<100
Papua New Guinea	34 000	0.9	2100–4800	1300
Philippines	8700	<0.1	1200–4900	<200
Viet Nam	280 000	0.4	16 000–38 000	20 000
High-income countries				
Australia	20 000	0.1	<1000–<1500	<100
Japan	8100	<0.1	<200–<500	<100
New Zealand	2500	0.1	<100–<200	<100
Republic of Korea	9500	<0.1	<500–<1000	<500
Singapore	3400	0.1	<100–<500	<100

Source: UNAIDS/WHO, *AIDS epidemic update*, 2010

1.1.1 STATUS OF THE EPIDEMIC IN THE FIVE HIGH-PRIORITY COUNTRIES

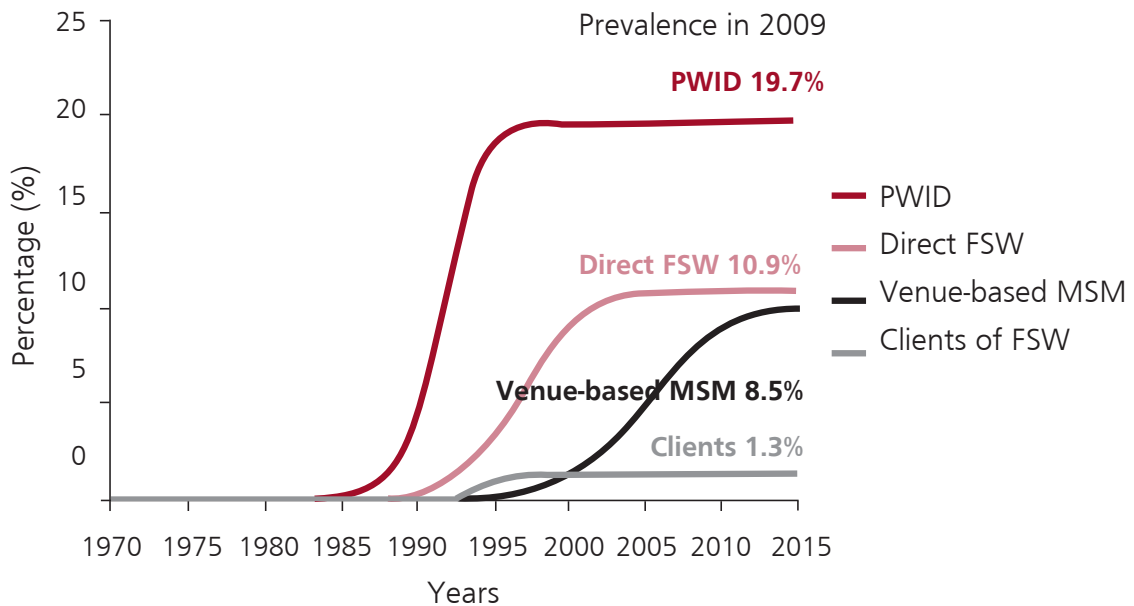
Though national HIV prevalence in China stood at only 0.1% in 2009, it has the largest absolute numbers of PLHIV in the Region. More than half of all the PLHIV in the country are estimated to reside in five provinces (Henan, Guangxi, Xinjiang, Yunnan and Guangdong), each with a different mix of transmission dynamics and populations at higher risk for HIV infection.

Viet Nam and Malaysia are the only other countries in WPR, in addition to China, which have more than 100 000 people estimated to be living with HIV. In the beginning of the past decade, there were some concerns about the expansion of the epidemic in Viet Nam



and Malaysia, but this does not seem to have happened. In Malaysia, recent epidemic projections of HIV prevalence trends among populations at higher risk for HIV infection suggest that HIV prevalence has stabilized over the past five years, with the important exception of a steep increase in HIV prevalence among MSM (Figure 1.2).¹⁷

Figure 1.2. Estimated HIV prevalence among populations at higher risk for HIV infection in Malaysia



Source: MoH Malaysia, *EPP estimates*, 2010

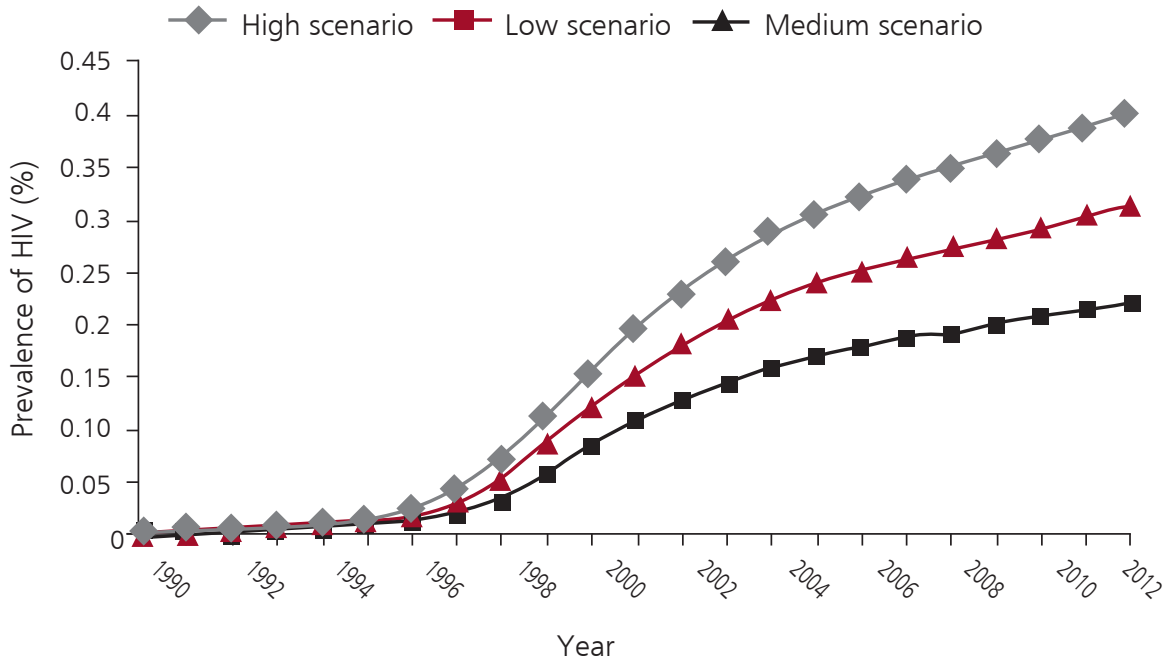
In Viet Nam, epidemic projections suggest that, over the years, the country has witnessed a moderate but steady increase in HIV prevalence among the general population and indicate that the number of new infections continues to be greater than mortality rates among PLHIV (Figure 1.3). (Each scenario is based on different estimates of the sizes of populations at higher risk for HIV infection, including PWID, MSM and FSWs.)¹⁸

Cambodia has long been recognized as having one of the most severe epidemics in Asia. In 1998, the national HIV prevalence reached 2% in the general population. However, over the past decade, robust concerted action has resulted in a marked reversal of this trend. Estimated HIV prevalence in the general population fell to 0.9% in 2006 and reached 0.5% in 2009.⁵ These declines are particularly impressive, given the substantially longer survival of PLHIV receiving ART. As of December 2010, an estimated 92% of eligible people were receiving ART in the country (Figure 1.4).^{12,19}

Unlike any other country in the Region, epidemiological data from Papua New Guinea suggest that the epidemic has a generalized profile, as the majority of new infections are now transmitted through heterosexual sex in the general population. HIV prevalence levels among women attending ANC rose consistently in the past decade, and have been found

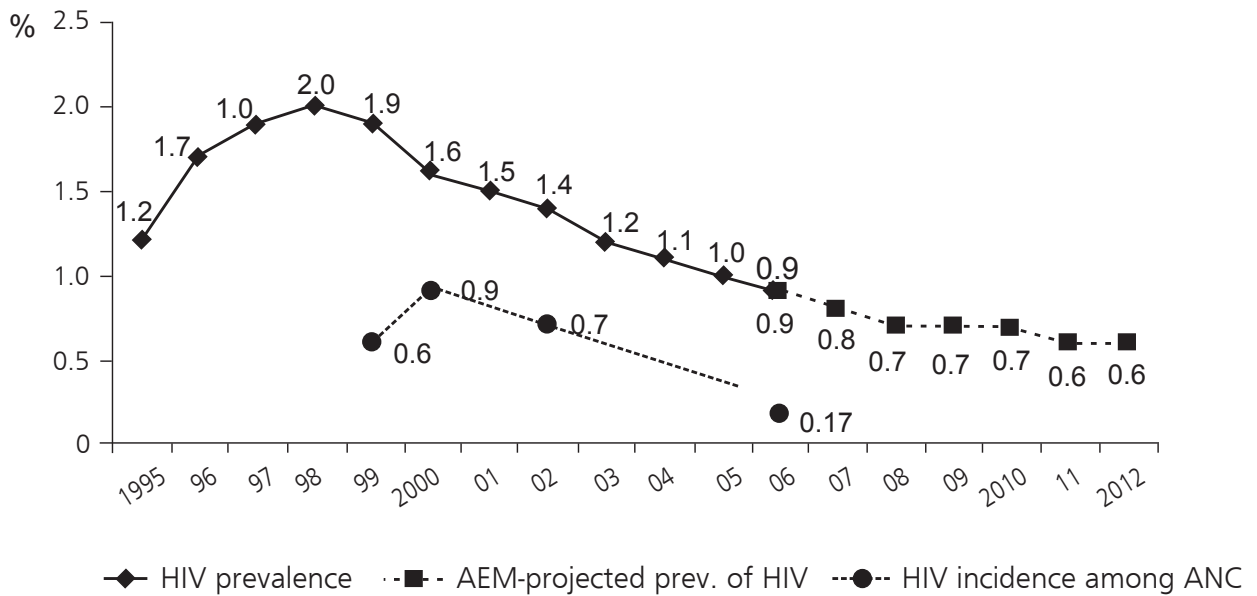


Figure 1.3. Estimated national HIV prevalence trends in Viet Nam, 1990–2012



Source: VAAC, MOH Viet Nam, 2009

Figure 1.4. Adult (15–49 years) HIV prevalence and incidence trends in Cambodia, 1995–2012



HIV prevalence among adult population 15–49 years between 1995–2006

AEM-projected prevalence of HIV among the general population aged 15–49 years from 2006–2012 (with ART) available

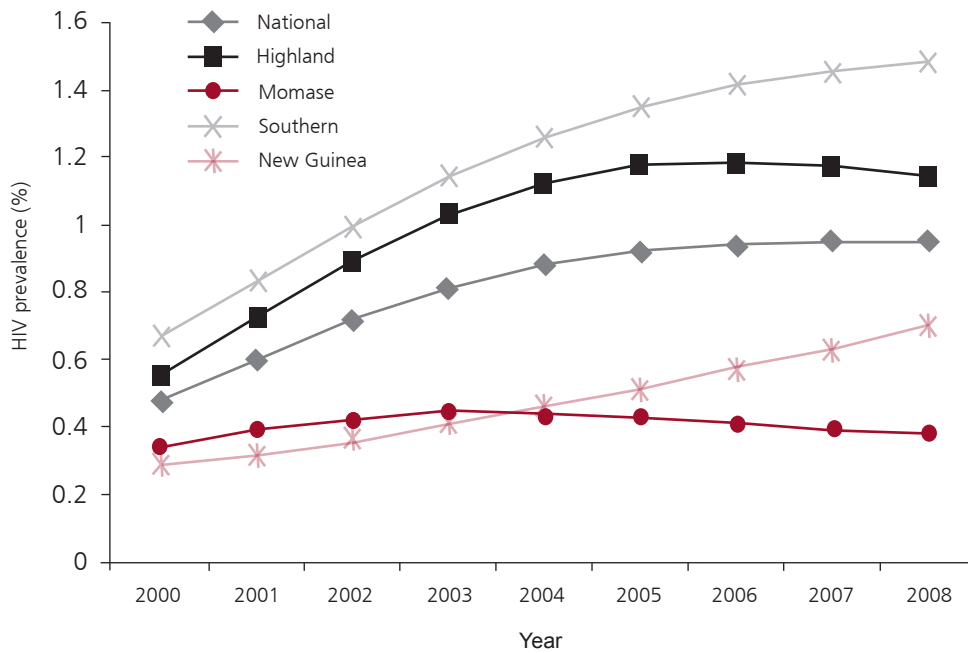
HIV incidence among ANC attendees by survey year

Source: Vun MC et al. 2012



to be above 1% in the southern and highlands region from 2005 to 2007 (Figure 1.5).²⁰ A survey of rural youth (aged 15–24 years) in 2003 found that more than 20% of males and nearly 15% of females had had sex with a non-regular partner in the past year.²¹ These rates, especially among young women, are much higher than those reported in many parts of East and South-East Asia.²²

Figure 1.5. HIV prevalence among antenatal care attendees in Papua New Guinea



Source: WPRO, *Regional meeting on strengthening monitoring of the health sector responses to HIV/AIDS*, Manila, 2009

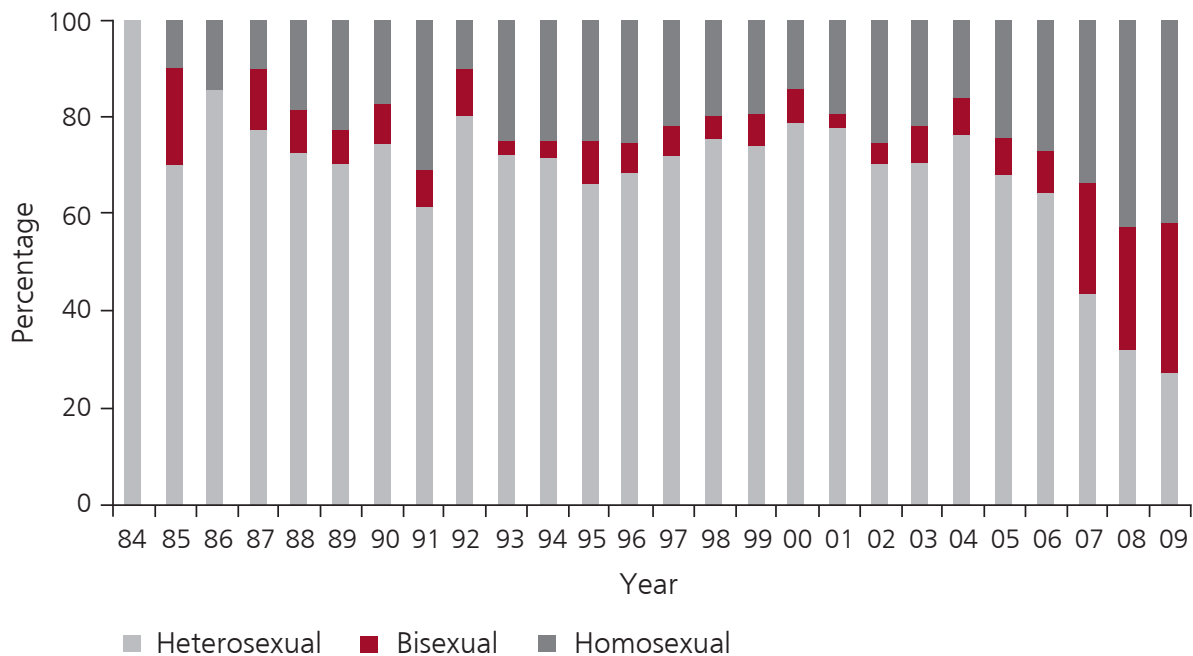
1.1.2 STATUS OF THE EPIDEMIC IN LOW-PREVALENCE COUNTRIES

While countries with generalized or concentrated epidemics discussed in the previous section are an important focus of the HIV response in the Region, it is equally essential to carefully monitor epidemiological dynamics in countries with long-standing low HIV-prevalence levels, such as the Philippines, Lao People's Democratic Republic, Mongolia and Fiji.

In the Philippines, the number of HIV cases reported in 2010 was nearly double the number reported in 2009.²³ According to epidemic models, the Philippines is one of only seven low-prevalence countries in the world where the estimated HIV incidence has risen more than 25% since 2001.²⁴ Indeed, recent estimates and newly available data collected among MSM in Manila indicate that the country's low-level epidemic is growing and may become concentrated in the near future.²⁵ Moreover, the mode of transmission among reported cases has shifted towards a higher proportion reporting male-to-male sex, from 30% among cumulative cases to 50% among cases reported from January to November 2010 (Figure 1.6).²³ This reflects a trend observed since about 2004.²⁶



Figure 1.6. Distribution of reported HIV cases by mode of transmission in the Philippines, 1984–2009



Source: Philippines Department of Health, 2009

Available surveillance data from Lao People's Democratic Republic, Mongolia and Fiji suggest that the epidemic in these countries continues at low levels of prevalence, without significant increases.

HIV seroprevalence data from many Pacific island countries other than Fiji are not readily available, though it is assumed that these epidemics remain low and stable. This is supported in part by the very small numbers of AIDS cases reported or HIV-positive cases detected through testing and counselling services.

Nonetheless, high levels of STI prevalence have been reported in these countries, underscoring the importance of implementing prevention efforts focused on persons with high-risk sexual behaviours for both STI and HIV control (see section 1.3 on STI epidemiology for more details on STI prevalence in Pacific island countries). In low-level epidemics, appropriately designed surveillance systems are essential for identifying emerging pockets of infection and to anticipate future transmission patterns and trends (see section 1.4 on surveillance systems for STIs and HIV for a more detailed discussion).

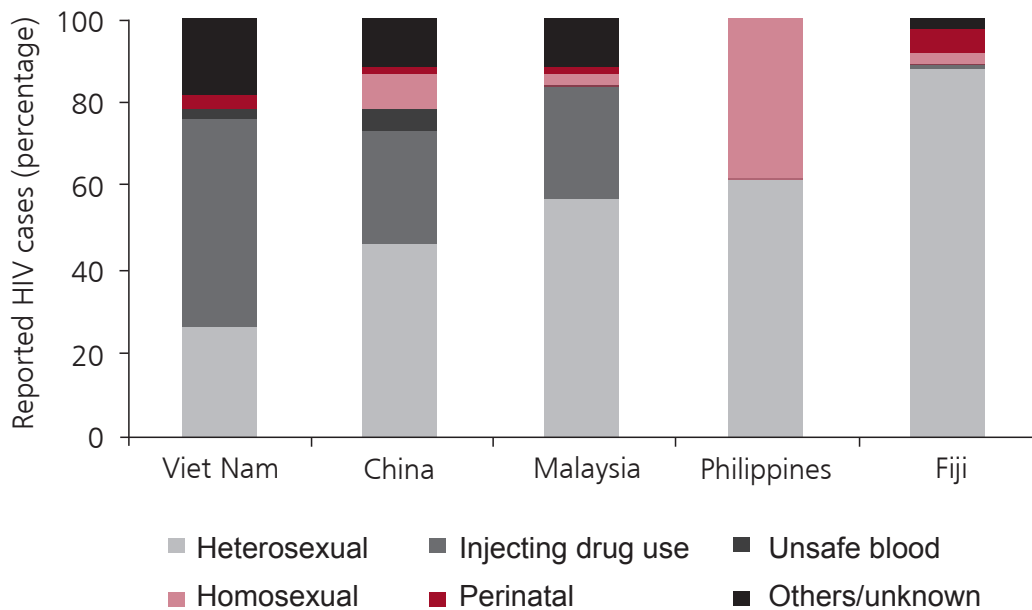


1.2 THE HIV EPIDEMIC AMONG KEY POPULATIONS

One of the main characteristics of Asian epidemics is that HIV transmission occurs largely among key populations at higher risk for acquiring HIV and their regular sexual partners, in particular, PWID, MSM, and FSWs and their male clients. Adequately mapping the presence and behavioural patterns of key affected populations in different geographical areas is fundamental to monitoring the evolution of the epidemic in low-level and concentrated epidemics, such as those in WPR. In this section, epidemiological trends among specific groups at higher risk are reviewed and discussed.

The burden of the epidemic among each particular group varies substantially by country. For instance, in China, Viet Nam and Malaysia, the HIV epidemic is understood to have spread initially through populations of PWID, then moved to sexual networks between SWs and clients and, more recently, has been observed to be spreading among MSM. In other countries, such as Lao People's Democratic Republic, the Philippines, Fiji and Mongolia, SWs and MSM are the groups primarily affected by HIV (Figure 1.7).

Figure 1.7 Modes of transmission among reported HIV cases, by country



Source: WPRO, adapted from National AIDS Programme data, 2009

1.2.1 PEOPLE WHO INJECT DRUGS

PWID have long been among the populations most affected by HIV in Asia, as in many countries in Central and Eastern Europe. However, the population of PWID is less prominent in WPR, with the exception of countries converging around the Mekong Delta, including Viet Nam, the southern/south-western part of China and Malaysia (Table 1.2).²⁷

**Table 1.2. Population size estimates and HIV prevalence among PWID in selected WPR countries**

Country	Population size estimates	Data source and year	HIV prevalence (%)	Data source and year
Cambodia	2025 (1250–7500)	NAA Cambodia, 2008 ²⁸	24%	Drug user survey, 2007 ²⁹
China	1.5–3.0 million	Wang L et al. 2009 ³⁰	9.3%	National comprehensive surveillance, 2009 ³¹
Malaysia	170 000	Consensus meeting, MOH, 2009 ²⁷	22%	IBBS, 2009 ³²
Philippines	7000–14 000	DOH-NAC, 2007	0.2%	IHBSS, 2009 ³³
Viet Nam	200 000	MOH, HIV/AIDS Estimates and Projections 2007–2012, 2009 ³⁴	18%	HSS, 2009 ³⁵

Sources: WPRO, *Regional meeting on strengthening monitoring of the health sector responses to HIV/AIDS*, Manila, 2009, unless otherwise noted; MOH Ministry of Health; NAA National AIDS Authority; DOH Department of Health; NAC National AIDS Council; IBBS integrated biological and behavioural survey; IHBSS integrated HIV behavioural and serological surveillance; HSS HIV sentinel surveillance

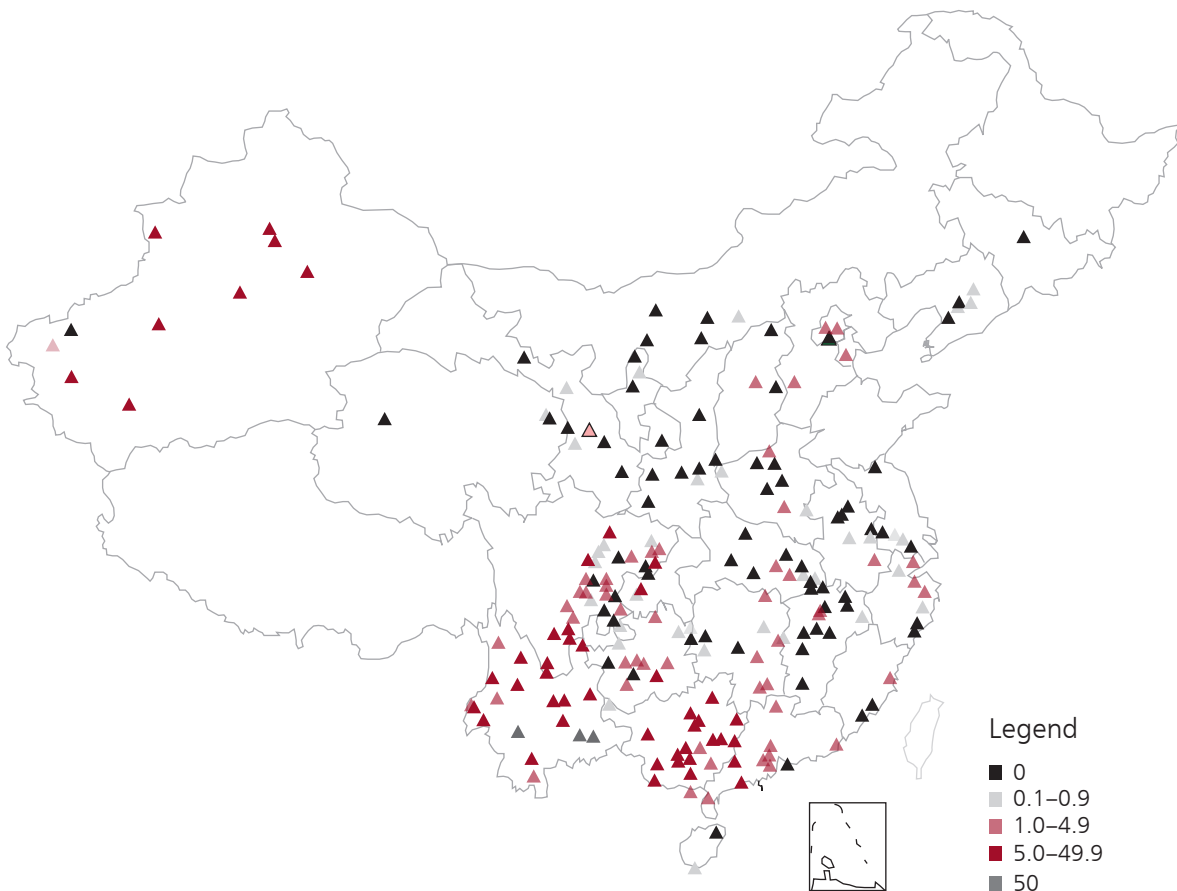
Developing adequate and reliable national HIV prevalence estimates for populations at higher risk for HIV, including PWID, can be methodologically challenging. National estimates are often based on prevalence data collected from multiple sentinel surveillance sites that are subsequently aggregated through different methods. For example, many countries use simple averages rather than weighting results by the estimated population size, when available. In China, pooled results from more than 120 sentinel surveillance sites found an average HIV prevalence of 8% among PWID in 2009, ranging from 0% to 50% between individual sites. Available data suggest that HIV prevalence among PWID is higher in the southern provinces as well as in the far west (Figure 1.8).²⁷

Earlier in the decade, a number of countries reported HIV prevalence levels among PWID of up to 50%–60% across sentinel surveillance sites. Since then, however, HIV prevalence levels have stabilized or have begun to decline. Nevertheless, these trends must be interpreted with caution due to the challenges in sampling these populations and the high rates of mortality observed among PWID living with HIV, which are exacerbated by drug-use habits and the inadequate living conditions of many PWID.

The intersection between sex work and injecting drug use must also be carefully monitored. This overlap can accelerate the transmission of HIV among FSWs and expand the potential for infections among male clients and regular partners.⁹ For example, in Ho Chi Minh City, HIV prevalence among FSWs who also injected drugs was estimated at near 60%, compared to a national average among FSWs in the country of less than 10%.^{11,36}



Figure 1.8. Variation in HIV prevalence among PWID at sentinel surveillance sites in China, 2009



Source: MOH China, 2009

Figure 1.9 shows behavioural surveillance data from PWID populations in the Region, suggesting that between 10% and 40% of PWID had commercial sex.

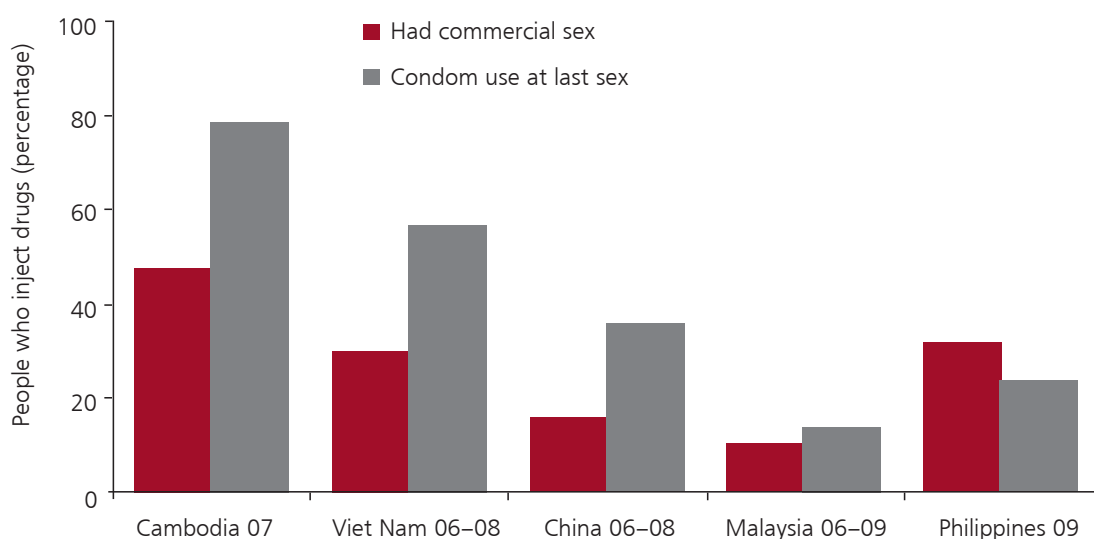
With the exception of the Philippines, condom use at last commercial sex was in general positively associated with the percentage of PWID who bought sex. However, a relatively high proportion of PWID in the Philippines reported buying sex and fairly low levels of condom use at last paid sex.³⁷

1.2.2 FEMALE SEX WORKERS AND THEIR CLIENTS

In many countries, FSWs form the group for which seroprevalence data are the most extensively available, as multiple HIV surveillance rounds have been undertaken in many countries. Availability of data on male and transgender sex workers is much more limited. Trend data suggest that, in most cases, HIV prevalence among FSWs remains below 5%, with the notable exceptions of a number of provinces in Cambodia and large metropolitan areas such as Ho Chi Minh City, Hanoi, Hai Phong and Kalang Valley in Malaysia.



Figure 1.9. Patterns of commercial sex and condom use at last commercial sex among PWID populations in Western Pacific countries



Sources: WHO, *Universal access reporting*, 2008–2010

FSWs and their clients comprise a much larger population than PWID. Local and extrapolated national estimates of the percentage of the adult female population who are SWs have ranged from 0.2% to 2.6%.³⁸ Nevertheless, it is important to bear in mind that not all population size estimates are based on direct estimates from local areas (Table 1.3).

Table 1.3. Population size estimates and HIV prevalence among female sex workers in key countries of the Western Pacific Region

Country	Population size estimates	Data source and year	HIV prevalence (%)	Data source and year
Cambodia	34 000	NCHADS MOH, 2009	14.7%	HSS, 2006
China	1.8–3.8 million	Wang L et al. 2009 ³⁰	0.5%	HSS, 2010
Lao People's Democratic Republic	NA		0.4%	IBBS, 2008
Malaysia	40 000–60 000	Consensus meeting, MOH, 2009 ²⁷	14%	IBBS, 2009 ³²
Philippines	128 000–156 000	DOH-NAC, 2007	0.13% registered 0.4% freelance	IHBSS, 2009 ³⁷
Viet Nam	29 000– 87 000	MOH, HIV/AIDS Estimates and Projections, 2009 ¹⁸	3.1%	HSS, 2009 ³⁵

Sources: WPRO, *Regional meeting on strengthening monitoring of the health sector responses to HIV/AIDS*, Manila 2009, unless otherwise noted; NCHADS National Center for HIV/AIDS, Dermatology and STD; DOH Department of Health; NAC National AIDS Council; IBBS integrated biological and behavioural survey; IHBSS integrated HIV behavioural and serological surveillance; HSS HIV sentinel surveillance



Various typologies of SWs have emerged in an attempt to more accurately capture sexual behaviours and risk profiles. For example, in many countries, FSWs are categorized into those who openly solicit on street corners, and “indirect groups”, who work in other types of entertainment establishments, such as karaoke bars or massage parlours, and solicit clients from these locations.⁴¹ The relative sizes of these groups vary between and within countries (Table 1.4).

Table 1.4. Differences in risk behaviour among different typologies of female sex workers, in selected cities in China and Viet Nam

Location	Street sex workers			EE-based sex workers		
	# of clients per week	STI prevalence (%)	Consistent condom use (%)	# of clients per week	STI prevalence (%)	Consistent condom use (%)
Guanyi*, China	NA	Syph: 40	27	NA	Syph: 3	60
Hai Phong**, Viet Nam	7.4	HIV: 23	80	6.9	HIV: 12	81
Ho Chi Minh City**, Viet Nam	4.76	HIV: 16	31	2.5	HIV: 16	42

Sources: *Li D, 2007; ** Viet Nam IBBS, 2009 (Preliminary results from the second round of the HIV/STI integrated biological and behavioural surveillance were used.) EE entertainment establishment

The importance of such typologies stems from the differences in risk behaviour observed by group, including in relation to the number of clients per week, ability to negotiate condom use with clients and rate of turnover. However, while many countries use similar categories, risk behaviours and HIV prevalence levels vary greatly across countries. As such, developing valid generalizations can be difficult.

Data on the size and characteristics of male clients of SWs are less readily available. This is largely due to the difficulty in identifying men willing to disclose that they have paid for sex and obtaining representative samples. A number of general population surveys include questions about male attitudes towards commercial sex (i.e. in the past year) (Table 1.5).

Table 1.5. Prevalence of buying sex among men in selected countries of the Western Pacific Region

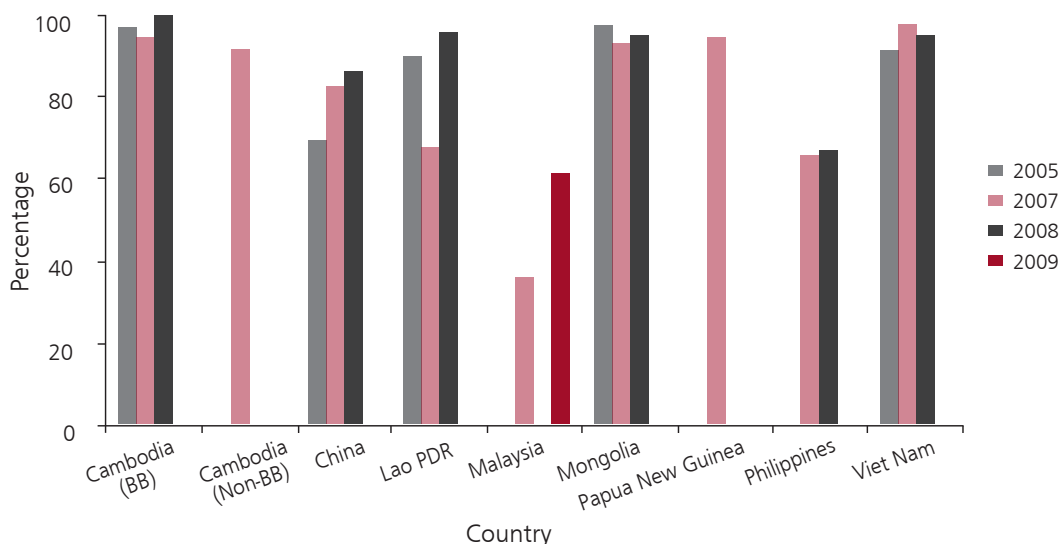
% of adult males visiting sex workers	Country
10%–20%	Cambodia
5%–10%	China
2%–5%	Lao People's Democratic Republic, Philippines

Source: Commission on AIDS in Asia, 2008



Condom use with commercial sex partners has generally been high in most behavioural surveys of FSWs in the Region. These data are self-reported and the degree of overreporting due to social desirability bias is unknown (Figure 1.10).

Figure 1.10. Self-reported condom use among female sex workers in WPR countries



Sources: WHO, *Universal access reporting*, 2006–2010 BB brothel-based
Lao PDR: Lao People's Democratic Republic

1.2.3 MEN WHO HAVE SEX WITH MEN

The identification of increasing HIV prevalence levels among MSM has brought renewed attention to the burden of the epidemic among this population in WPR.

As with other populations at higher risk for HIV infection, estimating the size of MSM populations is technically difficult, and countries have relied on different methodologies for this purpose. For instance, Cambodia, China and Mongolia have used mapping-based studies to estimate the size of their MSM populations. This approach tends to capture the more visible group of MSM who find sexual partners at public venues, thus yielding estimates which are generally much smaller than 1% of the general adult male population. Other countries, including Malaysia, Viet Nam, the Philippines and Pacific island countries, rely primarily on estimates from technical experts rather than specific studies. In the absence of specific country data, UNAIDS and WHO recommend using an estimate of 1%–3% of the general adult male population.^{42,43}

In general, the samples of MSM included in probability surveys showed much higher levels of prevalence than among FSWs in similar areas. Rising levels of HIV prevalence in some sites have been observed. For example, among MSM in Chengdu, China, HIV prevalence rose steadily from 0.6% in 2003 to 6.6% in 2006, and reached 9.4% in 2007.⁴⁶ In addition, several surveys in the Region found that a large proportion of MSM had also had recent



Table 1.6. Population size estimates and HIV prevalence among men who have sex with men in key WPR countries

Country	Population size estimates	Data source, year	HIV prevalence (%)	Data source, year
Cambodia	1400–8300	6 cities, FHI, 2008 ⁴⁴	2	FHI, Bros Khmer Study 2010 ⁴⁵
China	3.1–6.3 million	Wang L et al., 2009 ³⁰	5	HSS, 2010
Lao People's Democratic Republic	NA		4	IBBS, 2010
Malaysia	173 000 – MSM; 5000 – transgender	Malaysian AIDS Council, 2009	4	IBBS, 2009 ³²
Philippines	203 000–610 000	DOH-NAC, 2007	1	IHBSS, 2009 ³³
Viet Nam	161 000–482 000	MOH, 2009 ¹⁸	17	IBBS, 2009 ³⁵

Sources: WPRO, *Regional meeting on strengthening monitoring of the health sector responses to HIV/AIDS*, Manila, 2009; WHO, *Universal access reporting*, 2008–2011, unless otherwise noted; MOH Ministry of Health; FHI Family Health International; DOH Department of Health; IBBS integrated biological and behavioural survey; IHBSS integrated HIV behavioural and serologic surveillance; HSS HIV sentinel surveillance

sex with female partners,^{47,48,49} both regular and non-regular or commercial partners. Such overlap of groups can have important epidemiological implications with regard to transmission patterns among regular and paid female partners of MSM.

1.2.4 PRISONERS

Prison populations often have poor health outcomes and are frequently exposed to different communicable diseases due to poor living conditions and overcrowding. Though scarce, available data in Asia suggest that the risk of acquiring and transmitting HIV in prison settings is high, particularly where a large number of prisoners have a history of drug use.⁵⁰ Such prisoners may resort to the use of makeshift injecting equipment due to the relatively lesser amount of substance required and the ability, compared to inhalation practices, to hide injection practices from prison authorities. Anal sex among prisoners is also a common practice in many settings and the absence of readily available condoms may increase the risk of HIV infection.

Available data on prisoners and vulnerability to HIV in WPR underscores the need to develop targeted interventions and address their special risk profile and vulnerabilities (Table 1.7).

1.2.5 MIGRANT POPULATIONS

Monitoring the potential vulnerability of migrant workers to HIV is an issue of relevance for countries in WPR due to the existence of large migrant flows from and within the Region (Table 1.8).⁵¹



Table 1.7. Numbers imprisoned and HIV prevalence among prison populations

Country	# in prisons (per 100 000 population)	HIV prevalence (%)	Notes
Cambodia	47	Phnom Penh: 3.1	
China	118	Yunnan: 3	48% of drug users were PWID; 60% of those arrested for drug use were PWID
Lao People's Democratic Republic	69	Vientiane: 1	
Malaysia	174	6; Kajang: 13.2	
Philippines	94	Manila: 0	Injection not prevalent, mostly inhalation
Viet Nam	71	28.4	Inmates represent 20% of all known HIV cases; 37% prevalence among PWID prisoners

Source: : Dolan K et al. 2007

Table 1.8. Estimated number of out-migrant workers in selected Western Pacific Region countries

Country	Documented migrant workers	Undocumented workers	Total migrant workers	Main countries of destination
Cambodia	50 000	180 000	230 000	Malaysia, DPR Korea, Thailand
Lao People's Democratic Republic	180 000	20 000	200 000	Malaysia, Thailand
The Philippines	3.6 million	1.3 million	4.9 million	Gulf countries, Malaysia, Hong Kong, Singapore, Japan, South Africa, North America, Europe
Viet Nam	400 000	200 000	600 000	Malaysia, Taiwan, Lao People's Democratic Republic, Cambodia

Source: UNDP, 2008

Studies in Asia suggest that some groups of migrants may be more susceptible to engaging in commercial sex or taking up injection drug-use habits, and their pattern of frequent movement, linguistic barriers and undocumented status in other countries may make prevention services poorly accessible to these populations (Table 1.9).⁵²



Female migrants are also an important group at higher risk for HIV infection. Large numbers of female migrants in WPR work as factory labourers or domestic help. Moreover, many women and children are also misled into employment opportunities and are essentially trafficked for sex work in different countries of the Region.

Table 1.9. Males in high-risk occupational groups who reported commercial sex in the past year, selected countries and cities in WPR, 2004–2009

Location	Group	%	Year
Cambodia	Moto-taxi drivers	40	2007
Lao PDR (Luang Prabang)	Hydro-electric power plant workers	63	2007
Lao PDR (Savannakhet)		52	
Lao PDR (Vientiane)		50	
Mongolia	Mobile men	12.9	2007

Source: AIDS Data Hub, 2010 Lao PDR: Lao People's Democratic Republic

1.3 EPIDEMIOLOGY OF STIs

Understanding the epidemiology of STIs is critical not only to control their spread but also to better understand the role they play in enhancing HIV transmission. High levels of STI (other than HIV) may also help to identify populations where HIV prevention interventions are particularly needed, especially in areas where HIV prevalence is currently low.

Data on STI prevalence are collected primarily from populations attending STI clinics and from community surveys of the general population or selected key populations at higher risk. In general, sources of STI surveillance data are scarce globally and accurate estimates of STI incidence and prevalence are difficult to obtain. Clinic data, primarily from public sector facilities, represent a highly selective group of patients who have and recognize their symptoms, elect to seek treatment, and decide to use a public sector facility. Moreover, most public sector facilities in the Region rely on syndromic management approaches, making laboratory-confirmed etiological diagnosis rare for most patients. Interpreting trends and generalizing prevalence estimates from this clinic population to the broader population may therefore be inaccurate.

This section reviews the available data on the prevalence of syphilis, chlamydial infection and gonorrhoea in the Region.

Based on a literature review and after adjusting for prevalence data, laboratory test performance, age and geographical location, WHO generated Regional prevalence



estimates of common STIs including gonorrhoea, chlamydial infection, syphilis and trichomoniasis. In 2005, there were an estimated 318 million STIs globally. In WPR, the prevalence estimates are as follows: 39.69 million cases of chlamydial infection, 9.43 million of gonorrhoea, 2.54 million syphilis and around 25.76 million of trichomoniasis.⁵³

1.3.1 SYPHILIS

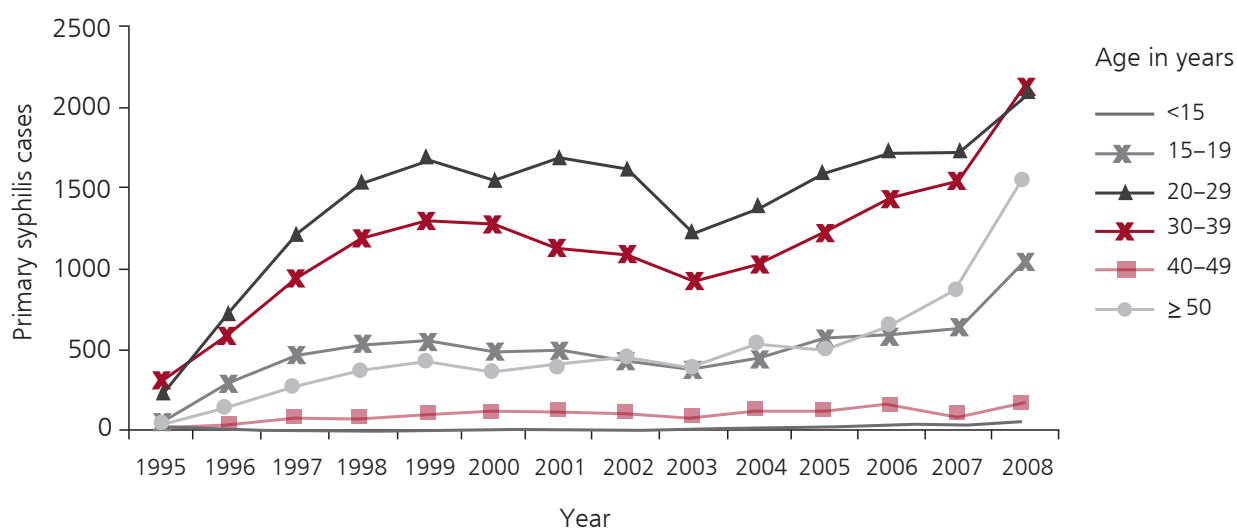
The most commonly available STI surveillance data are those on the prevalence of syphilis. The ability to add low-cost syphilis testing of blood specimens to activities such as sentinel surveillance and integrated biological and behavioural surveys (IBBS) has been key to obtaining syphilis prevalence measures.

Long-standing case-reporting data indicate that a number of countries have made great strides in bringing down the rates of syphilis among the general adult population. For example, in China, syphilis prevalence dramatically declined and was largely eradicated by the mid-1960s. However, maintaining low syphilis prevalence levels requires continued vigilance in screening and provision of effective treatment, as evidenced by the resurgence of reported syphilis cases in the country over the past two decades (Figure 1.11).⁵⁴

Similar declines followed by signs of resurgence in reported syphilis cases have been described as well in Malaysia, underscoring the need for a sustained effort to keep STIs under control (Figure 1.14).

Country and Regional initiatives to eliminate congenital syphilis have brought renewed momentum to STI control and surveillance efforts, in particular, with respect to syphilis screening among ANC attendees. Additional efforts have also expanded screening

Figure 1.11. Primary syphilis cases in Guangdong Province, China by age group, 1995–2008



Source: Yang et al. 2010



for syphilis as part of standard STI management for key populations such as SWs and MSM groups.

Inconsistencies in sampling methods and survey sites render the assessment of trends in syphilis prevalence technically difficult. However, surveys conducted over the past decade among ANC attendees in Cambodia and China suggest that prevalence levels remain low (below 1%) in these countries, but are somewhat higher (2%–3%) in countries such as Mongolia and several among the Pacific islands.

There is evidence that syphilis prevalence among ANC attendees rose steadily between 2001 and 2005 in Fiji and then began to decline. In Papua New Guinea, results from a 2009 survey found high prevalence levels of syphilis among pregnant women. Prevalence was higher among urban ANC attendees (6.9%) than among rural pregnant women (4.2%). In two sites, more than 25% of attendees tested positive for syphilis. These data should be interpreted with caution, given the potential for misdiagnosing endemic yaws as syphilis. Yet, similar levels were found in a review of the literature on syphilis prevalence among pregnant women between 1997 and 2003 (Table 1.10).

Prevalence data among SWs and MSM are available from a more limited number of sites. In China, data from 2006 found syphilis prevalence levels at around 14% among some groups of FSWs and MSM. Slightly higher levels were measured consistently among FSWs in Mongolia during the same period.

Table 1.10. Prevalence of syphilis among pregnant women in WPR

Country	Data from 1997 to 2003*			Syphilis prevalence, 2009** (%)
	# of studies	# of women tested	Syphilis prevalence (%)	
Cambodia	--	--	--	0.13
China	6	126 032	0.44	0.54
Fiji	--	--	--	5.15
Lao People's Democratic Republic	--	--	--	0.76
Malaysia	1	1070	0.30	0.07
Republic of Korea	4	7126	0.11	--
Papua New Guinea	1	5385	7.10	5.78
Vanuatu	7	1611	2.42	??
Viet Nam	--	--	--	0.21
Western Samoa	1	441	0.40	??

Sources: *WHO database of STI prevalence/incidence studies, 2003 except where noted.

** WHO, *Universal access reporting*, 2010



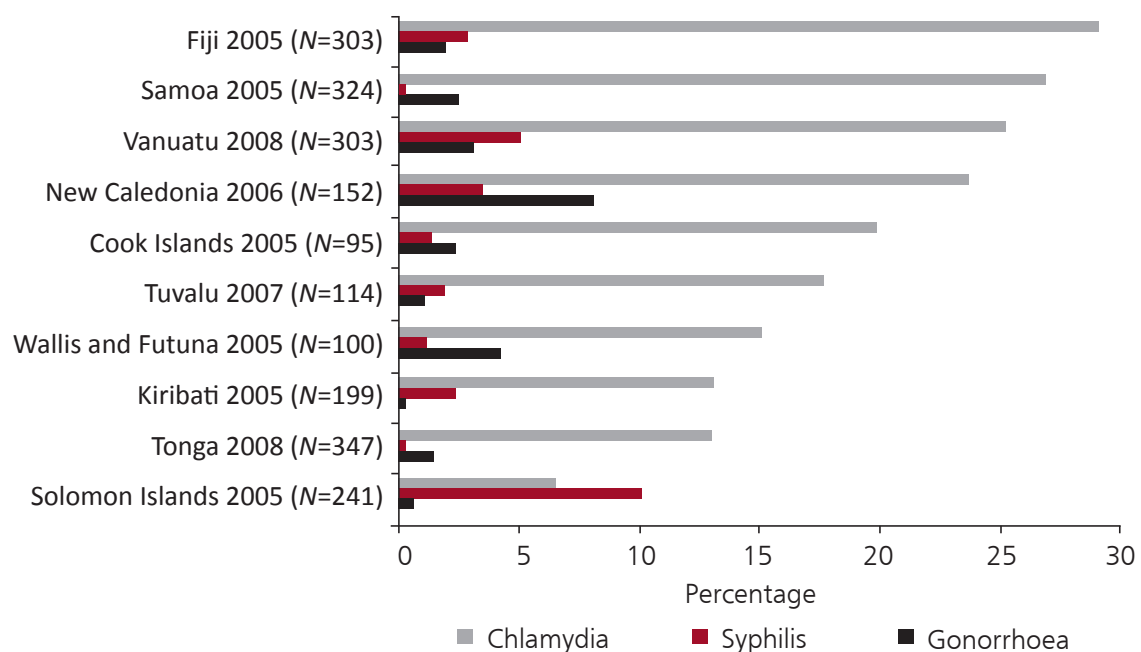
1.3.2 CHLAMYDIAL INFECTION AND GONORRHOEA

Surveillance data for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* are generally less widely available and often limited to prevalence surveys conducted among selected populations, thus constraining the identification and assessment of time trends.

While most WPR countries have a very low HIV prevalence, this is not the case with other STIs. Several countries continue to have high rates of STIs, such as Mongolia, Pacific island countries and Papua New Guinea, where periodic surveys have been conducted among the general population. The second generation surveillance (SGS) surveys in 2004/2005 conducted in six countries of the Pacific found that 18% of the 1618 antenatal women tested randomly were positive for *Chlamydia*. This varied from 29% in Fiji to 6.4% in Solomon Islands. Noticeably, among pregnant women attending ANC, higher levels of chlamydial infection were found among younger women (less than 25 years old) compared to those above the age of 25 years (Figure 1.12).

The HIV/STI mapping studies conducted in Papua New Guinea in 2007 found relatively high levels of chlamydial infection and gonorrhoea among both males and females in the general population. In this study, STI rates among women were as follows: 22.5% chlamydial infection, 13% gonorrhoea, 14.5% syphilis and 22% trichomoniasis. Similarly, rates among men are as follows: 16.5% chlamydial infection, 11.5% gonococcal infection and 12.5% syphilis.⁵⁵

Figure 1.12. Prevalence of three STIs among antenatal women in Pacific island countries from SGS surveys conducted between 2005 and 2008



Sources: Second generation surveillance, 2005–2008, various countries

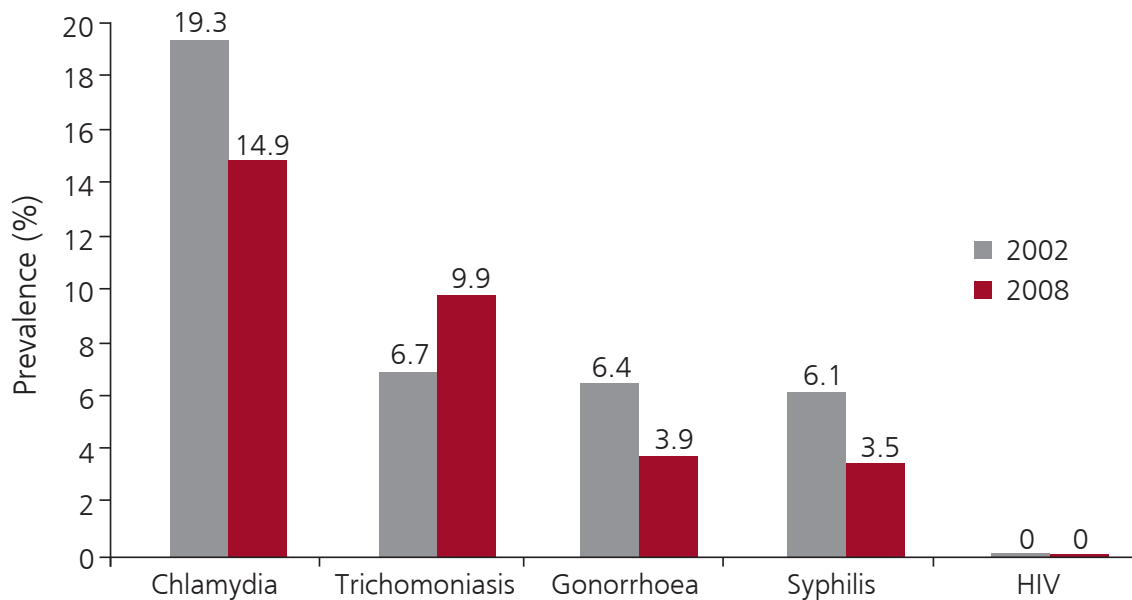


A national surveillance among antenatal women in 2002 and 2008 in Mongolia revealed high rates of STI (Figure 1.13).

STIs are common among SWs. Because of the high cost and limited access of STI laboratory diagnosis for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*, there are limited data from second generation behavioural and biological surveillance and ad hoc surveys in a number of countries.

The general pattern across groups of FSWs and MSM in Cambodia, China, Lao People's Democratic Republic, Viet Nam and the Philippines suggests that the prevalence of

Figure 1.13. STI rates among antenatal women in Mongolia



Sources: MOH Mongolia, Second generation surveillance, 2002 and 2008

gonorrhoea is much higher than that of chlamydial infection in most groups. The prevalence of gonorrhoea among FSWs ranged from 6% in Viet Nam in 2005–2006 to 58.6% in Yunnan, China in 2005 (Table 1.11).

In contrast, prevalence studies of chlamydial infection in selected populations suggest more variable prevalence rates. For example, the prevalence of clamydial infection among FSWs ranged from 0.3% in Ho Chi Minh City in Viet Nam in 2005–2006, to 37.8% in FSWs in Yunnan, China in 2005 (Table 1.11).



Table 1.11. Prevalence of STIs among sex workers

Country	Source of data	Year	STIs		
			Gonorrhoea (%)	Chlamydia (%)	Syphilis (%)
Cambodia	IBBS	2005	14	11.9	3.2
China (Guangdong)	Li et al. ⁵⁶	2010	3.9	9.6	8
China (Yunnan)	Chen et al. ⁵⁷	2005	58.6	37.8	9.5
Lao People's Democratic Republic	SGS	2008	17	6.5	0
Mongolia	SGS	2009	24.5	15.6	20.8
Papua New Guinea	Gare et al. ⁵⁸	2005	19	21	25
Viet Nam (Hanoi)	SGS	2005–2006	17.5	1.8	1.09
Viet Nam (Ho Chi Minh City)	SGS	2005–2006	6.4	0.3	9.06

Sources: Country IBBS and SGS reporting, various years, unless otherwise noted

As in the case of FSWs, STI data for MSM and TG are minimal. Except for Cambodia, the majority of surveys have combined both MSM and TG. Data from several SGS and ad hoc surveys have revealed variable rates of STIs. Rectal STIs are generally high among MSM except in the Philippines, where rates of urethral chlamydial infection were higher. Rectal chlamydial infection among MSM ranged from 1.2% in Phnom Penh in 2005 to 9.2% in Manila in 2005. Among MSM, the highest prevalence of rectal gonorrhoea was found in Hanoi, Viet Nam in 2005, at 11.5% (Table 1.12).

Table 1.12. Prevalence of STIs among MSM

Country	Source of data	Year	STIs			
			Urethral gonorrhoea	Urethral chlamydia (%)	Rectal gonorrhoea (%)	Rectal chlamydia (%)
Cambodia MSM	SGS	2005	0.8	2.9	1.31	1.2
Cambodia TG	SGS	2005	0.4	1.4	1.1	9.1
Philippines (Manila)	Neilsen et al.	2005	5.4	19.2	8.1	9.2
Viet Nam (Hanoi)	SGS	2005	3.1	7.6	11.5	5.4
Viet Nam (Ho Chi Minh City)	SGS	2005	1.7	5	6.7	3.8
Lao PDR (Luang Prabang)	SGS	2009	N/D	N/D	1.7	8.3

Sources: Country SGS surveys, various years; Neilsen G. *Epidemiology of ano-rectal STIs in Asia*. 2008. Available at: <http://www.rectalmicrobicides.org/docs/Neilsen%20-%20Rectal%20STIs%20-%2009%20April%202008.pdf> (accessed on 14 March 2012). N/D not done

Lao PDR: Lao People's Democratic Republic



Overall, gonorrhoea case reporting has shown that there has been a clear downward trend in most countries of the Region. In Malaysia, for instance, the number of gonorrhoea cases reported steadily decreased from 1999 to 2006, though a slight upward trend was observed between 2006 and 2008 (Figure 1.14).

Figure 1.14. Malaysia STI case reporting system, 1993–2008



Source: MOH Malaysia, STI case reporting, 1993–2008

Another critical area for STI surveillance and control efforts is the growing degree of drug resistance among gonococcal strains in the Region. Surveillance for drug resistance has been conducted since 1992. Seventeen countries in WPR participated in the Gonococcal Antimicrobial Surveillance Programme (GASP) in 2009. Among them, 12 countries reported that more than 30% of samples were resistant to penicillin and nine countries reported that over 70% of samples were resistant to quinolones (Table 1.13).⁵⁹

1.3.3 HEPATITIS B/C

Hepatitis B and C are important viral infections with a great impact in WPR. Both hepatitis B and C viruses can be transmitted sexually and through exposure to infected blood products. However, a large proportion of hepatitis B infections in WPR occur during birth. The Region is estimated to have 45% of the global burden of hepatitis B.⁶⁰ Hepatitis B is estimated to cause between 60% and 80% of primary liver cancer cases in the world. In contrast, hepatitis C transmission is more commonly associated with the sharing of injecting equipment among PWID. It is estimated that between 50% and 90% of PWID who are HIV-positive are also infected with HCV.⁶¹ Hepatitis C can be particularly harmful



Table 1.13. Penicillin and quinolone resistance in strains of *N. gonorrhoeae* in countries of the Western Pacific Region, 2009

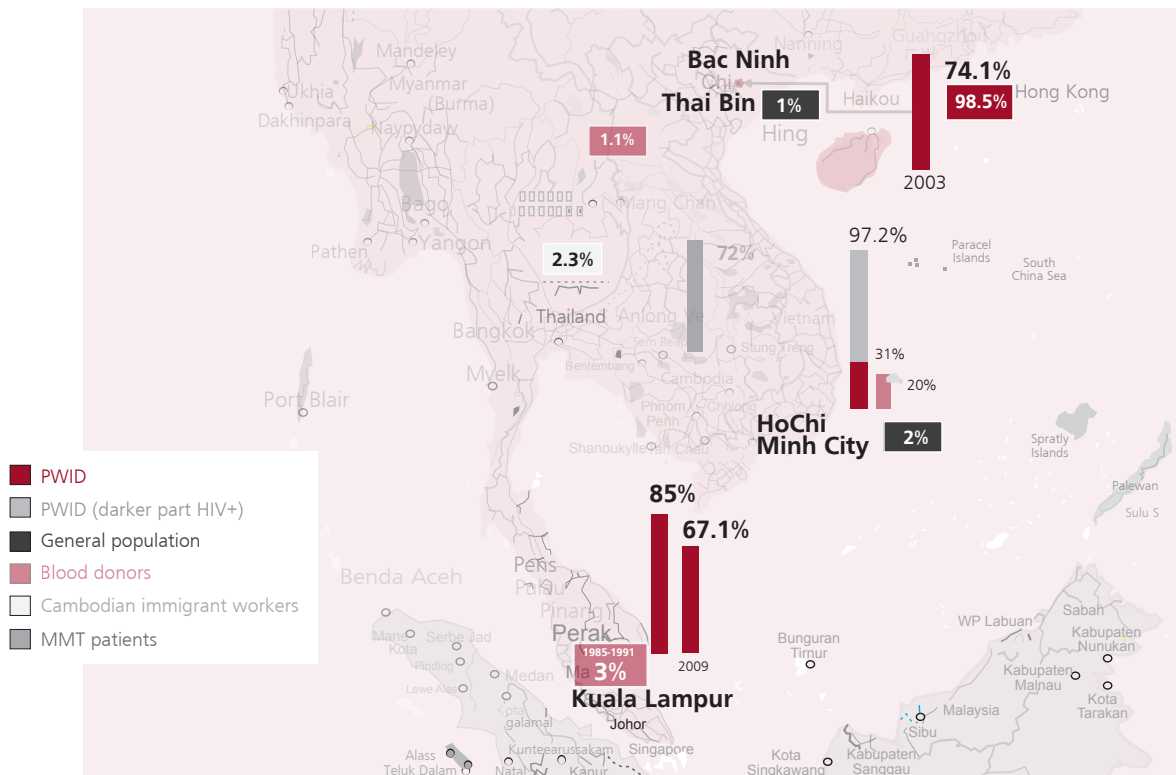
Country	Penicillin resistance		Quinolone resistance	
	No.	%	No.	%
Australia	1145	35.6	1370	42.5
Brunei Darussalam	276	71.9	360	93.0
Cambodia	6	100.0	4	66.7
China	NS	ND	1026	100.0
Fiji	45	8.3	1	0.2
Hong Kong SAR	695	50.9	713	52.2
Japan	65	24.7	210	79.8
Korea	34	55.7	56	91.8
Malaysia	5	50.0	8	80.0
Mongolia	56	53.3	112	74.7
New Caledonia	0	0.0	1	1.3
New Zealand	61	26.1	82	35.0
Papua New Guinea	34	63.0	0	0.0
Philippines	33	82.5	39	97.5
Singapore	108	65.7	138	86.3
Tonga	0	0.0		
Viet Nam	31	38.8	80	100.0

Source: The WHO Western Pacific and South-East Asian GASP, 2011
NS not specified; ND examined for penicillinase production only

for PLHIV, due to accelerated liver damage among co-infected patients. In a recent literature review, the prevalence of HCV infection was found to be 1%–3% among migrant workers, blood donors and the general population in different cities of the Region, such as Kuala Lumpur, Ho Chi Minh City and Thai Binh. However, the prevalence of HCV infection was as high as 67%–97% among PWID and patients on methadone maintenance therapy (MMT) in cities of Viet Nam and Malaysia (Figure 1.15).



Figure 1.15. HCV infection among different populations in WPR countries



Source: Mesquita F. Hepatitis B and C and HIV coinfection. Presentation at the WHO Consultation on hepatitis and HIV infections. Geneva, 2012.

BOX 1.1. HIV AMONG WOMEN IN THE WESTERN PACIFIC REGION

The increasing impact of the HIV epidemic among women is of growing concern globally as well as in the Region. In 2009, the male-to-female ratio of adult PLHIV was 2.1 compared to 2.4 in 2001, suggesting that infections among women comprise an increasing portion of estimated new cases.⁴³ This general shift may reflect changes in the dominant mode of transmission away from injection drug use, seen predominantly among males, towards FSWs and the relatively larger numbers of infections among their male clients and female regular partners.

The estimated male-to-female sex ratio of PLHIV in the Region ranges considerably, from 0.6 in Cambodia to 8.1 in Malaysia. In Papua New Guinea and Cambodia, countries where the epidemic has been relatively more severe, total HIV infections among women outnumber those among men (Table 1.14).

Table 1.14. Estimated burden of HIV among women in countries of the Western Pacific Region

Country	# of adult PLHIV 2009	# of adult female PLHIV 2009	Sex ratio M:F 2009	# of adult PLHIV 2001	# of adult female PLHIV 2001	Sex ratio M:F 2001
China	730 000	230 000	2.2	240 000–470 000	67 000–130 000	2.6
Viet Nam	270 000	81 000	2.3	140 000	39 000	2.6
Malaysia	100 000	11 000	8.1	67 000	6100	10
Cambodia	56 000	35 000	0.60	83 000	51 000	0.63
Papua New Guinea	31 000	18 000	0.72	13 000	7600	0.71
Philippines	8600	2600	2.3	1600	<500	>2.1
Australia	20 000	6200	2.2	13 000	3900	2.3
Republic of Korea	9500	2900	2.3	5200	1600	2.3
Japan	8100	2700	2.0	6400	2200	1.9
New Zealand	2400	<1000	>1.4	1600	<1000	>0.6

Sources: UNAIDS/WHO, *AIDS epidemic update*, 2010; UNAIDS, *Global report*, 2010

A number of gender-specific issues have been recognized as negatively impinging on women's ability to protect themselves from HIV. A large number of women remain unaware of the hidden risk behaviours of their husbands or regular partners. Preventing these types of infections requires women to either become aware of their partners' risk behaviours or to assume risk behaviours, courses of action that may not be easily accepted by their male partners. In addition, women often lack decision-making power with respect to their own sexual and reproductive health. Decisions on when and under what circumstances to have sex, as well as the ability to seek preventive or curative services frequently require the approval of the husband or regular sexual partner, thus limiting women's options for protecting themselves from acquiring HIV.



Social and economic disempowerment also negatively affects the ability of pregnant women to seek services that could dramatically reduce the risk of transmitting HIV to their children, or to deal with legal and economic barriers to taking care of their families in the event that their husband or regular partner dies from AIDS.

BOX 1.2. HIV AND TUBERCULOSIS (TB)

Among countries in WPR, Cambodia, China, the Philippines and Viet Nam are considered high-priority countries with respect to tuberculosis (TB).⁷ Due to relatively low levels of HIV testing among TB patients, it is difficult to determine the actual proportion of new TB cases who are co-infected with HIV. Only 12% of incident TB cases were tested for HIV in WPR in 2009.⁷

However, available evidence suggests that the majority of incident TB cases are not co-infected with HIV. Among those tested, 8.5% of incident TB cases were estimated to be co-infected with HIV.⁶² The degree of co-infection has remained largely stable since 2005 (Table 1.15).

Table 1.15. Burden of disease with respect to TB and TB/HIV co-infection in the Western Pacific Region, 2009

Country	TB prevalence rate per 100 000 population	TB incidence rate per 100 000 population	% of tested TB patients who are HIV-positive (%)	% of TB patients with known HIV status (%)
Cambodia	693	442	13	70
China	137	96	4	6
Fiji	26	19	0	100
Lao People's Democratic Republic	131	89	26	17
Malaysia	110	83	11	84
Mongolia	323	224	0	83
Papua New Guinea	337	250	15	10
Philippines	520	280	0	1
Viet Nam	333	200	17	36

Source: WHO, *Global tuberculosis control report*, 2010

China, the Philippines and Viet Nam are also among the 25 countries with the highest prevalence of multidrug-resistant TB (MDR-TB). Globally, 3.3% of all new TB cases have been found to have MDR-TB, while the percentage is 5.7% in China, 4.0% in the Philippines and 2.7% in Viet Nam.⁶²



1.4 SURVEILLANCE SYSTEMS FOR HIV AND STI

Considerable efforts have been made over the past decade to strengthen information systems across the Region. These include more systematic data collection to estimate the size of key populations, continued sentinel surveillance, and the implementation of multiple behavioural surveys or IBBS, including of key populations. These data have been critical for developing more robust epidemiological models for estimating the burden of disease. The development and use of the Asian Epidemic Model (AEM)⁶³ has also grown considerably over the past 10 years (Table 1.16).

Table 1.16. Types of surveillance activities in countries of the Western Pacific Region

Country	Last year of direct size estimation	Last year of sentinel surveillance for key populations*	# of sentinel sites for key populations	# of sentinel sites for non-key populations	Last year of survey for key populations	Epidemic modelling tools used**
Cambodia	2008	2010	40	26	2007	AEM, EPP ⁶⁴
China	2009	2010	1301	587	2010	AEM, EPP, GOALS ⁶⁵
Fiji	None	None	0	NA	None	None
Lao People's Democratic Republic	2010	2009	NA	NA	2009	EPP, AEM
Malaysia	2010	2009	NA	NA	2009	EPP
Mongolia	2009	2010	3	13	2010	EPP
Philippines	2010	2009	69	0	2009	AEM, EPP, MOT ⁶⁶
Papua New Guinea	None	None	NA	28	2010	EPP
Viet Nam	None	2010	120	40	2009	AEM, EPP, GOALS

Source: Modified from UNAIDS, Strategic information review for Regional stock-taking report, 2011 (unpublished)

*Key populations refers to FSWs, PWID and high-risk MSM **AEM Asian Epidemic Model; EPP Estimates and Projection Package; MOT Modes of Transmission

An important shift has taken place over the past decade with respect to the main types of surveillance methods used by countries to collect strategic information. Prior to 2000, HIV surveillance in the Region was largely based on HSS systems for ANC attendees, key populations and other groups accessible through health facilities, such as TB and STI patients. In the early 2000s, the focus of surveillance shifted towards obtaining behavioural data from more community-representative samples of key populations through probability sampling methods, including time–location cluster sampling and respondent-driven sampling. For instance, Cambodia and China each have more than three rounds of IBBS data to track HIV prevalence trends among key populations in selected locations (Table 1.17).

While the availability of more representative survey data has been a positive development, it is important to ensure that the methods are appropriate and suitable for low-level



Table 1.17. The surveillance “shift” for key populations

Year	Primary method of surveillance			
	None	HSS only	BSS (alone or in addition to HSS)	IBBS (alone or in addition to HSS or BSS)
1990–1999	Fiji Lao PDR Maldives	China Malaysia Mongolia Papua New Guinea Philippines Viet Nam	Cambodia	
2000–2004	Fiji	Mongolia	China Malaysia Papua New Guinea Philippines Viet Nam	Cambodia Lao PDR
2005–2009			Fiji (male STI patients) <i>BSS only</i> Papua New Guinea Mongolia Viet Nam	Cambodia China Malaysia <i>IBBS only</i> Lao PDR Philippines

Source: Modified from UNAIDS, Strategic information review for Regional stock-taking report, 2011 (unpublished) HSS HIV sentinel surveillance; BSS behavioural surveillance survey; IBBS integrated biological and behavioural survey Lao PDR: Lao People’s Democratic Republic

epidemics, where the challenge is to detect nascent pockets of infection among different groups, rather than tracking the epidemic in well-known epicentres.

Recently, more attention has been given to developing local-level population size estimates of populations at higher risk. These data can be used to identify geographical areas with epidemic potential based on the presence of large numbers of key affected populations. In addition, such figures are aggregated into regional- and national-level estimates for use in epidemic models to project the burden of disease, and are essential for developing and monitoring coverage targets. A variety of methodologies have also been used to develop more reliable estimates of these often hidden and highly mobile groups (Table 1.18).

A number of key areas for improvement were identified in a recent review of the Region’s surveillance systems. In particular, more detailed documentation is needed to describe surveillance protocols and implementation challenges to interpret and use the surveillance data. Greater focus is needed on collecting and using data to describe epidemic patterns at the subnational level. Given that the diversity of the epidemic is considerable in most countries, relying on estimates aggregated at the national level can mask important, but localized, epidemic trends taking place in key geographical areas. Lastly, more guidance is needed to better tailor surveillance systems to low-prevalence epidemics to help identify areas where new infections are occurring, and thus ensure that prevention interventions are introduced in a timely manner to keep the epidemic under control.



Table 1.18. Use of different population size estimation methods in countries of the Western Pacific Region

Size estimation method	Female sex workers	People who inject drugs	Men who have sex with men
Mapping or rapid assessment and response	<ul style="list-style-type: none">• Cambodia• China• Malaysia• Mongolia	<ul style="list-style-type: none">• Cambodia	<ul style="list-style-type: none">• Cambodia• China• Mongolia
Multiplier method with probability surveys	<ul style="list-style-type: none">• China• Philippines• Malaysia	<ul style="list-style-type: none">• Cambodia• China• Malaysia	<ul style="list-style-type: none">• China• Lao People's Democratic Republic
Capture–recapture			<ul style="list-style-type: none">• Cambodia
Extensive extrapolation for national estimate	<ul style="list-style-type: none">• China• Lao People's Democratic Republic• Philippines• Viet Nam		

Source: Modified from UNAIDS, Strategic information review for Regional stock-taking report, 2011 (unpublished)

HIV TESTING AND COUNSELLING

ANNEX 2

HIV testing and counselling (HTC) services are an essential gateway to the full range of prevention, treatment, care and support interventions for PLHIV. In particular, timely testing and counselling is key to ensure that PLHIV access life-saving treatment at an early stage of the disease, when the benefits of ART are the highest. The scale-up of these services requires, on the one hand, establishing the necessary counselling and laboratory infrastructure to provide accurate and high-quality services and, on the other, promoting their uptake, particularly among groups that are at higher risk for acquiring HIV. Reaching high coverage levels requires, moreover, the creation or strengthening of linkages between HTC sites and other key service points, including those dedicated to STI, ANC and TB control. There is also a need to promote the use of HIV rapid testing and same-day results to minimize loss to follow up and ensure enrolment of HIV-positive patients in pre-ART services.

This chapter discusses the progress on the availability and coverage of HTC, as well as strategies for scaling up HTC services in WPR.

2.1 AVAILABILITY OF HIV TESTING AND COUNSELLING SERVICES

Over the past five years, important progress has been made in increasing the availability of HTC services in the Region. Between 2007 and 2010, among nine countries with available data, the number of HTC sites more than doubled in Lao People's Democratic Republic,

Table 2.1. Scale-up of HTC services in WPR countries, 2007–2010

Country	# of HTC sites		Increase in sites, 2007–2010 (%)	HTC sites per 100 000 population in 2010
	2007	2010		
Cambodia	190	246	29%	3.1
China	5342	9475	77%	1.3
Fiji	26	26	0%	7.3
Lao PDR	36	146	305%	4.5
Malaysia*	1090	7552	592%	51
Mongolia	30	61	103%	3.7

Lao PDR: Lao People's Democratic Republic

(continued on page 52)



Table 2.1. Scale-up of HTC services in WPR countries, 2007–2010 (continued from page 51)

Country	# of HTC sites		Increase in sites, 2007–2010 (%)	HTC sites per 100 000 population in 2010
	2007	2010		
Papua New Guinea	32	266	731	7.8
Philippines	52	91	75	0.2
Viet Nam	210	676	222	1.4
Total	7008	18 539	264	–
Median	–	–	–	3.7

Sources: WHO, *Universal access reporting*, 2008 and 2011 * Data from Malaysia reflect national policy change that all health facilities should be able to provide HTC.

Malaysia, Mongolia, Papua New Guinea and Viet Nam. In China, more than 3000 additional facilities started providing HTC services (Table 2.1).^{11,67}

National programmes in the Region have employed a number of different strategies in order to increase coverage. These include offering testing and counselling within public sector health facilities and encouraging services, often managed by NGOs, targeting the inclusion of FSWs, MSM and PWID. Some countries, such as Papua New Guinea, have also built partnerships with private sector providers, such as private hospitals serving workers from large companies, to extend the availability of HTC.

2.2 UPTAKE OF HIV TESTING AND COUNSELLING

The number of tests performed also increased between 2007 and 2010, alongside the number of facilities providing HTC. Among eight reporting countries, 2 769 563 people received HTC in 2010, compared with 2 299 303 a year earlier. In Viet Nam, the number of adults accessing HTC increased tenfold between 2007 and 2010.

Importantly, available data show that countries such as Cambodia, Papua New Guinea, Viet Nam and Malaysia tend to have higher levels of HIV testing vis-à-vis countries with a lower HIV prevalence (e.g. Mongolia, Lao People's Democratic Republic, the Philippines).

In some countries, a substantial proportion of the increase in testing is due to considerable expansion of services for PMTCT. (Testing and counselling for pregnant women is discussed in Annex 5, in terms of PMTCT.) As such, women comprise the majority of adults receiving an HIV test in many countries, despite the fact that men comprise a larger proportion of key populations at higher risk, including clients of FSWs, MSM and PWID.

Although epidemic modelling suggests that a majority of women who are infected with HIV are regular partners of men who engage in higher risk behaviours,⁹ the fact that they are often among the first to be tested may give the mistaken impression that the female



Table 2.2. Utilization of HIV testing and counselling services among adults in WPR countries, 2007–2010*

	Number of people above 15 years receiving HTC				% tested who were men	
	2007	2008	2009	2010	2008	2010
Cambodia	176 171	296 510	622 127	762 774	43	36%
Fiji	12 542	27 865		17 182	NA	6%
Lao PDR	16 207	14 481	40 962	33 683	NA	36%
Malaysia	409 494	325 370	662 062	903 011	25	36%
Mongolia	--	--	9015	13 695	NA	NA
Papua New Guinea	26 934	107 615	159 005	1 356 634	28	33%
Philippines	--	12 214	10 110	13 287	NA	NA
Viet Nam	101 230	181 448	777 256	1 132 374	53	19%
Total	-	-	2 299 303	2 769 563	-	-

Sources: WHO, Universal access reporting, 2008–2011 *Based on the numbers of people tested as reported by countries but without correcting for the fraction of people who were tested more than once. Lao PDR: Lao People's Democratic Republic

partners are the original source of infection. Many countries in the Region have recognized the importance of partner engagement in PMTCT services to mitigate this misperception. Similarly, couples' and partners' counselling strategies remain important areas where additional investments are needed.

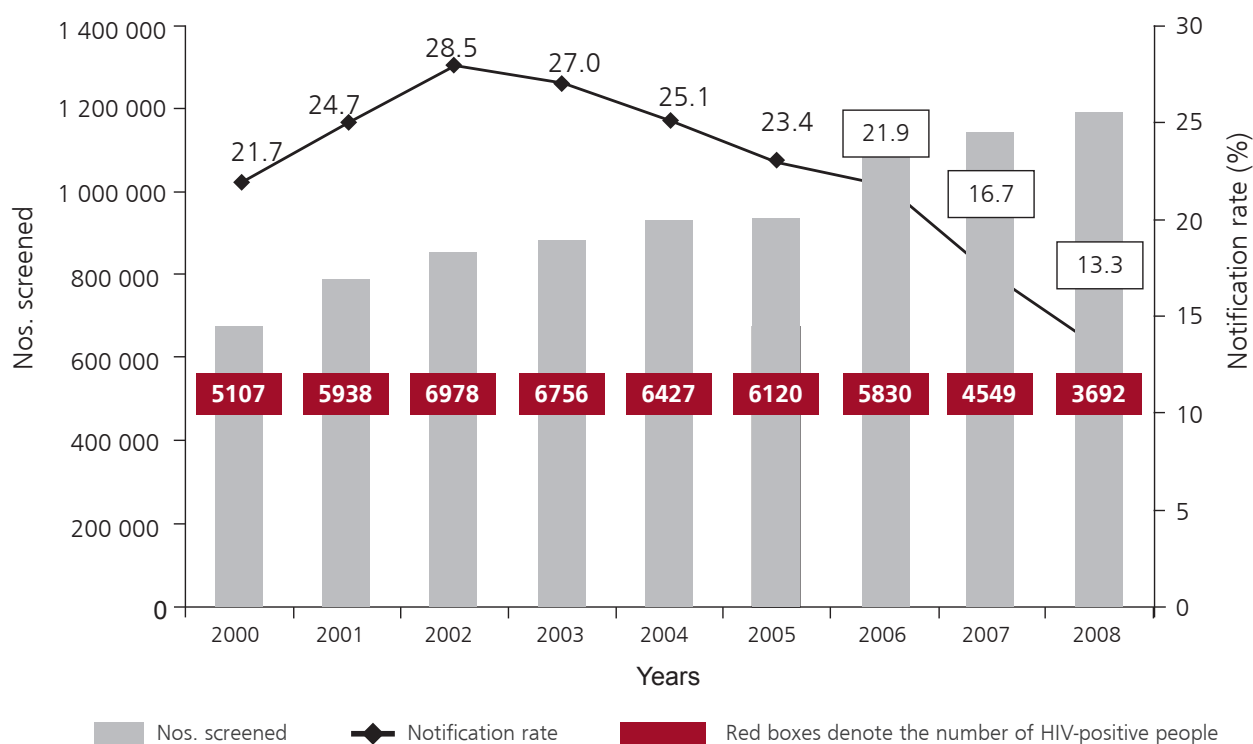
In concentrated and low-level epidemics, an important measure of the effectiveness of HTC programming is the extent to which it can raise testing uptake among those at higher risk of infection and consequently increase the number of HIV-positive individuals diagnosed. Indeed, larger testing volumes may not always be associated with larger numbers of cases identified or higher degrees of positivity among those tested. Another big challenge is making sure that HIV-positive patients are referred to HIV care and treatment services, and followed up regularly for pre-ART services.

For example, data from Malaysia suggest that, although testing volumes have increased steadily since 2000, the absolute number of cases diagnosed (highlighted in dark red in the Figure 2.1) has actually fallen steadily since 2002.

In WPR countries, large-scale testing among the general population is not necessarily an efficient strategy to increase case-finding. Instead, key populations at higher risk, such as FSWs and their clients, MSM and PWID and their regular sexual partners are the primary groups among whom testing should be principally promoted. Available data from surveillance surveys indicate that the proportions of people who are tested and know the results among key populations at higher risk have been increasing over the years but remain largely insufficient, with considerable variability within and between countries (Table 2.3). (*Please note:* Interpretations of coverage data must consider the



Figure 2.1. Expansion of HIV testing and counselling in Malaysia, 2000–2008



Source: WPRO, Regional meeting on strengthening monitoring of the health sector responses to HIV/AIDS, Manila, 2009

Table 2.3. Proportions of key populations at higher risk tested in the past 12 months and who know their results in WPR countries, 2005–2010

Country	Female sex workers		People who inject drugs				Men who have sex with men					
	%	Year	%	Year	%	Year	%	Year	%	Year	%	Year
Cambodia	68	2007	98	2010	35	2007	54	2008	58	2007	51	2010
China	29	2007	34	2010	41	2007	41	2010	33	2007	49	2010
Fiji	21	2008	--		--		--		--		--	
Lao PDR	18	2008	33	2009	--		2	2010	14	2009	22	2010
Malaysia	--		21	2009	--		33	2009	--		41	2009
Mongolia	53	2005	52	2009	--				60	2005	78	2009
Papua New Guinea	47	2006	46	2010	--		--		42	2007	--	
Philippines	12	2007	19	2009	4	2007	1	2009	16	2007	7	2011
Viet Nam	15	2005	35	2009	11	2005	18	2009	18	2005	19	2009

Sources: WHO, *Universal access reporting*, 2007–2011 Lao PDR: Lao People's Democratic Republic



fact that many surveys were conducted in a few large urban areas and the fact that the results may not necessarily reflect prevailing conditions at the national level. As a result, coverage estimates may not be based on nationally representative estimates and may not be comparable across countries.)

Among eight reporting countries in 2009–2010, testing levels among FSWs were above 50% in Cambodia and Mongolia. A similar pattern was observed with respect to coverage among MSM. Among PWID, data from six countries suggest that testing coverage was relatively higher in Cambodia and China in 2008–2010. Noticeably, testing levels varied substantially by population and country. For example, coverage of testing among FSWs in Lao People’s Democratic Republic, Viet Nam and Cambodia was much higher than among MSM and PWID.

2.3 TOOLS AND STRATEGIES FOR SCALING UP HTC

Effectively scaling up prevention and treatment services requires that HTC be expanded concomitantly in order to ensure high-quality, timely services. An important strategy to increase coverage of HTC is to expand the use of rapid testing, which allows clients to receive same-day test results. In addition to stimulating uptake, greater use of rapid testing may also facilitate follow up and service enrolment, as a considerable proportion of people who receive a regular HIV test do not return for their test results. Cambodia, Lao People’s Democratic Republic, Malaysia, Mongolia and Papua New Guinea have already developed national guidelines for using rapid test technology, and China and the Philippines are currently in the process of reviewing them. However, some countries have used rapid testing selectively for specific populations or continue to depend on central or regional testing centres for confirmation through Western blot.

In addition to voluntary counselling and testing (VCT), PITC has also been successfully implemented in a number of countries, in particular, among TB patients and pregnant women attending ANC.⁶⁸ PITC also has the potential to be used in other clinical settings serving key populations at higher risk, such as MMT clinics for PWID. The specific populations to whom testing should be routinely offered vary by country, and depend on the epidemic context and the availability of testing infrastructure at the point of care. In addition to ANC attendees, another common patient population for PITC in WPR is patients attending services for STIs. It is also essential that HTC be linked to HIV care and treatment services. HIV-positive patients should be followed up regularly.

As of December 2010, among 13 reporting countries, nine had national guidelines for implementing PITC and nine out of 13 reporting countries had guidelines that recommend providers target key affected populations with HTC (Table 2.4).



Table 2.4. Coverage of testing and counselling policies in countries of the Western Pacific Region, 2010

Country	National policy on HTC	Policy to promote PITC	National guidelines for PITC	Policy/guidelines for HTC to key populations
Cambodia	Yes	Yes	Yes	Yes
China	Yes	Yes	Yes	Yes
Fiji	Yes	Yes	No	No
Kiribati	Yes	Yes	Yes	Yes
Lao PDR	Yes	Yes	Yes	Yes
Malaysia	Yes	Yes	Yes	Yes
Mongolia	Yes	Yes	Yes	Yes
Papua New Guinea	Yes	Yes	Yes	No
Philippines	Yes	Yes	Yes	Yes
Samoa	Yes	Yes	No	Yes
Solomon Islands	Yes	No	No	No
Tonga	Yes	Yes	Yes	Yes
Viet Nam	Yes	Yes	No	Yes

Source: WHO, *Universal access reporting*, 2011 Lao PDR: Lao People's Democratic Republic

BOX 2.1. SCALING UP HIV TESTING AND COUNSELLING SERVICES IN CAMBODIA

Over the past decade, Cambodia has considerably expanded the coverage and uptake of HTC. In order to further strengthen the programme's design, an analysis has been carried out to identify the lessons learnt and shed light on which strategies worked under different circumstances.

Four different scale-up models were identified: (1) *planned expansion*, whereby the model for different types of HTC sites is piloted and then replicated gradually; (2) *grafting*, whereby HTC sites are added on as services to existing facilities working with the target population; (3) *explosion*, whereby new sites are established over a short, intense period of time; and (4) *association*, whereby existing organizations collaborate and develop specialized models of service that are appropriate for specific contexts or settings. Table 2.5 below outlines the advantages and disadvantages of these different approaches.⁶⁹



Table 2.5. Four models for HTC scale-up in Cambodia

ADVANTAGES AND DISADVANTAGES OF THE MODELS FOR SCALING-UP FOR VCT SERVICES		
MODELS	ADVANTAGES	DISADVANTAGES
Planned expansion	<ul style="list-style-type: none"> • Very systematically plans and tests the VCT model before scaling up • Suitable when the client group and aims of VCT are well-defined • Franchised services can offer tight quality control and therefore the quality and content of the VCT service can be very consistent. • Services can be provided more cheaply and efficiently as training and procurement can be done on a larger scale. • Franchised services can benefit from common advocacy and IEC programmes. A common logo can be helpful in increasing awareness. 	<ul style="list-style-type: none"> • Some programmes need to be flexible in order to respond to a variety of clients' needs and may not be effective if there is a tight control over the service. • Planned expansion may not allow for the development of new innovative approaches, or be able to respond quickly to local and community factors.
Grafting	<ul style="list-style-type: none"> • VCT can be added to other services without the need for a large investment in infrastructure and human resources. • Can be an effective way of reaching "higher risk" groups—such as PWID, sex workers, STI and TB attendees, or from useful interventions following VCT 	<ul style="list-style-type: none"> • Sometimes existing staff at the services to which VCT will be added may resent the additional workload. • Additional need to ensure staff support to prevent burnout
Explosion	<ul style="list-style-type: none"> • Able to most rapidly provide VCT services to a large number of people • As explosion usually follows considerable political commitment, dedicated funding is often available. 	<ul style="list-style-type: none"> • If inadequately prepared, there can be initial implementation problems, which may be costly to rectify. • Requires a high level of political commitment and donor funding • Communities may see it as foisted upon them.
Association	<ul style="list-style-type: none"> • This approach is responsive to local community needs and input. With communities and CBOs instrumental in planning, developing and implementing, they can also broaden the impact of VCT, providing a vehicle for advocacy and cross-referral with other services. 	<ul style="list-style-type: none"> • Because this approach allows VCT services to be adapted to local needs, outcomes and quality of services may vary from site to site. • This approach may rely on different funding sources, so rapid expansion and future planning of services may be hampered.

Source: MOH/NCHADS/UNICEF, 2007

PREVENTION INTERVENTIONS FOR KEY POPULATIONS

Prevention interventions for key populations at higher risk for acquiring HIV are among the highest-priority components of a national response, given the type of concentrated and low-level HIV epidemics in WPR. In order to provide prevention services in the community rather than exclusively through health facilities, outreach is a critical means of service delivery, because of the mobility and the marginalized and often illegal status of drug users, SWs and MSM. In some WPR countries, ministries of health have been playing a leading role in piloting and scaling up effective interventions, while in others, civil society has played an important role in delivering services to communities of key populations. The health sector provides and links the community to facility-based prevention services such as counselling and testing, MMT, STI management, as well as early treatment. In this context, WHO has identified a number of priority areas where the health sector can contribute to achieve the goals of universal access to prevention.⁷⁰ They include the following:

- Addressing stigma and discrimination in health-care services as well as broader social settings
- Reinforcing a continuum of services, linking prevention to care, support and treatment
- Developing strong collaboration between the public sector and civil society, including CBOs⁷¹
- Ensuring equity of access to services for key populations at higher risk as compared with the general population
- Customizing interventions to local contexts, including consideration of social norms, epidemic severity, and political, legal and economic constraints.

This section provides a review of the responses for each of the four major key populations at higher risk: MSM, PWID, FSWs and their clients. In each section, the role of the health sector in actively contributing to these prevention interventions is examined.

BOX 3.1. INTERPRETING SOURCES OF DATA ON KEY POPULATIONS

Many of the data points provided by countries on the coverage and impact of interventions for key populations at higher risk of HIV infection come either from surveys with relatively small sample sizes or from sentinel sites whose methods and sample sizes can be highly heterogeneous. Interpretations of coverage data must consider the fact that many surveys were conducted in

BOX 3.1. (CONTINUED)

a few large urban areas and that the results may not necessarily reflect prevailing conditions at the national level. As a result, coverage estimates may not be based on nationally representative estimates and may not be comparable across countries.

In addition, in the 2010 UNGASS reports, the definition of programme coverage for FSWs, PWID and MSM changed and became more stringent.⁷² Individuals were categorized as having been “reached” if they received three specific services. Not all survey instruments used by countries to collect these data may have included the questions necessary to calculate these measures of coverage. This is also true of past surveys and calculations of reach, making trends in coverage difficult to assess.

3.1 MEN WHO HAVE SEX WITH MEN (MSM)

3.1.1 BASIC PACKAGE OF SERVICES

The basic package of services for MSM prevention interventions includes peer education-based outreach, free distribution and social marketing of condoms and lubricants, advocacy with the local police, and clinical services such as STI management and HTC.

Prevention interventions for MSM are a relatively new programmatic area compared to services provided for PWID and FSWs in most countries. Countries have begun to report on their programmes for MSM but, in many areas, services are limited to a small number of intervention sites, primarily in large cities.

Many HIV prevention programmes for MSM have benefited from the growing strength of civil society organizations promoting the rights of gay, lesbian, bisexual and TG populations in Asia and the Pacific. Many countries have begun to change their laws and policies against homosexuality. Male-to-male sex is not a criminal offence in Cambodia, China, Mongolia, the Philippines and Viet Nam, although some public order and indecency provisions continue to be used to target MSM and TG groups.⁷³ A growing number of MSM-focused NGOs and CBOs have begun to form networks to combine their political influence and share resources. Of particular importance is the presence of groups in the Pacific where homosexuality is still illegal. Some of these groups include the Pacific Sexual Diversity Network (PSDN), which includes representation from Fiji, Papua New Guinea, Samoa, Tonga and Cook Islands. The PSDN is also assisting in the formation of an MSM group in Vanuatu and has member organizations in Papua New Guinea and Fiji (MEN Fiji).

Only two countries in the Region, China and Cambodia, have specific strategies or action plans for MSM populations. Many interventions for MSM in the Region began around 2005. Due to this later focus on services for MSM, a great limitation in scaling up services over the past decade was the lack of service providers trained to address the specific needs



of MSM populations. For example, STI clinicians may not have routinely asked about or examined MSM patients for anal and pharyngeal infections. To bolster the health sector’s response to HIV among MSM populations, a consultation was held in Hong Kong in 2009, co-sponsored by WHO WPRO, United Nations Development Programme (UNDP), UNAIDS and the Department of Health in Hong Kong. Based on the recommendations made at that meeting, a guideline entitled *Priority HIV and sexual health interventions in the health sector for MSM and transgender people in the Asia–Pacific Region* was published in 2010.⁷¹ Inputs from WPR were also included in the WHO global guideline published in 2011 for the prevention and treatment of HIV among MSM and TG populations.⁷⁴ However, there is a lack of TG-specific HIV interventions/services in countries of the Region.

3.1.2 COVERAGE OF PREVENTION INTERVENTIONS

The data in Table 3.1 show that coverage of prevention programmes for MSM surveyed in China and Mongolia is relatively higher than that in the other reporting countries. The reported correct knowledge of HIV transmission, on the other hand, is higher in Papua New Guinea and Viet Nam, and lower in the Philippines, China and Mongolia. The proportion of MSM receiving an HIV test is higher in Mongolia and Papua New Guinea, and much lower in the Philippines and Viet Nam.¹⁰

Table 3.1. Coverage of prevention interventions for MSM in WPR, 2009

Country	Approximate sample size*	% reached with HIV prevention programmes**	% with correct knowledge of HIV transmission***	% with an HIV test in the past 12 months
China	6300	75	51	45
Mongolia	800	77	54	78
Papua New Guinea	NA	10	71	69
Philippines	4300	29	34	7
Viet Nam	1600	24	60	19

Sources: WHO. *Universal access reporting*, 2010; *Exact # of respondents varies for each survey question.

**Reach is defined as a respondent knowing where to get an HIV test and having received condoms in the past 12 months;

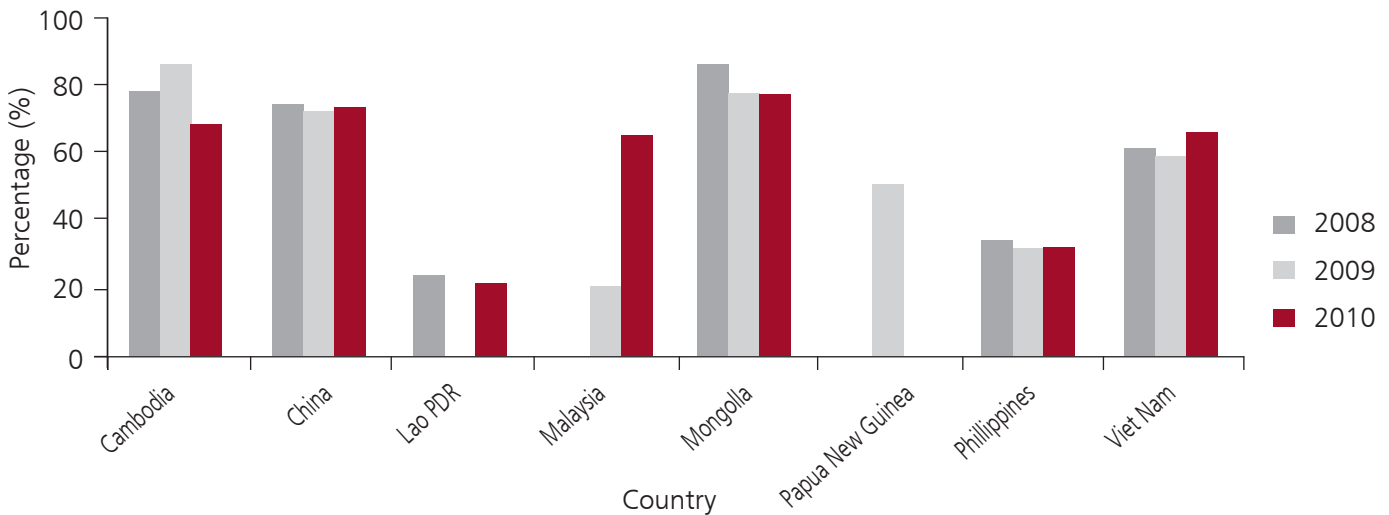
*** from *UNGASS country progress reports*, 2010

3.1.3 KEY BEHAVIOURAL OUTCOMES

Survey data collected between 2008 and 2010 suggest that condom use among selected MSM sites is relatively high in Cambodia, China and Mongolia, but generally lower in Papua New Guinea, the Philippines and Viet Nam. These levels of condom use are not markedly different from earlier survey data from 2005 to 2007 reported in earlier universal access reports (Figure 3.1).



Figure 3.1. Condom use at last anal sex among MSM in WPR countries, 2008–2010



Source: WHO, *Universal access reporting*, 2010. Survey data from Cambodia are from 2007.
Lao PDR: Lao People's Democratic Republic

One of the key challenges in designing services for MSM is defining the segment of the MSM population that has the highest risk for HIV. While the Regionally accepted percentage of the adult male population that has ever had sex with another male may range from 1% to 3%,⁴² the proportion of the MSM population who are at higher risk, i.e. who regularly have multiple anal sex partners, is generally estimated to be smaller. TG are an important subgroup of MSM for whom data are not always reported separately, though their risk and vulnerability may be higher than that of other groups of MSM.

3.2 PEOPLE WHO INJECT DRUGS (PWID)

3.2.1 BASIC PACKAGE OF SERVICES

Harm reduction refers to an approach in which a menu of services is provided to PWID, which can help to reduce the risk of transmission of HIV or hepatitis, depending on the stage of readiness for change among individuals. Global guidelines from WHO/United Nations Office on Drugs and Crime (UNODC)/UNAIDS on a comprehensive package for harm reduction includes nine key components:⁷⁵ needle/syringe exchange programmes (NSP), drug-dependence treatment (including opioid substitution therapy [OST] and other forms of drug treatment), HTC, ART, STI management, provision of condoms, information, education and communication (IEC), screening and treatment for hepatitis C, and screening and treatment for TB. Some countries in the Region have developed a basic package of services for PWID adapted from the above recommended components (Table 3.2). This may be due to lack of resources to provide the full package, as well as various political and legal barriers. For example, provision of OST may require changes in laws governing



controlled substances such as methadone and buprenorphine. In many cases, modifying the legal and political barriers requires strong advocacy on the part of ministries of health to work with their counterparts in other sectors to enact changes.

Table 3.2. Included components of country programmes for a comprehensive package of services for PWID in WPR countries, 2010

Country	NSP	OST	HTC	ART	STI	Condom	IEC	Hepatitis	TB
Cambodia	Y	Y	Y	Y	Y	Y	Y	N	N
China	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fiji	N	N	N	N	N	N	N	N	N
Lao PDR	N	N	Y	Y	Y	Y	Y	N	Y
Malaysia	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mongolia	Y	N	Y	Y	Y	Y	Y	Y	Y
Papua New Guinea	N	N	N	N	N	N	N	N	N
Philippines	N	NA	Y	Y	Y	Y	Y	NA	Y
Viet Nam	Y	Y	Y	Y	Y	Y	Y	N	N
TOTAL -Y	5	4	7	7	7	7	7	3	5
-N	4	4	2	2	2	2	2	5	4

Source: WHO, *Universal access reporting*, 2011 Lao PDR: Lao People's Democratic Republic

Countries with the most comprehensive package of services include China and Malaysia. The Philippines, Viet Nam and Cambodia also offer a majority of the recommended services. However, OST, a critical tool for reducing injection frequency, is available only in four countries: Cambodia, China, Malaysia and Viet Nam.

The health sector is vital for providing prevention services for PWID in most countries. The most common services – OST, HTC, STI services and ART – are largely provided through referral to public health facilities. While these services may be available to PWID, a critical aspect of measuring the effectiveness is in determining whether PWID utilize the services or whether there are barriers in terms of stigma and discrimination, and whether services are tailored for PWID. For example, HTC counsellors must be trained to deliver appropriate prevention messages related to injection drug use. Follow up for HIV or STI test results or referrals to other services may need to take into account that some drug users may not have regular homes and may require alternate methods for contacting individuals. To the extent that NGOs play a role in referring PWID for HTC, ART and/or STI services, linkages between public health facilities and NGO staff are critical for providing effective services to PWID.



3.2.2 COVERAGE OF INTERVENTIONS

Overall, the availability and level of coverage of services are increasing, but are still low. Global guidance on target-setting for harm reduction programmes defines distribution of >200 needles per PWID per year as good coverage.⁷⁶ Most countries in the Region with harm reduction programmes fall well below this coverage target. Viet Nam provided relatively higher numbers of needles and syringes through its NSP programme. China demonstrated its capacity for rapidly scaling up MMT services to cover a large number of PWID, which totalled 182 661 in 2010.⁴³

Table 3.3. Availability of harm reduction services for PWID in WPR countries, 2008–2010

Country	# NSP sites/1000 PWID			# receiving OST/1000 PWID		# Needles/PWID/year		
	2008	2009	2010	2008	2009	2008	2009	2010
Cambodia	1.0	1.0	0.5		NA	58.8	51.0	43.8
China		1.7	1.6		1.2*		23.2*	28.4
Malaysia	0.98	1.4	1.7	0.63	0.95		8.3	17
Philippines	0.15	0.2			NA	2.5	1.7	
Viet Nam	10.5	1.5	17.1	0.03	0.04	181.1	124.4	140.6

Sources: WHO. *Universal access reporting*, 2009–2011; * Denominator data are based on registered PWID rather than total estimated number of PWID in the country.

These programme coverage data appear lower than expected, given the levels of sterile injection use reported (Table 3.3). The inconsistency may be due to a number of factors, including underreporting of programme data (such as non-inclusion of needles and syringes obtained through social marketing), the potential for overreporting safe behaviours due to social desirability bias, and selection bias in the sampling for behavioural surveys. In addition, the method used to estimate the size of the PWID population may be weak in many countries. More work is needed in the Region to strengthen these sources of data.

Among countries with a large number of PWID, the uptake of OST is growing but is still very low (Table 3.4).

Table 3.4. Percentage of PWID receiving OST in WPR countries, 2009

Country	Estimated number of PWID	% PWID receiving OST
Cambodia	2100	2.9
China	642 800	28.4
Malaysia	170 000	21.8
Viet Nam	193 300	1.3

Source: WHO, *Universal access reporting*, 2010



Examining the data at a subnational level can be a useful way of looking at the coverage of prevention interventions to identify where gaps in service can be filled. For example, In China, harm reduction services are designed to focus on counties/cities with more than 500 PWID, and offer MMT in urban areas where there are large concentrations of PWID, while NSP are focused on covering PWID in more rural, remote areas.

BOX 3.2. EXPANSION OF CHINA'S HARM REDUCTION PROGRAMME FROM 2004 TO 2010

In 2004, China established an MMT programme in eight pilot sites.⁷⁷ Responses to these programmes have varied among provinces in China, due to the political support of local leaders and marketing of services. Implementation of this programme was partially a result of renewed effort to respond more rapidly to public health threats since the emergence of severe acute respiratory syndrome (SARS) in 2001, especially considering the economic damage that could result if public health threats are not appropriately responded to. Much of the lobbying at the local level for needle and syringe exchange was done by packaging the strategy as “needle social marketing” with an emphasis on health education to mitigate public backlash.

Geographical distribution of cumulative reported HIV/AIDS cases in China (by the end of 2010)



Source: Chinese Center for Disease Control and Prevention



BOX 3.2. (CONTINUED)

MMT clinics provide other services such as health education, hepatitis B and C testing, psychosocial support, and referrals to ART, STI or TB treatment.⁷⁸ Key strategies include initiating services in the highest-priority region of the country, i.e. the southern provinces, which have the most severe epidemic.

Examining the data at a subnational level can be a useful way of looking at the coverage of prevention interventions to identify where gaps in service can be filled. For example, In China, harm reduction services are designed to focus on counties/cities with more than 500 PWID, and offer MMT in urban areas where there are large concentrations of PWID, while NSP are focused on covering PWID in more rural, remote areas.

By the end of 2009, there were 680 MMT clinics in China serving 112 831 PWID daily.⁷⁸ There were 897 NSP sites in place in China in 2010.⁷⁸ China's Action Plan (2006–2010) calls for the expansion of MMT clinics to reach every county and city that has more than 500 registered PWID.⁷⁷ China's 680 MMT clinics have an annual retention rate of 70%, which is considered successful for an MMT programme.⁷⁷ China recently expanded its repertoire of programmes by adding a mobile MMT model, which provides services for hard-to-reach populations; this is in partnership with the United States President's Emergency Plan for AIDS Relief (PEPFAR).⁷⁷

A number of countries in Asia have a long history of mandatory drug treatment. Mandatory drug treatment involves detaining drug users involuntarily for up to several years. The quality of the drug treatment provided also varies, and ranges from abstinence-based therapy to provision of OST (Table 3.5).⁷⁹ Compulsory drug treatment is not an endorsed approach for providing services to PWID, as it lacks evidence of effectiveness and involves violation of human rights. In addition, compulsory drug treatment programmes are antithetical to a harm reduction approach and signal a hostile environment that may deter PWID from seeking needed services.

Table 3.5. Types of compulsory drug treatment services in WPR countries

Country	# and type of compulsory treatment facilities	# of PWID detained (at one point in time)	# PWID in OST (at one point in time)	# PWID in other drug treatment
Brunei Darussalam	1 drug rehabilitation facility	NA	0	NA
Cambodia	14 camps	1500–1700 (over 12 months)	0 (2009)	NA
China	700 detoxification settings, 300 re-education through labour camps	NA	108 000 (2008)	230 000 (2007)
Lao PDR	7 drug detoxification centres	833 (2008)	0	3500
Malaysia	28 drug treatment centres	6848 (2009)	6500 (2008)	1700 (2004)
Viet Nam	109 rehabilitation centres	>60 000 (2008)	1500 (2009)	NA

Source: Mathers et al. 2010

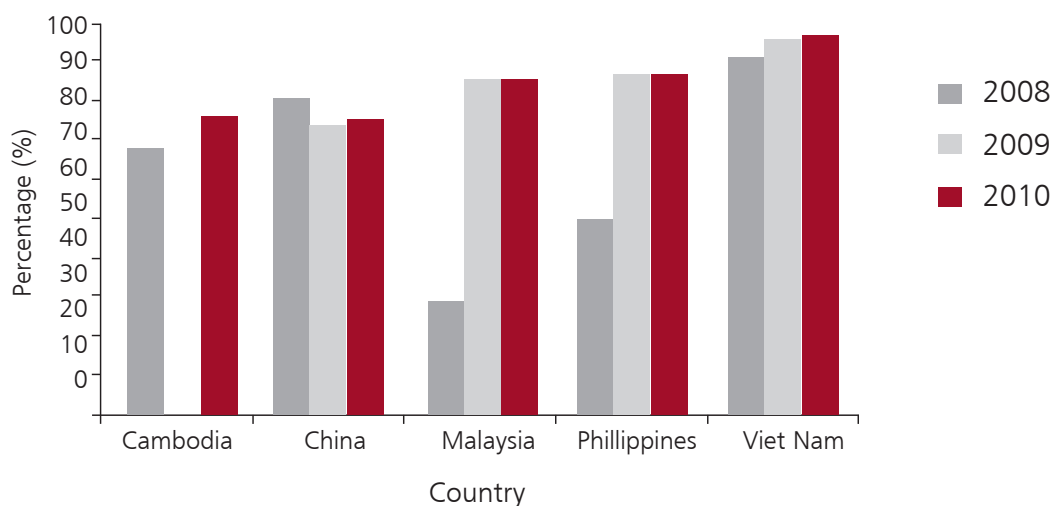
Lao PDR: Lao People's Democratic Republic



3.2.3 KEY BEHAVIOURAL OUTCOMES

Among PWID, the primary behavioural outcome of prevention programming is the increasing use of sterile injecting equipment at each injection. Among countries with data, a large proportion (>70%) of PWID reported the use of sterile injection equipment at last injection in 2010. China and Viet Nam have been consistently reporting this since 2008. A notable increase in the use of sterile equipment was reported in Malaysia and the Philippines from 2008 to 2009 (Figure 3.2). However, it was noticed that a survey of the PWID population in Cebu City was not included in the 2011 reporting, which showed a much higher proportion of PWID who shared injection equipment.

Figure 3.2. Self-reported use of sterile injecting equipment at last injection among PWID in WPR countries, 2008–2010



Sources: WHO, *Universal access reporting*, 2009–2011

Data from the 2010 UNGASS report³¹ suggest that age group does not make a large difference to the likelihood of using sterile injecting equipment but, in China, the use of sterile injection equipment is observed to be less among younger PWID, which may warrant greater focus on this group of PWID.³¹ As discussed in Annex 2 on HTC, many countries have made gains in promoting testing among PWID. However, in the Philippines and Viet Nam, reported levels of HIV testing among PWID are very low.

3.3 FEMALE SEX WORKERS AND THEIR CLIENTS

Many countries in the Region have laws that make solicitation illegal. Even if such laws are not routinely enforced or result in mass arrests of FSWs, they often create opportunities for FSWs to be threatened, physically abused and extorted.⁸⁰ For these reasons, advocacy plays an important role in interventions with FSWs.



3.3.1 BASIC PACKAGE OF SERVICES

Prevention interventions for FSWs in WPR have historically been more structural in nature and do not rely as heavily on one-to-one interaction to effect behaviour change, as compared to interventions in South Asia. In particular, the 100% CUP, which is based on the successful Thai programme, is used in Cambodia, China, Lao People's Democratic Republic, Mongolia and the Philippines. Most 100% CUPs are primarily organized by government departments due to the need to create an enabling environment by engaging the legal and political components of the structural intervention.

The 100% CUP has been used primarily in urban sex work settings, which take place in establishments such as brothels or bars, massage parlours, etc. The primary strategy is to create an environment that supports condom use 100% of the time among FSWs and their clients. This is done by engaging owners of the establishment where sex work is solicited to actively support condom use at the site. The programme also works with local authorities to pass and enforce local ordinances that make condoms available on the premises, and enable FSWs to access services such as STI clinics. These structural approaches mitigate the challenges individual FSWs may face in negotiating condom use with clients, including the pressure from owners/managers to have sex with clients without condoms to earn more money.

Clinical services, including STI management and HTC, are often components of the package of services for FSW interventions, including for 100% CUP. Most of these clinical services are provided through public sector clinics. In some countries, FSWs or women who work in entertainment establishments must get screened regularly for STIs. While compulsory screening is not a recommended approach by regional and global technical agencies, encouraging FSWs to go for regular STI screening can be useful for controlling STIs and reducing the probability of transmission of HIV, as well as serve as an important interface between the health sector and outreach services provided by NGOs.

Several countries incorporate advocacy with the local police as part of both 100% CUP and other outreach-based prevention interventions. In Mongolia, the partnership developed with the police as part of the 100% CUP is credited with reductions in police harassment. The programme has also been able to minimize the engagement of FSWs in other illegal activities that may warrant arrest. Between 2002 and 2004, no FSW was charged with such a crime in the 100% CUP area.⁸¹

Outreach by peer educators is an important strategy for providing behaviour change messages, facilitating access to HTC, HIV and STI services, and distributing free condoms to FSWs who work in street settings or do not work in the types of establishments that can be regulated through local ordinances.

In addition to free distribution of condoms, many countries also undertake large-scale social marketing of condoms. However, because these projects are often combined with

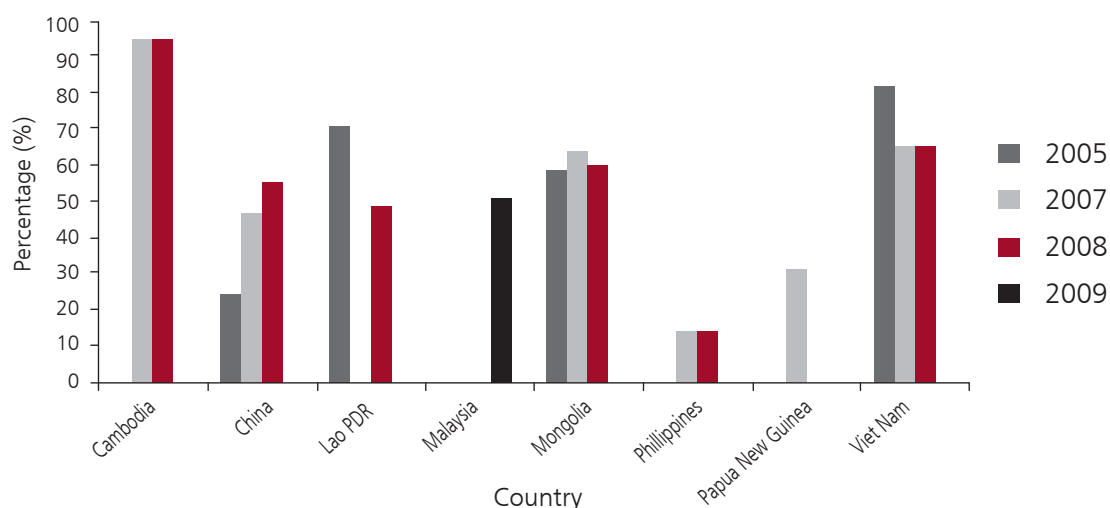


campaigns to promote condom use for family planning purposes, it is not easy to interpret the volume of data on condom social marketing as a measure of coverage for commercial sex acts. Socially marketed condom sale volumes can dwarf that of free condom distribution. In Viet Nam, the volume of socially marketed condom sales is 40 times the volume of free condom distribution.^a However, there is a very limited HIV response focusing on male and TG sex workers. Future programmes should address these concerns.

3.3.2 PROGRAMME COVERAGE

Results from behavioural surveys of FSWs suggest that the proportion of respondents who have been reached by prevention programmes is highest in Cambodia, followed by Viet Nam, China, Mongolia, Lao People's Democratic Republic and Malaysia (Figure 3.3).

Figure 3.3. Percentage of FSWs reached with HIV prevention programmes in the past 12 months, WPR countries, 2005–2009



Sources: WHO, *Universal access reporting*, 2007–2010 Lao PDR: Lao People's Democratic Republic

There appears to be some inconsistency between reported levels of condom use and the level of programme coverage reported by the same respondents. For example, Papua New Guinea, China and Mongolia have more than 90% self-reported condom use, but only low-to-moderate numbers of FSWs reached by interventions. Similarly, in Lao People's Democratic Republic, reported condom use had increased slightly from 2005 to 2007, as coverage had dropped from 70% to below 50%. These apparent inconsistencies may be due to several factors, including social desirability bias, which may lead to overreporting of condom use among survey respondents.

Despite the scale-up of HTC services, generally a much smaller percentage of FSWs report having been reached by the intervention. The exception is Mongolia, where approximately 60% of FSWs reported being reached by interventions, and slightly more than 50% of respondents in the same survey reported having had an HIV test in the past 12 months. In

^a DFID. Harm reduction programme evaluation in Vietnam. 2009 (unpublished data)



the Philippines, a higher percentage of FSWs reported having received an HIV test than having been reached by the intervention (Table 3.6).

Table 3.6. Coverage of clinical and outreach services for female sex workers

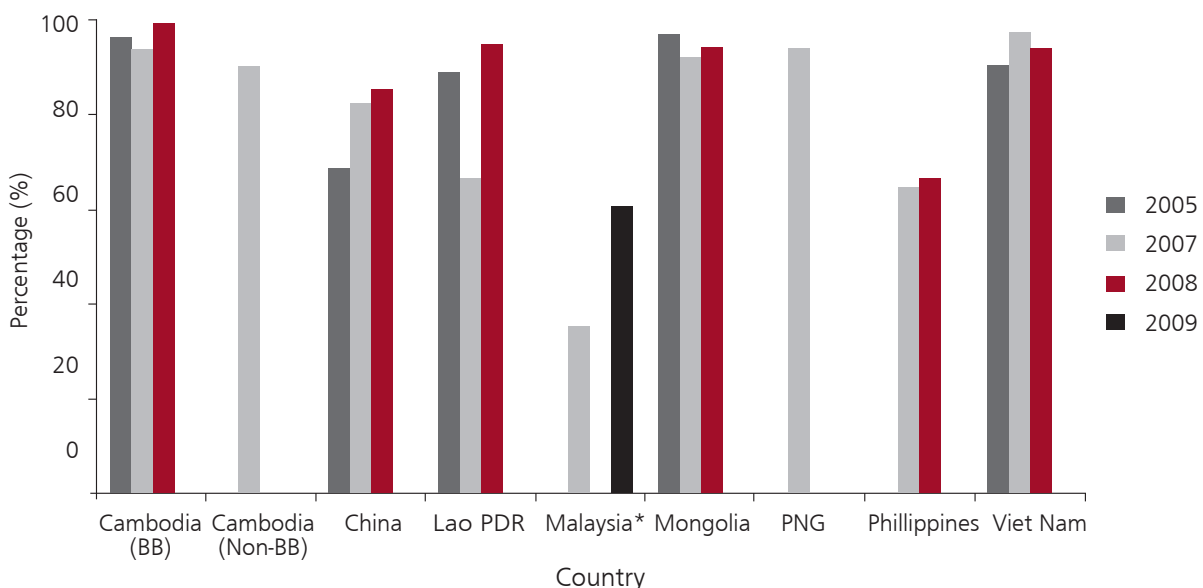
Country	# STI service delivery points for SWs per 1000 FSWs, 2009*	% Reached with HIV prevention programme (2009)
Cambodia	1.7	NA
China	NA	74
Fiji	NA	NA
Lao PDR	16.23	70 (2008)
Malaysia	0.32	12
Mongolia	0.43	74
Papua New Guinea	NA	32
Philippines	0.33	55
Viet Nam	14.6	47 (2010)

Sources: WHO, *Universal access reporting*, 2010–2011; *Sample included male and female sex workers. * Survey data from 2009 unless otherwise noted. Lao PDR: Lao People's Democratic Republic

3.3.3 KEY BEHAVIOURAL OUTCOMES

Among SW interventions, self-reported levels of condom use are the primary measure of behavioural outcomes for FSWs and clients. In a majority of countries where surveys of FSWs have been conducted, the most recent survey shows more than 80% condom use at last sex with a client, with the exception of Malaysia and the Philippines (Figure 3.4). Despite not meeting this level, condom use appears to have doubled from the 2007 survey to the 2009 survey in Malaysia.

Figure 3.4. Trends in condom use at last sex with clients among female sex workers, 2005–2009



Sources: WHO, *Universal access reporting*, 2007–2010 BB: brothel based Lao PDR: Lao People's Democratic Republic

The global effort to increase access to ART was launched in 2003 through WHO's "3 by 5" Initiative, which sought to have more than 3 million people in low- and middle-income countries on ART by 2005.⁸² Since then, and with the commitment made by the international community in 2006 to provide universal access to prevention, treatment, care and support by 2010,⁸³ countries have continued to make important progress with greater political commitment by national leaders and support from international development partners, including the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and PEPFAR. Globally, a historical 6.65 million people were receiving ART at the end of 2010.¹⁰ In WPR, the number of PLHIV on ART reached 203 000 at the same time.¹⁰

Achieving universal access to ART is particularly challenging in a context with low-level and concentrated HIV epidemics, where patient populations are dispersed through vast geographical areas, and challenges are posed by stigma, discrimination and punitive laws associated with key populations. Countries in WPR require policies and strategies for providing treatment efficiently, while keeping the resource allocation for HIV/AIDS in balance with other pressing public health issues and the capacity of the health system.

4.1 SCALE-UP OF ART

In WPR, there has been a more than tenfold increase in the number of PLHIV on ART, from 17 000 patients on ART in 2004 to 203 000 at the end of 2010.¹⁰ However, the current level of ART coverage in the Region remains at 43% of the estimated number of adults and children who are in need of ART, according to the 2010 treatment guidelines,¹² which is lower than the global average of 47% ART coverage (Table 4.1).¹¹

Using the 2010 revision of the WHO treatment guidelines,¹² which stipulate that persons with a CD4 count of <350 cells/ mm³ are eligible for ART, only Cambodia, among the high-priority countries, has reached its coverage targets for universal access to treatment. In particular, China and Malaysia have covered only about one third of the people estimated to be in need of ART based on the 2010 guidelines. On a positive note, in general, among the high-priority countries, women appear to be receiving ART in proportion to their estimated need (Table 4.2). The exception is Malaysia, where women are much more likely to receive treatment than their male counterparts.



Table 4.1. Number of adults and children on ART in WPR countries, 2004–2010

Country	2004	2006	2007	2008	2009	2010
Cambodia	45 27	20 131	27 000	31 999	37 315	42 799
China	8 219	31 140	35 000	48 254	65 481	86 122
Fiji	–	–	<100	39	52	58
Lao PDR	104	479	700	1 009	1 345	1 690
Malaysia	2 700	4 999	6 800	8 197	9 962	13 918
Mongolia		2	<100	5	9	28
Papua New Guinea	60, <200	1 098	2300	5 195	6 751	7 555
Philippines	71, <200	170	<500	532	750	1 274
Viet Nam	300, <500	8 310	17 000	27 059	37 995	49 492
WPR	17 000	61 130	89 000	122 000	160 000	203 000

Sources: WPRO, compiled from *Universal access reports*, 2007–2011. Data before 2007 are estimates.

Table 4.2. Adults and children receiving and needing antiretroviral therapy and coverage, 2010

Country	Estimated % of PLHIV who are female (2009) (%)	% of ART patients who are female (%)	Estimated no. of people needing ART based on 2010 WHO guidelines	Estimated ART coverage based on 2010 WHO guidelines, 2010 (%) [range]
Cambodia	62	52	46 000	92 [68–95]
China	32	39	270 000	32 [26–37]
Fiji	–	53	<200	33 [24–43]
Lao PDR	–	48	3 300	51 [33–73]
Malaysia	11	35	38 000	36 [27–44]
Mongolia		18	<200	26 [19–39]
Papua New Guinea	58	53	14 000	54 [43–65]
Philippines	–	19	2 500	51 [38–83]
Viet Nam	30	31	96 000	52 [43–61]
WPR			470 000	43 [39–51]

Source: WHO, *Universal access reporting*, 2011. Lao PDR: Lao People's Democratic Republic

In 2010, there were approximately 9700 children below the age of 15 years on ART in the Region. This represents approximately 42% of the estimated number of children who are eligible for treatment, and is significantly higher than the global average coverage of 23%.¹² Among high-priority countries, coverage in Cambodia and Viet Nam appears relatively high, while the other countries continue to face significant gaps (Table 4.3).

**Table 4.3. Children receiving and needing antiretroviral therapy and coverage, 2010**

Country	Reported no. of children receiving ART, 2010	Estimated no. of children needing ART based on UNAIDS/WHO methods, 2010 [range]	Estimated ART coverage among children, 2010 (%) [range]
Cambodia	4102	... [4400–8500]	... [48–93]
China	1849	... [6300–12000]	... [15–29]
Fiji	1	... [<100–<100]	... [5–10]
Lao PDR	117	... [<500–<1000]	... [18–50]
Malaysia	536	... [1000–1900]	... [28–52]
Mongolia	0	... [<100–<100]	0
Papua New Guinea	426	2600 [2000–3400]	16 [12–21]
Philippines	18	... [<200–<500]	... [7–15]
Viet Nam	2668	... [3400–5000]	... [53–78]
WPR	9700	23 400 [20 000–27 000]	42 [36–49]

Source: WHO, *Universal access reporting*, 2011 Lao PDR: Lao People's Democratic Republic

Measures of coverage for paediatric cases have greater uncertainty ranges than those for adults, due to limitations in the data available for epidemic models used to project these figures. As new data on survival and transmission patterns are incorporated into the models, these estimates will become more robust. Nonetheless, increasing levels of paediatric coverage represent significant efforts to overcome the complexity of diagnosing, dosing and monitoring, as well as the substantial increase in the costs of paediatric ART.

4.2 UPDATES OF TREATMENT GUIDELINES IN COUNTRIES

As part of maintaining service quality, national programmes must regularly update treatment guidelines to reflect international best practices, such as those recommended in the WHO ART guidelines 2010,¹² in accordance with the national context and resource availability. Changes in national guidelines have serious implications for policy, adjusting to budgets, and planning to phase in new approaches for service delivery. Table 4.4 shows the last year when the national ART guidelines were updated in WPR countries. Most countries have updated their national ART guidelines between 2008 and 2010, with the exception of Fiji, whose ART guidelines were updated in 2004.

Critical shifts in patient management guidelines have occurred over the past 10 years. One of the most notable recent changes has been to raise the eligibility for ART based on CD4 count from 200 to 350 cells/mm³. This increases the number of patients eligible for ART by 30%–60% in many high-priority countries of the Region. At present, countries such as Cambodia, China, Malaysia, Philippines and Viet Nam have adopted the 350 cells/mm³ threshold as part of national treatment policy.



Even as countries begin to adopt the 350 cells/mm³ threshold as part of their national guidelines, a critical constraint in providing a larger proportion of eligible PLHIV with ART is to increase the proportion of PLHIV who know their status, and diagnose these patients at an earlier stage of disease. At present, patients are often diagnosed with HIV only after they become symptomatic, often with CD4 counts well below 200 cells/mm³. For example, in Viet Nam, more than 85% of patients on ART had a CD4 count below 200 cells/mm³ at the time of initiating ART (Figure 4.1). (See Annex 2 on counselling and testing for more discussion on progress towards universal access in this area.)

Another important recommendation in the 2010 WHO ART guidelines was to substitute first-line regimens containing stavudine (d4T) to less toxic regimens containing zidovudine (AZT) or tenofovir disoproxil fumarate (TDF) to avoid long-term toxicity of this drug. However, implementation of this recommendation would have cost implications for countries. For example, using AZT- or TDF-containing regimens might cost twice as much as a d4T-based regimen (Figure 4.2).⁸⁴ Countries in the Region plan to phase in these changes over time, to avoid wastage of existing stock, plan appropriate transitions and make the financial adjustments necessary to cover increased costs.

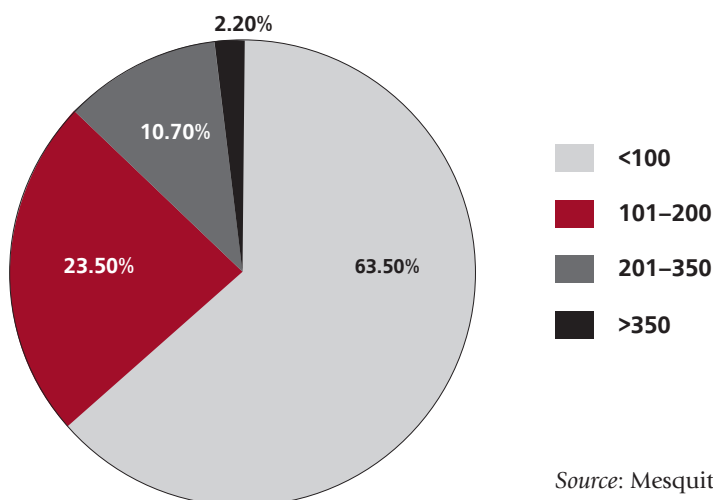
Table 4.4. The last year when national ART guidelines were updated in WPR countries, as of March 2011

Country	The last year national ART guideline updated
Cambodia	2010
China	2010
Fiji	2004
Kiribati	2009
Lao PDR	2010
Malaysia	2008
Mongolia	2009
Papua New Guinea	2009
Philippines	2009
Samoa	2009
Solomon Islands	2008
Tonga	2010
Viet Nam	2009

Source: WHO, *Universal access reporting*, 2011

Lao PDR: Lao People's Democratic Republic

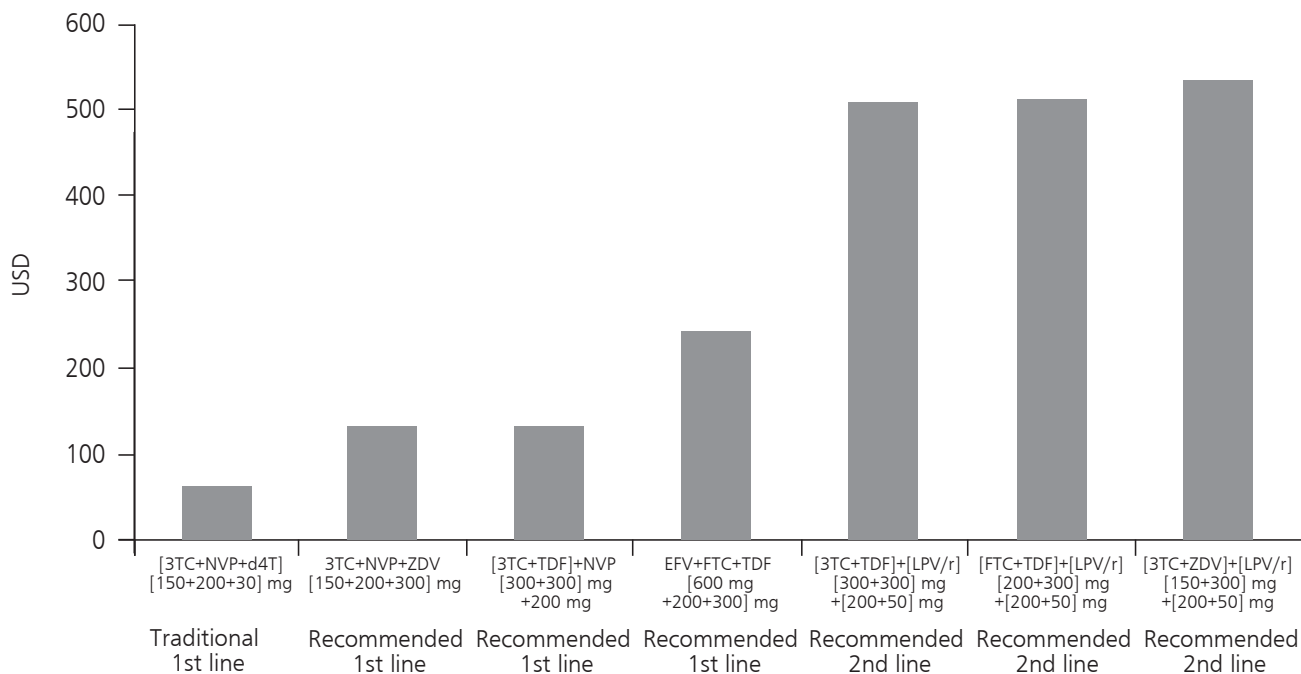
Figure 4.1. Baseline CD4 count at ART initiation, Viet Nam, 2009 (N=1553 adults)



Source: Mesquita F, Kato M. Treatment 2.0 and eMTCT in Viet Nam. WPRO HIV Strategic Planning Meeting. Manila, 7 July 2011.



Figure 4.2. Comparison of costs of recommended ART regimens: median price (per patient year) of most frequently used first- and second-line ART regimens in lower–middle-income countries, 2010



Source: WHO, Global price reporting mechanism, 2011

A recent review of treatment guidelines in the Region shows how national programmes have kept up with international standards and WHO recommendations (Table 4.5).⁸⁵

Table 4.5. Current status of national ART guidelines in WPR countries, 2010

Country	Criteria for ART initiation	First-line regimen*	Criteria for diagnosing failure of first-line regimen	Preferred second-line regimen
Cambodia	CD4 count <350 cells/mm ³	d4T + 3TC + NVP	Clinical or immunological failure after >6 months; confirmed by RNA testing (>1000 copies/ml)	TDF + 3TC + LPV/r
China	WHO stage 1 + CD4 count 200–350 cells/mm ³ or WHO stage 3 or 4	AZT/d4T + 3TC + NVP	Clinical failure after >3 months or immunological failure after >12 months; confirmed by RNA testing (>10 000 copies/ml)	TDF + 3TC + LPV/r
Malaysia	CD4 count <350 cells/mm ³ or WHO stage 4	AZT/d4T + 3TC + NVP/EFV	Clinical, immunological or virological criteria	Depends on first-line regimen, but if first line is: 2 NRTIs + NNRTI → 2 new NRTIs + IDV/r

(continued on page 75)



Table 4.5. Current status of national ART guidelines in WPR countries, 2010 (continued from page 74)

Country	Criteria for ART initiation	First-line regimen*	Criteria for diagnosing failure of first-line regimen	Preferred second-line regimen
Papua New Guinea	WHO stage 1 or 2 + CD4 count <350 cells/mm ³ WHO stage 3 or 4	AZT/d4T + 3TC + NVP	Clinical or immunological failure after >6 months; no further testing	ddl + ABC + LPV/r or SQV/r TDF + ABC+ LPV/r or SQV/r
Viet Nam	CD4 count ≤350 cells/mm ³ or Clinical stage 3 or 4	Preferred: TDF+3TC+EFV/ NVP Alternative: AZT+3TC+EFV/ NVP	Clinical or immunological failure after >6 months; confirmed by RNA testing (>5000 copies/ml)	TDF + ddl + LPV/r or SQV/r ABC + ddl + LPV/r or SQV/r

Source: Srikantiah et al. 2010, unless otherwise noted * WPRO, Review of ART in WPRO, 2010 (unpublished)

d4T stavudine, 3TC lamivudine, NVP nevirapine, LPV/r lopinavir/ritonavir, AZT/ZDV zidovudine, EFV efavirenz, IDV indinavir, ddl didanosine, ABC abacavir, SQV saquinavir, TDF tenofovir disoproxil fumarate, NRTI nucleoside reverse transcriptase inhibitor, NNRTI non-nucleoside reverse transcriptase inhibitor

BOX 4.1. IMPLEMENTING CHANGES IN ANTIRETROVIRAL TREATMENT GUIDELINES: AN EXAMPLE FROM CHINA'S ART PROGRAMME

Full implementation of changes in national treatment guidelines has often been a challenging process. For example, the 2003 WHO treatment guidelines accompanying the “3 by 5” treatment scale-up campaign⁸² recommended the use of fixed-dose combination pills and the adoption of a five-drug formulary, i.e. (d4T or ZDV) + 3TC + (NVP or EFV), which would give countries four options for appropriate first-line regimens that are relatively low cost and accessible. The 2003 guidelines also recommended discontinuation of regimens combining d4T and ddl due to proven toxicity, and discouraged the use of d4T and ZDV due to demonstrated antagonism between the two drugs.

As China began to scale up its ART programme in 2002, only four domestically manufactured generic drugs were available in the country. However, the available reverse transcriptase inhibitor was ddl, which is known to cause high toxicity among patients when prescribed with d4T. Even in 2010, 80% of patients continue on first-line regimens of d4T + ddl + NVP. Since 2005, 3TC has been available as an alternative to ddl, but because it is a branded imported drug, it has been cost-prohibitive for the government to include in the first-line regimen at scale. However, given the known poor outcomes among patients and additional costs to health-care workers in managing patient toxicity, the 2010 treatment guidelines in China have now adopted AZT/d4T + 3TC + NVP as the official first-line regimen.

4.3 PATIENT OUTCOMES AND SERVICE QUALITY

In addition to monitoring ART coverage, programmes must track patient outcomes and service quality. Patient retention at 12 months after enrolment in ART was more than 80% in the five high-priority countries in 2010. Longer-term retention, i.e. at 24 months and 60 months, also appears to be good in the five high-priority countries (Table 4.6).

Table 4.6. Retention on ART at 12, 24 and 60 months among patients in WPR countries, 2010

Country	% on ART at 12 months (%)	% on ART at 24 months (%)	% alive and on ART at 60 months (%)	% of ART patients on second-line regimens (%)
Cambodia	86	84	78	4.0
China	87	80	70	8.4
Fiji (N=58)	98	77	76	2.5
Lao PDR (N=1690)	79	74	39	1.1
Malaysia	83	74	69	5.5
Mongolia (N=28)	75	100	100	3.6
Papua New Guinea	90	53	62	0.2
Philippines (N=1274)	99	98	99	5.8
Viet Nam	83	76	NA	3.5
WPR (median)	86	77	73	4

Source: WHO, *Universal access reporting*, 2011 Lao PDR: Lao People's Democratic Republic

Another measure of the capacity of health facilities to support patients on ART is whether the facility experiences any stock-out. According to the 2010 UNGASS country reports, this has not been a problem reported in most countries, with the exception of Cambodia (8% of ART facilities reported a stock-out incident) and Fiji (17% of ART facilities reported stock-outs). In Fiji, the number of patients on ART is relatively small, but in high-priority countries, such stock-outs may affect a large number of patients.

Monitoring the quality of ART has been introduced in several countries of the Region. Cambodia has initiated a simplified continuous quality improvement (CQI) mechanism for continuum of care (CoC) for HIV treatment and care based on the "PDCA" approach of "plan, do, check and act". With this approach, the national programme can monitor outcome indicators regularly and the root causes of the problem (low achievement of the outcome indicators) are identified and acted upon. This approach is less labour intensive. Similar efforts at quality monitoring are being initiated in Papua New Guinea and Viet Nam.



4.4 STRATEGIES FOR INCREASING ACCESS TO ART

In WPR, the diversity in epidemic burden, economic status and strength of the public sector health systems have led countries to adopt different approaches for responding to treatment needs over the past decade. Determining where and how to build public sector capacity to manage patients on ART is a continuing challenge in countries with low-level and concentrated epidemics. To monitor patients effectively and ensure adherence to drug regimens, treatment services should be provided at facilities that are convenient for patients to come to regularly for drug refills and periodic monitoring visits. However, in many local areas, especially in low-prevalence settings, the number of patients eligible for ART may be relatively small; thus, it may not be cost efficient to offer ART services at all health facilities (Table 4.7).

Table 4.7. Access to facilities providing ART in WPR countries

Country	Estimated no. needing ART based on 2010 WHO guidelines	# of health facilities	N (%) of facilities providing ART
Cambodia	46 000	1207	51 (4.2%)
China	270 000	26 847	2804 (10.4%)
Fiji	<200	608	6 (0.9%)
Lao PDR	3300	1594	8 (0.5%)
Malaysia	38 000	7552	1245 (16.5%)
Mongolia	<200	770	3 (0.4%)
Papua New Guinea	14 000	738	76 (10.3%)
Philippines	2500	114	19 (16.6%)
Viet Nam	96 000	13 562	315 (2.3%)

Source: WHO, *Universal access reporting*, 2010 Lao PDR: Lao People's Democratic Republic

The estimated number of patients eligible for ART compared to the number of facilities providing ART varies greatly from country to country. The ratio of patients eligible for ART compared to the number of ART facilities is 170 in Papua New Guinea. In Viet Nam, the ratio is 350:1, and nearly 800:1 in Cambodia. These large differences are partially explained by the strength of the underlying health system as well as the severity of the epidemic. In the case of Cambodia, a relatively small number of ART facilities provide care to large numbers of people, and reflect the national programme's decision to develop alternative community-based approaches for administering ART, and a facility network approach for linking health facilities with different levels of capacity.

While most countries rely heavily on public sector facilities to administer ART, Papua New Guinea employs a large number of non-public sector facilities, as does the Philippines. The wide use of private sector facilities for ART service delivery in Papua New Guinea is the



result of partnerships with several large companies, which run hospitals for thousands of their employees. These well-equipped facilities are able to manage patients on ART, for whom medications are funded by the government and international development partners such as the Asian Development Bank. This approach takes advantage of the available health infrastructure in the country and has been able to extend care to many patients living in more remote areas.

BOX 4.2. UTILIZING A COMMUNITY-BASED SERVICE DELIVERY MODEL FOR SCALING UP ART COVERAGE IN CAMBODIA

Since 2003, Cambodia has utilized a community-based model for scaling up ART coverage, designed to relieve the burden on the already weak public health-care infrastructure. This system, called the continuum of prevention and care (CoPC), establishes community linkages so that patients who are diagnosed with HIV are linked to early care and treatment at district-level hospitals. As patients initiate and are stabilized on ART, they can be transferred back to home-based care teams to be managed on an ongoing basis in their community. Similarly, patients who develop complications while on ART are referred back to nearby hospitals to be seen by higher-level medical professionals for appropriate care and treatment. The strong linkages allow the transfer of patients between health facilities and the community. Cambodia has used a similar linking-of-facilities approach to expand the use of laboratory infrastructure, allowing wider coverage of the population in need.

4.5 IMPLEMENTING TREATMENT 2.0

With the launch of the Treatment 2.0 initiative by WHO and the UNAIDS Secretariat in 2010,⁸⁶ a number of countries have since developed plans and strategies translating these concepts into actions appropriate for low- and concentrated epidemic settings. There are five pillars of Treatment 2.0:

1. Optimizing drug regimens
2. Promoting point-of-care diagnostics or other simplified technologies
3. Reducing costs
4. Adapting service delivery options to increase access, and
5. Mobilizing communities.

In July 2011, country teams met to discuss national plans for implementing Treatment 2.0. At this meeting, Viet Nam announced its plan to pilot Treatment 2.0 in two provinces in 2011–12. It aims to maximize the survival and preventive benefits of ART through adaptation of the five pillars. This includes decentralizing and integrating ART with primary health-care centres and with other services (e.g. MMT), introducing point-of-care HIV diagnostics and CD4 count monitoring, strengthening community engagement and building treatment literacy among PLHIV.



Cambodia will continue to maintain its high levels of ART coverage, with its integrated community-linked approach. Other countries, including China, have identified increased case-finding through scaled-up testing and counselling, and mechanisms for reducing the cost of newly recommended regimens as keys to success.

4.6 TB/HIV SERVICES

In WPR, there are an estimated 35 000 PLHIV with active TB disease.⁷ The percentage of newly screened TB patients who are HIV-positive is only 4.8% compared to 9.5% in the WHO South-East Asia Region and 23% globally.⁷ Nonetheless, the risk of developing TB disease is higher among PLHIV vis-à-vis the general population, as well as the risk of death from all causes for TB/HIV co-infected patients.⁷

Reducing the burden of co-infection with TB and HIV begins with the *Three I's*: intensive case-finding (ICF) by screening newly diagnosed HIV patients for TB; provision of isoniazid preventive therapy (IPT), and infection control (IC).⁸⁷ In particular, IPT can reduce the development of active TB disease among PLHIV who have a positive tuberculin skin test, and have been screened but found not to have active TB disease. Early ART is another important strategy for reducing TB/HIV co-infection. By starting ART early there is a substantial reduction in TB incidence and mortality.

A revised framework to address TB/HIV coinfection in WPR has been developed to scale up TB/HIV collaborative activities.⁸⁸ A key change in the framework approach is to integrate and bring TB/HIV services closer to patients, rather than to rely heavily on referrals of patients from TB centres to health facilities providing HIV services and vice versa.

Current national TB/HIV guidelines and policies have also shifted toward greater integration. Screening PLHIV for TB is the standard of care in all WPR countries, as well as instituting infection control policies for TB in facilities serving PLHIV. Many countries in the Region, but not all, have guidelines in place for IPT or have fully implemented such services as part of standard HIV care (Table 4.8).

In general, performance of coverage indicators for TB/HIV programming in WPR falls slightly below global averages and those of the South-East Asia Region. For example, screening for TB among PLHIV remains below 10% in China, Lao People's Democratic Republic and Papua New Guinea. Moreover, the percentage of PLHIV with active TB disease in the Region on co-trimoxazole prophylaxis therapy (CPT) is 62% compared to 77% globally. Provision of CPT has improved significantly in Cambodia, from 30% in 2009 to 65% in 2010. The lowest levels of coverage with CPT are in Malaysia (22%), although this also represents a doubling in coverage from 2009 (Table 4.9). Enrolment of TB patients who are found to be HIV-positive on ART is fairly low globally, only 46% of such patients are on ART, and is even lower among WPR countries (41%).⁷



Table 4.8. Status of TB/HIV policies and guidelines in WPR countries, 2010

Country	Screen PLHIV for TB	Guidelines on IPT for PLHIV	Include IPT as part of HIV care	Infection control policy for TB
Cambodia	Y	Y	Y	Y
China	Y	N	–	Y
Fiji	Y	N	N	Y
Kiribati	Y	Y	Y	Y
Lao PDR	Y	Y	Y	Y
Malaysia	Y	Y	Y	Y
Mongolia	Y	Y	Y	Y
Papua New Guinea	Y	Y	Y	Y
Philippines	Y	Y	Y	Y
Samoa	Y	N	Y	Y
Solomon Islands	Y	N	N	Y
Tonga	Y	Y	Y	Y
Viet Nam	Y	Y	N	Y

Note: Y yes; N no

Source: WHO, *Universal access reporting*, 2011

Table 4.9. Coverage of TB/HIV services, 2010

Country	% of tested TB patients who are HIV-positive (%)	% known HIV-positive TB patients on co-trimoxazole prophylaxis (%)	% identified HIV-positive TB patients on ART (%)	# of HIV-positive people provided with isoniazid preventive therapy
Cambodia	7	65	45	491
China	3	NA (87% in 2009)	45	–
Lao PDR	12	83	NA	–
Malaysia	9	22	22	–
Papua New Guinea	12	NA	NA	135
Viet Nam	8	62	43	1317
WPR (weighted averages)	4.8	55	41	2000
SEAR (weighted averages)	9.5	87	57	600
Global	23	77	46	180 000

Source: WHO, *Global TB report*, 2011

Lao PDR: Lao People's Democratic Republic



The provision of IPT as a standard of care among HIV-positive patients without active TB, however, is still limited in most countries. The greatest experience with IPT in the Region comes from Viet Nam, although Cambodia and Papua New Guinea have also begun to pilot provision of IPT. Several low-prevalence countries also include IPT as part of HIV care. These countries are Kiribati, the Philippines and Mongolia.

Although global evidence suggests that IPT is effective in improving patient outcomes, barriers for countries to adopt these guidelines remain. For example, the feasibility of tuberculin skin testing to screen patients and accessibility of isoniazid may be poor. Isoniazid may be tightly controlled by the national TB programme to prevent drug resistance. These barriers have led to some misconceptions around IPT, including fear of contributing to drug resistance that could affect the larger population of TB patients who are not co-infected with HIV. To address these concerns, the WHO 2010 ICF/IPT guidelines provide recommendations for using a simple four-symptom algorithm to rule out active TB and safely start IPT.⁸⁹

4.7 SURVEILLANCE FOR DRUG RESISTANCE

The rapid scale-up of ART in WPR, as in other parts of the world, has been possible because of the use of a public health approach following standardized treatment protocols, with decentralized service delivery enabling treatment to be delivered to large numbers of infected individuals. As ART is scaled up, some degree of HIV drug resistance (HIVDR) is inevitable. Therefore, global ART scale-up should be accompanied by robust programmatic assessment informed by routine surveillance for acquired and transmitted HIVDR. WHO has developed a global strategy for the prevention and assessment of HIVDR, including methods to estimate transmitted and acquired HIVDR for public health planning purposes.^{90,91} In WPR countries, Cambodia, China, Papua New Guinea and Viet Nam are implementing one or more elements of the WHO strategy for prevention and assessment of HIVDR.

HIVDR early warning indicators (EWIs), including monitoring ART-prescribing practices, patient retention on first-line regimens and loss to follow up, drug supply continuity and viral suppression, have been collected annually in Cambodia and Viet Nam since 2008. In Cambodia, 48 out of the 51 ART sites were surveyed in 2011. In Viet Nam, EWIs were collected from a total of 62 sites (56 adult and 6 paediatric ART sites) in 2011. China and Papua New Guinea have piloted EWI collection, and prepared to expand the number of sites. The results from EWI analysis have been used to assess the functioning of sites towards preventing the emergence of HIVDR, and to build routine programme monitoring systems for service quality improvement.

Relatively high levels of continuation on first-line regimens, survival and retention on ART at one, two and three years after treatment initiation have been reported in the Region



(see Table 4.6 for more data). Available data also show low levels of reported stock-outs at ART facilities in the high-priority countries (i.e. Cambodia, China, Malaysia, Papua New Guinea and Viet Nam) in WPR.

One or more rounds of surveys to monitor HIVDR emergence during ART have been conducted in sentinel ART sites in Cambodia, China and Viet Nam. In China, rounds of HIVDR monitoring surveys have been conducted since 2003, using a variety of methodologies. Currently, employing the WHO methodology, prospective cohorts are being followed up in 40 ART sites in 10 provinces. Patient and site information collection and specimen testing are under way in two ART sites in Cambodia and four sites in Viet Nam. Surveys to assess the prevalence of transmitted resistance have also been conducted in Cambodia, China and Viet Nam using the WHO threshold survey protocol.

A recent review assessed the results of HIVDR-related studies conducted in WPR; more specifically, in Cambodia, China, Malaysia and Viet Nam.⁹² Three types of assessments were included in the review: those that measured the level of transmitted drug resistance (TDR) in people with recent HIV infection; those that measured HIVDR among ART-naïve individuals with long-standing infection, and those that quantified HIVDR among individuals on ART.

Current evidence suggests that rates of TDR in WPR remain low (<5%), attesting to the success of ART and HIV prevention programmes. However, ongoing vigilance is required. On the other hand, HIVDR among patients on ART varied considerably by geographical area and patient population. Studies in Henan province, China, where there is an epidemic predominantly of former plasma donors, suggest that high levels of acquired HIVDR, ranging from 36% to 63%, are present in several patient populations even after only six months. Findings from similar acquired HIVDR studies in other provinces of China suggest substantially lower levels of HIVDR. It is imperative that ART programmes in WPR countries implement simple, routine, sustainable, representative standardized surveillance for programmatic success in achieving viral load suppression in order to identify programmatic factors needing adjustment to minimize the emergence of HIVDR.

PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV AND PAEDIATRIC CARE

ANNEX 5

In 2010, there were approximately 14 600 pregnant women infected with HIV in need of ARV prophylaxis, and 23 400 HIV-infected children in need of ART in WPR.¹¹ In order to accelerate the scale-up of services for PMTCT of HIV and congenital syphilis, a dual elimination initiative was launched in August 2011.¹⁴ This initiative is underpinned by the Asia Pacific Conceptual Framework and monitoring and evaluation guide for the elimination of new paediatric HIV infections and congenital syphilis.⁹³ This framework supports a common systematic approach to dual elimination, and outlines an integrated strategy that HIV, STI, and maternal, newborn and child health (MNCH) programmes in the Region can adapt to develop country-specific operational plans.

The comprehensive approach recommended by the United Nations to reduce MTCT of HIV consists of four prongs:⁹⁴

1. Primary prevention of HIV infection among women of childbearing age;
2. Preventing unintended pregnancies among women living with HIV;
3. Preventing HIV transmission from pregnant women living with HIV to their infants; and
4. Providing appropriate treatment, care and support to mothers living with HIV and their children and families.

This section describes the achievements of and challenges faced by countries in the Region over the past decade in expanding services for PMTCT of HIV, with a particular focus on prongs 3 and 4, within the context of broader efforts to improve the health and well-being of mothers and their children.

5.1 PMTCT SCALE-UP IN THE CONTEXT OF BROADER MATERNAL AND CHILD HEALTH PROGRAMMES

In order to improve coverage and maximize outreach, strategies for PMTCT and paediatric care and treatment must build on and leverage existing national health systems. In particular, PMTCT services in countries with low and concentrated HIV epidemics must be integrated and synergized with other national programmes to improve maternal and child health (MCH) outcomes.

The effectiveness of PMTCT programmes is highly dependent on the coverage and quality of existing ANC programmes, which often provide the foundation for PMTCT services. In many WPR countries, the proportion of women who come at least once for an ANC visit



BOX 5.1. CHILD AND MATERNAL HEALTH-RELATED MILLENNIUM DEVELOPMENT GOALS (TO BE ACHIEVED BY 2015)

A 2010 assessment of progress against the Millennium Development Goals (MDGs) related to MCH in Asia and the Pacific found that relatively little progress has been made in the Region against MDGs 4 and 5.⁹⁵

MILLENNIUM DEVELOPMENT GOAL 4:

- Reduce by two thirds, between 1990 and 2015, the under-five mortality rate.

No country in East Asia, South-East Asia or the Pacific was deemed to be on track for meeting this goal.

MILLENNIUM DEVELOPMENT GOAL 5:

- Reduce by three quarters the maternal mortality ratio.
- Achieve universal access to reproductive health.

Only 20%–30% of countries in East Asia and the Pacific were assessed to be on track for reducing maternal mortality by three quarters by 2015. About 40% of countries in South-East Asia have shown good progress.

Source: UNESCAP/ADB/UNDP, 2010

is above 90% (Table 5.1). However, in some countries, ANC attendance is as low as 35%. These levels of coverage naturally limit the proportion of the estimated number of HIV-positive pregnant women who may benefit from PMTCT services or screening for congenital syphilis. Similarly, the proportion of deliveries attended by skilled health professionals varies considerably by country. These limitations are also reflected in the coverage of HIV-exposed infants receiving their first course of ART prophylaxis after birth.^{96,97}

In recognition that PMTCT services should be integrated into existing reproductive health and MCH services, in April 2011, the Asia–Pacific region launched a combined campaign to eliminate congenital syphilis and expand PMTCT services. This campaign explicitly seeks to reduce the morbidity and mortality associated with paediatric HIV and congenital syphilis as a key approach to the achievement of MDGs 4 and 5.¹⁴ Currently, Lao People's Democratic Republic, the Philippines and Viet Nam are piloting the integration of antenatal HIV and syphilis screening in some geographical sites.

Because of the similar strategies required to prevent new paediatric HIV and congenital syphilis, several countries in the Asia region have begun to consider a combined approach to deliver and implement services for elimination of MTCT of HIV and congenital syphilis.

**Table 5.1. Maternal and child health services in WPR countries, 2009**

Country	ANC coverage among pregnant women 15–49 years (%)	Births attended by skilled health professionals (%)
Cambodia	69	44
China	91	99
Fiji	-	99
Lao People's Democratic Republic	35	30
Malaysia	79	100
Mongolia	99	99
Papua New Guinea	79	39
Philippines	91	62
Viet Nam	91	88
WPR (median)	85	88

Sources: WHO/UNICEF, 2010 and UNICEF, 2009

5.2 SERVICES FOR THE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV

5.2.1 HIV TESTING AND COUNSELLING AMONG PREGNANT WOMEN

High-quality and early HTC are essential to identify pregnant women living with HIV who can benefit from HIV care and from interventions to reduce the risk of transmitting HIV from mother to child. Available data for 2009 and 2010 suggest that high-priority countries such as Cambodia, China, Viet Nam and Malaysia have made good progress towards increasing coverage of HIV testing among pregnant women (Table 5.2).

In China, coverage of HTC among pregnant women more than tripled between 2009 and 2010, from 20% to 64%. PMTCT services were integrated into broader efforts to offer joint syphilis and hepatitis screening for pregnant women and, as of December 2010, were available in 1156 counties covering all provinces, up from one pilot county in Henan province in 2001.

Early testing during pregnancy is essential to ensure that pregnant women living with HIV receive an optimal course of ARV prophylaxis for PMTCT of HIV. Nevertheless, this is often not the case in many countries of the Region. For example, in Viet Nam, 55% of the pregnant women who are diagnosed as HIV-positive through PMTCT services were not diagnosed until they were in labour.⁹⁸

**Table 5.2. Coverage of HIV testing provided to pregnant women in WPR countries in 2009 and 2010**

Country	Estimated # pregnant women (2009)	% coverage of testing*	
		2009 (%)	2010 (%)
Cambodia	366 000	42	74
China	18.7 million	20	64
Fiji	17 000	52	83
Lao People's Democratic Republic	155 000	2	2
Malaysia	552 000	73	77
Mongolia	--	--	>95
Papua New Guinea	209 000	21	24
Philippines	--	4	--
Viet Nam	1.5 million	32	52

Sources: WHO, *Universal access reporting*, 2010 & 2011; *Coverage of testing is calculated using the estimated number of pregnant women in the country.

5.2.2 ANTIRETROVIRAL DRUGS TO PREVENT MOTHER-TO-CHILD TRANSMISSION OF HIV

The 2010 WHO guidelines on the use of ARV drugs for treating pregnant women and preventing HIV infection in infants⁹⁹ are based on two key approaches: (a) lifelong ART for pregnant women who need treatment for their own health, which is also safe and highly effective in reducing MTCT; and (b) new options for ARV prophylaxis to prevent MTCT during pregnancy, delivery and breastfeeding for those who do not require treatment. (Option A combines 14 weeks of AZT antepartum, a dose of NVP at onset of labour, and AZT + 3TC at labour, delivery and 7 days' postpartum. Option B provides a triple ARV regimen for pregnant women for 14 weeks antepartum, continued until one week after all exposure to breast milk has ended.)

Gains in coverage of ART prophylaxis among pregnant women infected with HIV were less certain in the last two rounds of reporting (Table 5.3). (The estimated coverage with ARV prophylaxis among pregnant women living with HIV varies greatly, in part due to the uncertainty in the epidemic models used to estimate the HIV prevalence among general population groups.) A large part of the difficulty in measuring progress relates to the uncertainty of the denominator, i.e. the estimated number of pregnant women with HIV.

Following WHO's guidelines, PMTCT programmes are increasingly adopting policies to initiate ARV prophylaxis and ART for eligible pregnant women for their own health. Available data from the five high-priority countries suggest that single-dose nevirapine is not often used for PMTCT, but it is still prescribed to a considerable proportion of women in Viet Nam and Cambodia. In Papua New Guinea and Cambodia, nearly 50% of pregnant



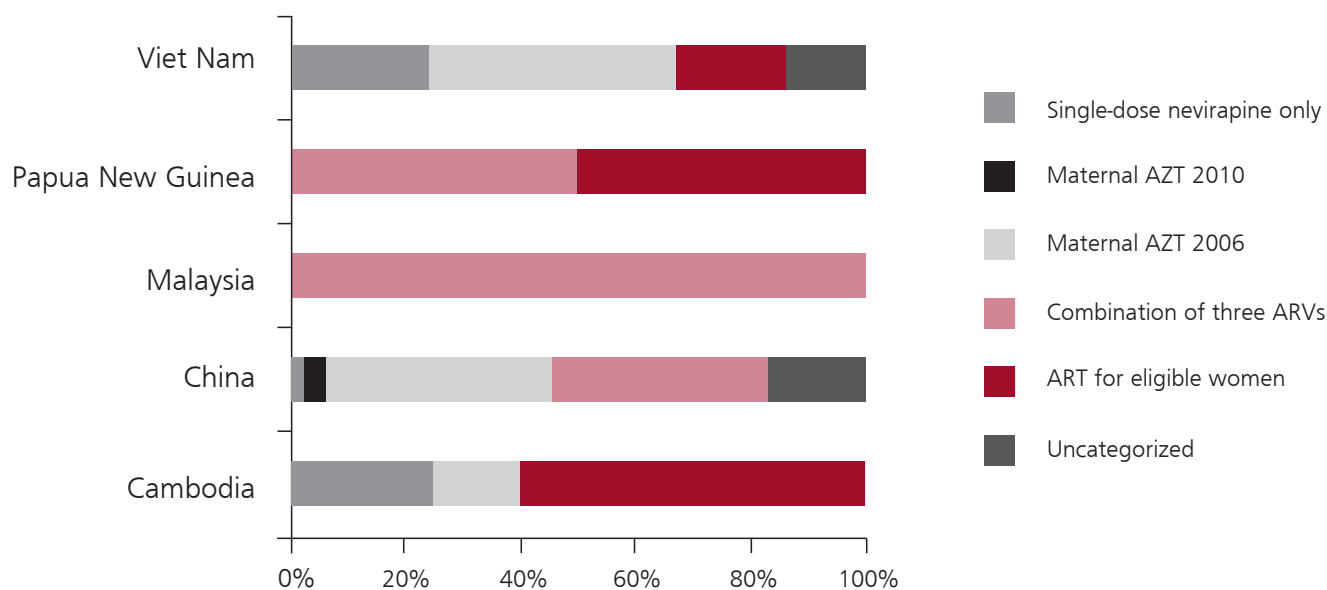
women with HIV are eligible for and receive ART, obviating the need for a prophylaxis dose. The triple ARV combination prophylaxis regimen is widely used in Papua New Guinea and China, and is almost exclusively used for PMTCT in Malaysia (Figure 5.1).

Table 5.3. Coverage of ARV prophylaxis provided to pregnant women infected with HIV in WPR countries in 2009 and 2010

Country	Estimated # pregnant women with HIV	% Maternal ARV (prophylaxis and therapy) coverage* [range]	
		2009 (%)	2010 (%)
Cambodia	1000–3000	[26–>95]	[17–40]
China	2600–11 000	[14–59]	[21–48]
Fiji	<100	[28–>95]	[78–>95]
Lao People's Democratic Republic	200–500	[5–20]	[7–15]
Malaysia	100–1000	[55–>95]	[29–53]
Mongolia	<100	[10–33]	[7–17]
Papua New Guinea	1000–3000	13 [9–27]	16 [13–22]
Philippines	100–500	[1–4]	[3–8]
Viet Nam	1700–4700	[29–79]	[26–46]

Sources: WHO, *Universal access reporting*, 2010 & 2011 *Coverage of ARV prophylaxis is calculated using the estimated number of pregnant women who are infected with HIV as the denominator.

Figure 5.1. Antiretroviral regimens for PMTCT in WPR countries in 2010



Source: WHO, *Universal access reporting*, 2011

5.2.3 ANTIRETROVIRAL PROPHYLAXIS FOR INFANTS BORN TO MOTHERS LIVING WITH HIV

All infants born to mothers living with HIV should receive ARV prophylaxis. This includes not just the short postpartum prophylaxis for 4–6 weeks recommended for all HIV-exposed infants, regardless of the regimen used for PMTCT or breastfeeding, but also extended ART or other ARV drugs for the mother or infant during breastfeeding (Table 5.4). However, because many HIV-exposed infants are lost to follow up after birth, too few end up receiving the prophylaxis that they need to protect them from acquiring HIV infection, or receive an early diagnosis to ensure optimal treatment outcomes.

Table 5.4. Coverage of selected interventions for HIV-exposed infants in WPR countries, 2009–2010

Country	% HIV-exposed infants receiving antiretroviral prophylaxis		% Infants tested by two months [range]	
	2009 (%)	2010 (%)	2009 (%)	2010 (%)
Cambodia	45	[24–55]	--	[19–43]
China	28	[25–57]	--	--
Malaysia	54	[26–49]	54	[26–49]
Papua New Guinea	13	[22–37]	--	--
Viet Nam	48	[34–60]	--	--

Sources: WHO, *Universal access reporting*, 2010 & 2011

Among the five high-priority countries, coverage of ARV prophylaxis for infants ranges from 13% to 54%. In 2010, only Cambodia and Malaysia reported rates of infant diagnosis among the high-priority countries. In both cases, reported levels were below 50%.¹⁰

5.3 CARE AND SUPPORT FOR CHILDREN

Co-trimoxazole prophylaxis therapy (CPT) is highly efficacious, affordable and cost-effective. Co-trimoxazole is a widely available antibiotic that has been shown to significantly reduce morbidity and mortality among infants and children who are living with or exposed to HIV. Among the high-priority countries, coverage with CPT was highest in Viet Nam and Malaysia (Table 5.5).

Table 5.5. Proportion of HIV-exposed infants receiving co-trimoxazole prophylaxis in 2009 and 2010

Country	2009 (%)	2010 (%) [range]
Cambodia	12	[3–7]
China	--	--
Malaysia	54	[26–49]
Papua New Guinea	1	[1–2]
Viet Nam	30	[33–58]

Sources: WHO, *Universal access reporting*, 2010 and 2011



BOX 5.2. INFANT-FEEDING PRACTICES

Although there is some risk of transmission from mother to child through breastfeeding, global and regional PMTCT guidance have encouraged mothers to exclusively breastfeed for the first six months in the absence of reliable sources of good-quality infant formula. Data on exclusive breastfeeding are relatively sparse and must be assessed according to the country context. Exclusive breastfeeding among HIV-positive mothers is uncommon in China and Malaysia due to government policy to finance replacement feeding for HIV-exposed infants, whereas in Papua New Guinea, more than 80% of exposed infants are exclusively breastfed, as measured by those coming for the 3-month vaccination visit.

5.4 MEASURING THE IMPACT OF PMTCT SERVICES

Measures of the coverage of PMTCT services in countries with low-level or concentrated epidemics must be interpreted in light of their particular challenges and needs. For instance, Mongolia, the Philippines, Lao People's Democratic Republic and many Pacific island countries face the particular challenge of deploying limited resources to identify and serve the maximum number of pregnant women living with HIV. Many countries have used strategies that focus PMTCT programmes initially in districts where HIV prevalence is highest, and/or where there is the largest presence of key populations at higher risk (e.g. SWs, MSM, PWID, returning migrants who are likely to be clients of SWs), and attempt to reach a large proportion of women coming to ANC clinics in these areas. For this reason, national levels of PMTCT coverage measured using globally defined indicators may not reflect the strategic approach adopted by some countries and may not be appropriate for evaluating programme performance.

Data on the overall effectiveness of PMTCT and programmes for the elimination of congenital syphilis in the Region are still scarce, making their effectiveness particularly difficult to measure. According to 2009 estimates, while in Malaysia less than 3% of HIV-exposed infants eventually became infected, in Cambodia and China, the corresponding figure was about 25%, and reached 41% in Papua New Guinea.

Coverage statistics can be more informative when broken down by geographical areas where PMTCT programmes are in place. For example, at Mingende Hospital in Papua New Guinea, from October 2003 to October 2008, 5569 (74%) women opted in for HIV testing and 60 tested HIV-positive. Since the initiation of the PMTCT programme, 78 HIV-positive women, some with repeated deliveries, received services at Mingende. Of these women, 19 were lost to follow up or died. Of the 84 deliveries, 14 babies died before the age of one year. However, since 2009, 25 out of 25 babies tested with dried blood spot polymerase chain reaction (DBS-PCR) at 6 weeks or older have been negative. These outcomes suggest that strong improvements in the rate of prevention are possible as teams become more experienced.¹⁰⁰



5.5. PMTCT AS AN ENTRY POINT FOR PREVENTION SERVICES TO REGULAR PARTNERS OF KEY AFFECTED POPULATIONS

In high-prevalence settings, PMTCT services tend to focus on preventing HIV transmission to newborns. In lower-prevalence countries, PMTCT programmes present an important opportunity to prevent primary transmission to pregnant women who may be regular partners of men with higher-risk behaviours through testing and counselling services, particularly through interventions designed to enhance the engagement of the male partner in MCH programmes. In fact, in some WPR countries, the perceived opportunity to prevent transmission between discordant couples through this type of couples' counselling may be as relevant a measure of coverage as the proportion of HIV-exposed infants who become infected.

According to data reported by countries, in Malaysia, 58% of male partners of pregnant women attending ANC clinics knew their HIV status in 2010. In Cambodia, only 11% of male partners knew their status.

BOX 5.3. ENGAGEMENT OF MALES IN ANC SERVICES

In Lao People's Democratic Republic, an effort was launched by the government in 2005 to engage men more actively in MCH services as well as to increase the proportion of pregnant women accessing ANC services, which stood at 28.5%. Increasing male involvement was also perceived as a relevant strategy for strengthening PMTCT, as fathers must typically be supportive of their wives to be tested at ANC. The "Caring Dad" programme combined efforts to make clinic services friendly for men and launched communication campaigns to emphasize the important role of expectant fathers to protect and care for their families. In 2009, the estimated ANC coverage for pregnant women was 35%.

STI prevention and control is an important HIV prevention strategy. It is also an integral component of reproductive health. Thus, STI control programmes provide an important interphase to link HIV and sexual and reproductive health programmes.

Over the past decade, there has been growing concern over the resurgence of bacterial and viral STIs in WPR. In 2008, a *Regional strategic action plan for the prevention and control of sexually transmitted infection 2008–2012* was launched.¹⁰¹ The main goal of the action plan is to reduce STI-related morbidity and mortality. The priority objectives and key result areas of the action plan are to improve STI case management, expand access to STI care, eliminate congenital syphilis, reduce STI transmission and improve data management. The Region's strategic plan addresses STI control at multiple levels, including primary prevention for populations at increased risk of HIV infection, clinical management through STI clinics and presumptive treatment for key affected populations. Many of the strategies used for the primary prevention of STIs, such as the promotion of condom use and behaviour change communication, are synergistic and consistent with broader HIV prevention efforts.

This section reviews the progress made in the Region in expanding STI control services, in particular, for populations at higher risk of HIV infection. It also discusses ongoing efforts to monitor the presence and emergence of drug resistance. Primary prevention interventions are covered in Annex 3.

6.1 STI CASE MANAGEMENT

Over the years, the majority of countries have implemented syndromic management for the diagnosis of STIs in resource-poor settings as an essential component of HIV prevention. Countries such as Cambodia, China, Philippines, Lao People's Democratic Republic, Mongolia, Papua New Guinea and Viet Nam have national STI management guidelines based on syndromic case management. These countries have made big strides in terms of government commitment and policy to align the STI national guidelines with recommended WHO guidelines, and have integrated STI prevention and control into HIV programmes.

Data for congenital syphilis remains scarce due to diagnostic difficulties and the unavailability of laboratories for definitive diagnosis. For example, with the rapid scale-up of screening in China, there has been a dramatic increase in the reported cases of congenital syphilis



from only 0.01 per 100 000 live births in 2000 to 79.12 per 100 000 live births in 2011. However, the accuracy of the diagnosis of congenital syphilis is not known.

Table 6.1. Women attending ANC screened for syphilis in WPR countries, 2008–2010

Country	Syphilis prevalence among pregnant women (2010) (%)	% of ANC attendees screened for syphilis (%)		
		2008	2009	2010
Cambodia	0.3	5.9	9.4	4.4
China	0.4	NA	0.2	NA
Fiji	2.8	100	NA	NA
Malaysia	0.1	94	74	75
Mongolia	2.2	80	NA	NA
Papua New Guinea	7.0	6	3.9	3.9
Philippines	0.2	NA	NA	NA
Viet Nam	NA	NA	0.4	NA

Sources: WHO, *Universal access reporting*, 2009–2011. Data from Lao People's Democratic Republic are not available.

STI data from SGS among asymptomatic, antenatal women in Pacific island countries showed a prevalence of between 10% and 29% for chlamydial infection; 1%–10% for syphilis; and 1%–7.9% for gonorrhoea in the lowest- and highest-prevalence Pacific island countries.

Several issues compound STI control in Pacific island countries, ranging from social, economical, geographical and cultural factors to those of the health sector.

Pacific island countries have developed two strategies since 2003 as a response to HIV prevention and care. The Pacific Regional Strategic Implementation Plan (PRSIP) I: 2004–2008 focused on HIV. However, the results of the SGS identified the need to address HIV as an STI as well as other STIs. The PRSIP II: 2008–2013 strategy jointly addresses STI/HIV, putting more emphasis on STI within the six main thematic areas of prevention, diagnosis, treatment, enabling environment, surveillance and coordination.

Because of the high prevalence of STIs, especially chlamydial infection, several guidelines were developed to address symptomatic and asymptomatic STIs and vertical transmission of HIV/STI.

From 2010, Pacific island countries are gearing up towards further improving STI management. They have decided to adopt an enhanced approach to STI control and prevention, a strategy recommended by the STI Technical Working Group in 2010, with the following strategic components:



1. Strategic health communication/communication for behavioural impact (SHC/COMBI) to integrate STI with HIV prevention and sexual/reproductive health, to increase awareness about STIs and their consequences, and to increase condom acceptance;
2. Provision of quality comprehensive syndromic management for symptomatic STIs;
3. Counselling, testing and treatment for asymptomatic STIs, including proactive screening for chlamydial infection, syphilis and HIV among vulnerable and at-risk populations, including mobile men with money, MSM, SWs and seafarers;
4. Improving partner management and coverage;
5. Provision of epidemiological treatment for chlamydial infection in antenatal couples in high-burden Pacific island countries, as well as increased screening and treatment of antenatal women, youth, STI patients and people with high-risk behaviour in all Pacific island countries;
6. Provision of prophylaxis for neonatal conjunctivitis to newborns;
7. Provision of STI drugs free-of-charge at all levels in the health-care system; and
8. Documentation of the complications of chlamydial infection and neonatal STI, and monitoring STI prevalence in high- and low-risk populations through SGS (2012).

6.2 STI SERVICES FOR POPULATIONS AT HIGHER RISK OF HIV INFECTION

In recognition of the importance of focusing efforts in low and concentrated HIV epidemics on key populations at highest risk, a growing number of countries in the Region monitor the availability of STI clinic services for FSWs. The number of STI clinics per 1000 FSWs rose in all reporting countries between 2008 and 2009. However, available data show great variability in the availability of services by country, from 0.12 STI clinics per 1000 FSWs in Malaysia to 14.6 in Viet Nam and 16.2 in Lao People's Democratic Republic in 2009. The Philippines, Cambodia and Lao People's Democratic Republic provide regular screening of FSWs for STIs based on clinical examinations and limited laboratory diagnostics (Table 6.2).^{10,43} Provision of STI services has also been an important component of the 100%

Table 6.2. Accessibility of STI clinics to FSWs

Country	# of STI clinics for FSWs per 1000 FSWs	
	2008	2009
Cambodia	0.94	1.7
Lao PDR	5.0	16.2
Malaysia	0.06	0.12
Mongolia	0.7	0.43
Philippines	0.32	0.33
Viet Nam	–	14.6

Sources: WHO, *Universal access reporting*, 2009 & 2010

Note: Clinics which offer STI services for sex workers and are accessible to the general public are not accounted for.

Lao PDR: Lao People's Democratic Republic



CUPs. In Cambodia, the HIV and STI prevalence among FSWs showed a clear decline between 1996 and 2006. This is an outcome of a national response that put in place CoPC and treatment, and provision of comprehensive HIV and STI services in the government-run Family Health Clinics. STI services have also been linked to the district prevention and care team of NGO peer educators, which resulted in increased access by FSWs to the Family Health Clinics. Countries such as China and Cambodia are currently putting in place CQI systems to increase access to STI care for key populations at higher risk.

There is a need to provide STIs services for MSM and TG due to the high STI prevalence including of asymptomatic STIs. However, provision of STI behaviour change communication, including health-seeking behaviour and clinical management, is usually based on symptoms. Partner management is often done through community mobilization efforts. Health-care providers usually lack the capacity to manage STIs in MSM and TG. Current clinical guidelines on syndromic management of anorectal infections need further validation. Management is often compromised due to incomplete history-taking and lack of anorectal examination due to poor training and negative attitudes, as well as lack of testing facilities for gonorrhoea and chlamydial infection. The prevalence of STIs varies widely, which has implications for the presumptive treatment of STIs among MSM and TG.

The highest rates of STIs are seen among TG, but there are no data on neovaginal STIs. There is a clear need for more comprehensive services to manage other sexual health issues in MSM and TG.

BOX 6.1. ELIMINATION OF CONGENITAL SYPHILIS

Untreated syphilis in pregnancy leads to adverse outcomes among more than half the women with active disease, including early fetal loss, stillbirth, prematurity, low birth weight, neonatal and infant death, and congenital disease among newborn babies. Similar to HIV, syphilis in pregnancy is usually sexually transmitted, and testing for syphilis early in pregnancy, followed by immediate treatment of those found to be positive, are effective and cost-effective interventions even in low-prevalence settings.¹⁰² Testing pregnant women and their partners for syphilis is also an important measure to support the primary prevention of HIV infection, as active syphilis can increase the risk of transmitting and acquiring HIV.^{103,104}

The seroprevalence rate of syphilis among pregnant women is 0.7% in WPR, resulting in approximately 135 000 cases of congenital syphilis annually. All countries in the Region have committed to the campaign for eliminating congenital syphilis. However, available data indicate that coverage of syphilis screening is generally low in most countries of the Region. Notable exceptions include Malaysia, Mongolia and many Pacific island countries such as Fiji, Kiribati, Samoa and Brunei, which reported almost universal coverage of syphilis screening among ANC attendees in 2010. In contrast, other countries in the Region did not report coverage of syphilis screening (Table 6.1). Moreover, data recording and reporting remains an issue of concern across the Region, so reported figures may underestimate or overestimate actual levels.



BOX 6.1. ELIMINATION OF CONGENITAL SYPHILIS (continued)

The results of syphilis screening also suggest that the risk of congenital syphilis is highly heterogeneous. For example, while prevalence among pregnant women was 5.2% in Fiji and 2.7% in Papua New Guinea, in Malaysia it was only 0.1%. Indeed, in Malaysia and Mongolia, coverage of STI interventions has been successfully expanded through an integrated approach that offers convenient STI services at clinics for sexual and reproductive health.^{10,11,43}

6.3 PRESUMPTIVE TREATMENT FOR CHLAMYDIAL INFECTION AND GONORRHOEA

Control of chlamydial infection and gonorrhoea can be particularly challenging due to the large proportion of infections which are asymptomatic. Operational research has been conducted on the effectiveness of providing presumptive treatment for gonorrhoea and chlamydial infection to FSWs to reduce the prevalence of both infections.¹⁰⁵ There has been a dramatic reduction in gonococcal and chlamydial infections of up to 50%. However, these reductions cannot be sustained without putting other STI prevention and control measures in place.

Presumptive treatment requires FSWs to come in for routine STI screening visits. Evidence from the Philippines on the impact of single-dose presumptive treatment among FSWs suggests that the effects vary by type of FSW. In some groups, such as street- or brothel-based FSWs, the prevalence of chlamydial infection remained low even at 6 months after single-dose presumptive treatment. However, among restaurant-based FSWs, chlamydial prevalence returned to the baseline level by month 6.¹⁰⁶ In contrast, gonorrhoea appeared to remain low in all groups, even at month 6. Similar results were observed in Viet Nam on comparing prevalence levels at baseline and at month 3.¹⁰⁷ Research conducted in very high-prevalence settings in Lao People's Democratic Republic,¹⁰⁸ Bangladesh¹⁰⁹ and Indonesia¹¹⁰ found that periodic presumptive treatment was associated with low levels of both chlamydial infection and gonorrhoea, even a year after beginning presumptive treatment.

The use of presumptive treatment in the general population has also been explored in several Pacific Island countries, including Vanuatu, where high prevalence levels of *Chlamydia trachomatis* were observed among ANC attendees. In these settings, presumptive treatment was used both for ANC attendees as well as for treating male partners to prevent reinfection. Research data suggest that between 1999 and 2004, when presumptive treatment was in place, the prevalence of *Chlamydia* decreased from 23% to 13.5%.¹¹¹ However, after presumptive treatment was discontinued and replaced by etiological screening in 2004, prevalence levels returned to more than 25%



by 2008.¹¹² Key challenges in successfully implementing etiological diagnosis included the poor laboratory infrastructure and the long turnaround time between being tested and receiving the results.

6.3.1 STI SURVEILLANCE

Collaborative implementation of HIV and STI prevention and control interventions calls for SGS with STI indicators and STI surveillance in HIV, STI and reproductive health programmes. Current STI surveillance in the Region is weak and underfunded. Strengthening STI surveillance is necessary among key populations such as SWs, MSM, migrant workers and displaced people, as well as among pregnant women and women attending reproductive health and other sexual health services. The focus should be on key STIs, such as treatable genital ulcers, other curable STIs and antimicrobial resistance (AMR) surveillance.

Specific guidelines need to be developed and used at the country level, with estimation of STI morbidity in health facilities from tiered surveillance systems. These include microbiological surveillance, sentinel syndromic STI surveillance and universal integrated morbidity surveillance so that estimates of etiological STI case distribution are available by age, gender and selected quality-of-care indicators. Advocacy is very important, both by countries and by WHO.

6.4 ADDRESSING ANTIMICROBIAL RESISTANCE IN GONOCOCCI

Countries must continually monitor antimicrobial drug resistance to ensure that their treatment guidelines for gonorrhoea are effective. To this end, a gonococcal antimicrobial resistance surveillance programme (GASP) has been in place in several Asia–Pacific countries to annually test a sample of gonococcal specimens diagnosed. Sixteen WPR countries participate in the GASP. In 2009, 12 countries reported that more than 30% of samples were resistant to penicillin and 9 countries reported that more than 70% of samples were resistant to quinolones (*see also* Figure 5 and Table 1.13). The GASP results have led to a Regional recommendation to use third-generation cephalosporins to address the high rates of antimicrobial resistance.

The majority of countries' current treatment guidelines include ceftriaxone and/or cefixime as the first-line treatment for gonorrhoea, while other cephalosporins (ceftibuten) are recommended as first-line treatment in Hong Kong (China). Fiji still recommends amoxicillin plus clavulanic acid as the treatment of choice. Most countries primarily conduct resistance testing/surveillance for their first-line treatment. For example, the majority of the countries in Asia conducts AMR testing only for ceftriaxone resistance, with only a few countries monitoring for resistance against oral cephalosporins such as cefixime (Hong Kong [China], Japan, the Philippines and Thailand) and ceftibuten (Hong Kong [China]).



It is essential to further strengthen GASP, including through the development of early warning systems to monitor the emergence of broader-spectrum cephalosporin resistance. Additional efforts are necessary to address the improper use of antibiotics, which contributes to the development of antimicrobial resistance.

6.5 CONTROL OF HEPATITIS

The Regional strategy for controlling hepatitis B focuses on the use of a highly effective vaccine, of which the first dose should be given within the first 24 hours of birth.¹¹³ Vaccine prices have reduced dramatically since the early 1990s, prompting many countries in the Pacific to adopt the vaccination strategy. By the late 1990s, only three WPR countries had not yet begun to adopt routine vaccination for hepatitis B. In 2003, both China and Viet Nam introduced vaccination programmes with national scope and, in 2005, Cambodia became the last WPR country to achieve national coverage with the vaccine. Apart from the vaccination programme, more work is needed to develop a comprehensive approach to viral hepatitis, including prevention of transmission, screening, and care and treatment for chronic viral hepatitis. More data are needed for policy and programming.

While there is no such vaccine for HCV, effective treatment is available, which can also be used for people co-infected with HIV. It is important to screen PLHIV early for hepatitis C, in particular, if they have risk factors such as injecting drug use, so that HCV treatment can be initiated before liver damage becomes too advanced. The course of treatment takes 6–12 months and is relatively expensive. Moreover, screening and treatment for HCV is particularly challenging, as it requires a service delivery model that can take into account the special needs of PWID, who are among the most affected. WHO and partners are working to assess the prevalence of HIV/HCV co-infection in WPR, develop guidance for prevention, care, support and treatment, and advocate for the increased availability of affordable treatment.

HEALTH SYSTEMS STRENGTHENING

7.1 INTEGRATION AND DECENTRALIZATION OF SERVICES PROVIDED BY THE HEALTH SECTOR

In WPR countries with concentrated and low-level HIV epidemics, HIV/AIDS services have to be provided linked or integrated with other health services such as MCH and TB, among others. Where it is possible and appropriate, provision of services should be decentralized according to the health system situation and local context.

Linkages can take many forms. A few examples are given below:

- Joint planning and coordination, and advocacy or policy development that occurs between an MCH department and the national HIV programme around PMTCT and elimination of congenital syphilis;
- Offering patients options to seek sexual and reproductive health (SRH) services, HIV prevention, HIV testing and referral, and/or ANC services at a single health facility;
- Developing referral systems linking clinic populations at TB, STI, ANC and HTC sites, facilitated by joint patient information system with a common patient identification number;
- Making referrals from community-based outreach services to services provided in health facilities, and vice versa for prevention, care and treatment.

Treatment 2.0¹¹⁴ intends to stimulate innovation and dramatically improve the efficiency and impact of HIV care and treatment programmes in resource-limited countries. "Adapt delivery systems," one of its five pillars, calls for decentralizing and appropriately integrating HIV care and treatment with other HIV and non-HIV services, including drug-dependency services, MCH or TB services, with increased community engagement to bring people in need to testing and counselling and early treatment, and retain them for life. There is an urgent need to "expand the evidence base on optimal service delivery in a variety of settings and resource-limited contexts".¹¹⁴

The need to link or integrate SRH services, including for HIV and STI, with maternal, neonatal and child health (MNCH) services has been recognized in a series of Regional consultations and has resulted in the production of an operational framework for Western Pacific countries, released in 2008.¹¹⁵ The primary intent of establishing these linkages was to synergistically build the strength and capacity of all service areas. For HIV programmes specifically, linkages provide an opportunity to reach a large segment of the population with testing, prevention and clinical HIV-related services at a lower cost than delivering



stand-alone services, in a way that is of greater convenience to patients, and may make the most of scarce human resources in remote areas.

Mutual benefits are seen in integrating the activities of a vertically, relatively well-funded programme such as HIV/AIDS with longer-standing programmes embedded in the public sector health system infrastructure, such as MCH. The patient population is often the same. For example, factors such as poverty, mobility and marginalization may increase the risk among women for HIV and higher-risk pregnancies, or may create a greater need for family planning services. These patients may also have fewer resources or support mechanisms to seek preventive health care, and may hesitate to access services at health facilities. Once these women access a health facility, integration ensures that they benefit from a range of services that can be offered during a single visit.

The Regional operational framework on linkages recommends that the implementation of specific linkages should be guided carefully by epidemic context and local capacity.¹¹⁵

Several countries in the Region have moved forward to implement the operational framework for establishing linkages.¹¹⁶ In China, Mongolia, Papua New Guinea and Viet Nam, the model has been developed by piloting the service in selected areas and, based on the initial experience, the approach has been expanded to other areas. This allows the model to be customized to the country context and resources.

Earlier in this document, examples of the impact of linkages have been described in scaling up PMTCT and syphilis testing among ANC attendees in China, and scaling up ART in Cambodia. In the Pacific islands and Mongolia, the approach has been to strengthen the STI control programme, and integrate HIV testing and prevention into the STI clinic system.¹¹⁷ One programmatic approach in Micronesia is notable, as it focuses on linking SRH services for men with HIV and family health services in the form of a well men's health clinic. Given the severity of the epidemic, Papua New Guinea has adopted a more comprehensive one-stop service approach, in which six selected clinics have staff trained to provide reproductive health, MCH, STI, ANC, Family Planning, TB and HIV services on site. These HIV services include clinical management of PLHIV, not just counselling and testing or referrals. Mongolia has also developed one-stop services for pregnant women, offering rapid testing for syphilis at ANC clinics in order to provide same-day results to patients.

Cambodia is one of the longest-standing examples of providing linked services for PMTCT and TB/HIV in the Region (Figure 7.1).

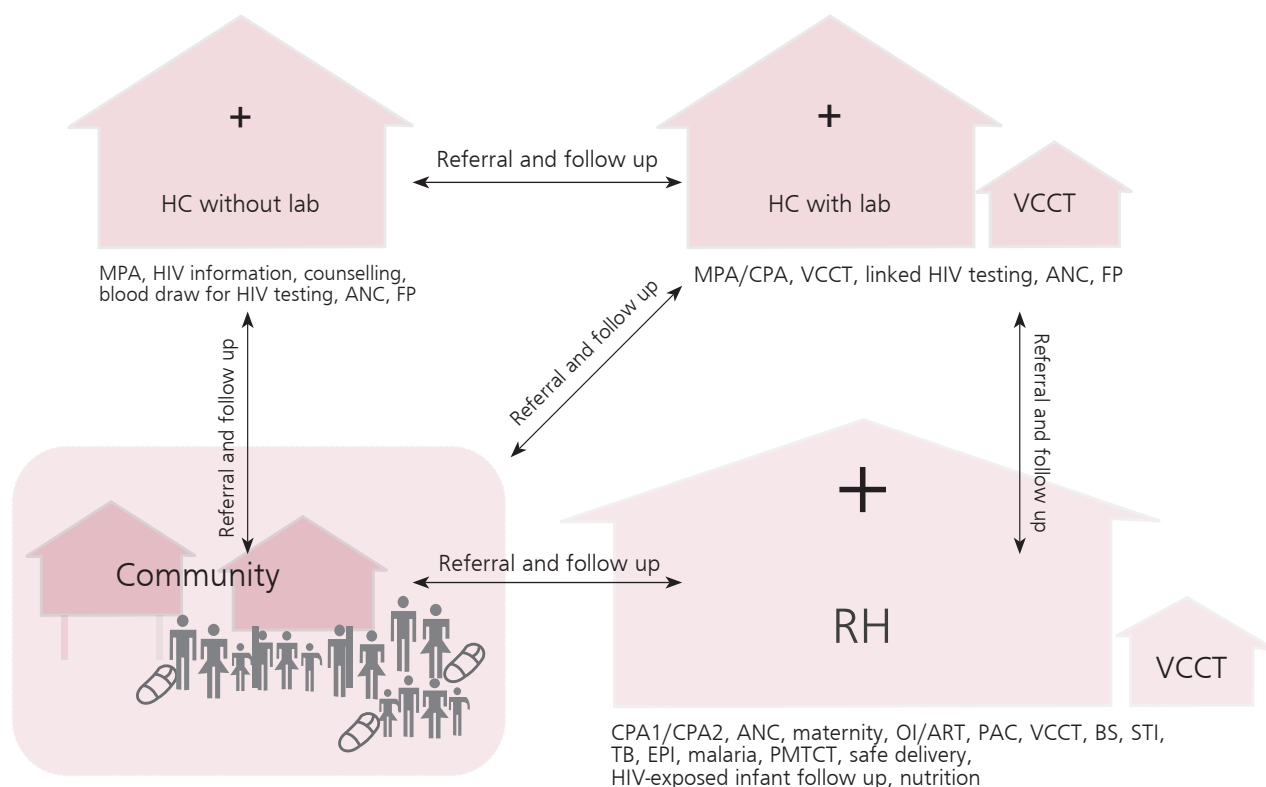
As a pilot project in five districts, the initiative was led by the national AIDS programme and had the support of UN partners and academic technical agencies. The initial focus was on improving comprehensive PMTCT services, linking ANC to HTC, STI and reproductive health services, and home-based care as needed. Linkages between health facilities and community-based services were a key characteristic of the model. The system was expanded to enable universal access to PMTCT in this resource-constrained setting. Linkages between health facilities at different levels were also strengthened, contributing



to the overall functioning of the health system in the country. A formal referral mechanism was established, which included tracking of follow up. Roles and responsibilities at the different levels of services and between programmes have been clearly defined. Regular management meetings are held between staff at different facilities and with civil society organizations to ensure a more coordinated response. In addition to improving birth outcomes, the system is also credited with helping to reduce the stigma and discrimination associated with HIV testing, as it has become more readily accepted as a standard of care.

Figure 7.1. Cambodia’s linked response to scaling up services

Linked Response Approach (2008) Guided PMTCT and TB/HIV scale-up



HC health centre; RH reproductive health; VCCT voluntary and confidential counselling and testing; MPA minimum package of activities; CPA core package of activities; ART antiretroviral therapy; ANC antenatal care; OI opportunistic infection; EPI Expanded Programme on Immunization; STI sexually transmitted infection; FP family planning

7.2 LABORATORY SYSTEMS

Laboratory monitoring, especially the measurement of CD4 counts and viral load to initiate and chart the progress of patients on ART, is an important tool for providing high-quality treatment. Establishing the infrastructure to manage patients on ART requires that laboratory equipment to do these tests be conveniently located and have sufficient capacity to process the volume of specimens received in a timely way. The 2010 WHO treatment guidelines recognize that monitoring of patients on ART may be done successfully in the absence of CD4 count and viral load measurement capacity.¹² The guidelines recommend



BOX 7.1. ESTABLISHING A CONTINUUM-OF-CARE (COC) SYSTEM IN VIET NAM

In 2003, the first district-level HIV clinic in Viet Nam was started in Ho Chi Min City, providing education services and counselling for PLHIV.^b Viet Nam has since created a system to enhance CoC services. CoC is a network of linked, coordinated and collaborating care, treatment and support services for PLHIV, which includes government and civil society health centres.¹¹⁸ The linkages between care providers improve access to care for PLHIV and allow for communication among organizations to improve the quality of care. Improving the functionality of CoC allows better access to ARVs and other HIV support services.

In 2005, the Ministry of Health (MoH) created the Viet Nam Administration of AIDS Control (VAAC). It developed a national training programme on ART adherence counselling, HIV clinical care and a drug management system, and 200 comprehensive care sites (CCSs) were created. By 2010, the VAAC aimed to establish district-level CCSs in 70% of all the districts in Viet Nam.

The VAAC also created the Care and Treatment Programme of Action, which has formed the basis of CoC services in Viet Nam in recent years. In Viet Nam, the CCS acts as the hub of services and refers clients to the local commune level and up to the province level for health services. The CCS provides chronic care management to PLHIV. Additionally, the Management, Counselling and Care Programme of VAAC trains staff at the commune health centres to respond to the needs of PLHIV through facility- and home-based care. There is also coordination between districts that have access to ART and VCT services and those that do not to facilitate collaboration to better serve patients.

There are 63 provinces, 697 districts and 11 112 communes in Viet Nam. Each province is categorized as high-, middle- and low-burden according to HIV prevalence. Eight provinces are classified as high-, 29 as middle-, and 26 as low-burden. ART coverage is estimated to be 69.4%, 39.9% and 38.7% in high-, middle-, and low-burden provinces, respectively.

Limitations of the CoC programme include limited access in some districts; coverage with ART could be vastly improved by providing ART access in rural areas.

^b Review of HIV health service delivery in Viet Nam from the viewpoint of continuum of prevention and care: lessons learned and way forward. 2011 (unpublished)

symptom-directed laboratory testing for toxicity and safety reasons; and the use of viral load testing as a means of confirming suspected treatment failure, if resources are available. Where access to laboratory monitoring is available, patients on ART benefit from viral load testing every six months for the early detection of treatment failure.

Laboratory testing can be relatively costly and, in the past, was not always covered by national policies on free or affordable treatment provided to those in need. In all countries of the Region, national care and treatment policies provide for free ART and associated laboratory monitoring for eligible patients. However, in practice, in some countries,



laboratory services are not freely available for patients at all ART sites. For example, in Papua New Guinea, the cost of viral load testing is prohibitively expensive and is not yet available to patients on ART. In Viet Nam, the cost of laboratory monitoring and management of opportunistic infections (OIs) may require out-of-pocket costs for a patient, depending on the funding source supporting the facility where they receive ART. In China, free ART, including laboratory monitoring and OI management, has been officially available to rural and urban patients without insurance. However, because these mandates must be carried out by the provincial governments, many costs to low-resource health facilities continue to be passed down to rural patients.

HIV rapid testing is an essential entry point to prevention and treatment services. It is essential that countries develop testing algorithms and establish quality assurance systems to ensure that HIV testing is valid and reliable. The majority of countries in the Region have developed HIV rapid testing algorithms. The Pacific island countries, including Papua New Guinea as well as the Philippines, have conducted validation studies to ensure that the algorithms are sensitive and specific.

Filling these service gaps in laboratory monitoring will be greatly helped by developments in diagnostic technology that can extend the availability of low-cost testing. In particular, simple, affordable diagnostics that can be used at the point of care will be key to strengthening the laboratory component of high-quality diagnosis, care and treatment programmes.

7.3 HUMAN RESOURCES

Different countries have adopted different models to address the human resource requirements for providing ART. In Viet Nam and Malaysia, in order to maintain the quality of care, only doctors with specific training (e.g. infectious disease and family medicine specialists in Malaysia) are allowed to initiate ART. In contrast, the general public sector health system in Papua New Guinea already relies heavily on nurses to provide health care and has extended this model to include patient management for ART services. The country has begun to train PLHIV to support some aspects of ART patient management, such as counselling and adherence support.

A recent study conducted in Siem Reap, Cambodia attempted to estimate the human resources needed to provide care to patients on ART as services are scaled up. Simulation models tested against empirical data suggest a reduction of up to one third of doctor time per patient as services are scaled up and doctors become more experienced in managing patients. A large amount of time could be saved through the use of PLHIV lay counsellors, and by reducing the number of visits and consultation time per visit in the early stages of ART management.¹¹⁹



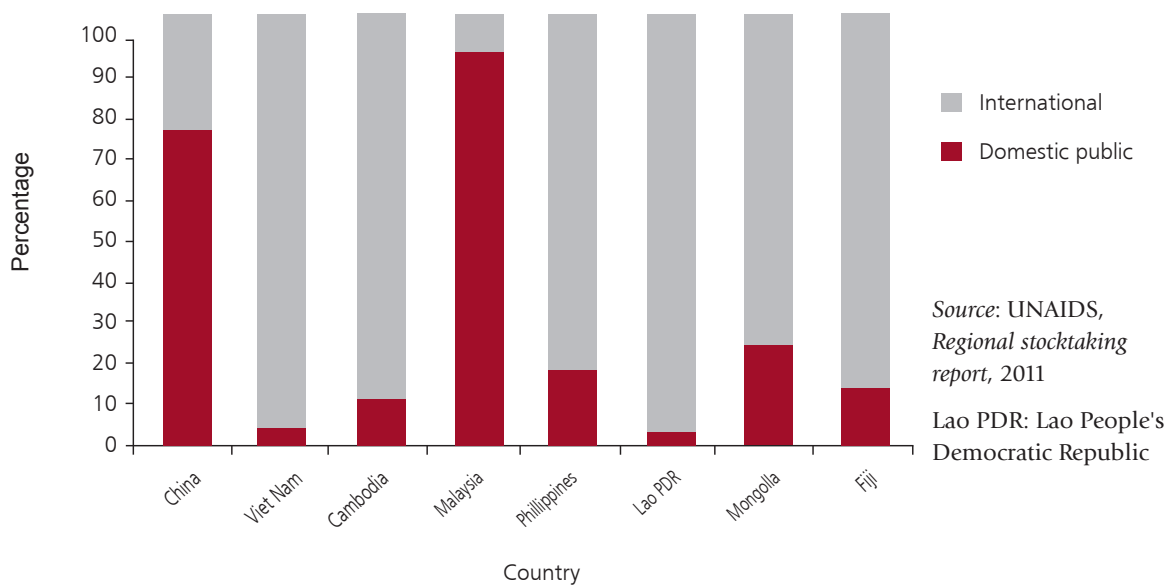
7.4 FUNDING AND SUSTAINABILITY

Political commitments to HIV programmes are rated highly in all WPR countries.¹²⁰ For example, all governments have policies for providing free ART, and provide some or part of the expenses for laboratory monitoring and OI treatment to patients. As the number of PLHIV and those eligible for ART continue to grow, so too will the funding needs of HIV programmes expand in all countries. At the same time, the impact of the global economic downturn on development partner budgets will probably further shrink the external funding available to national AIDS control programmes. To ensure continued and sustained progress in meeting universal access to HIV prevention, care and treatment, many national governments must commit to funding a much larger share of the HIV programmes than they have historically.

Funding sources vary among countries. For example, a majority of all HIV programme funds in China and Malaysia come from domestic public sources (Figure 7.2). The Government of Malaysia provides funding for 98% of HIV/AIDS programming, of which 40% is spent on treatment. In China, more than 90% of treatment costs are borne by the government budget, but some money from the Global Fund to fight AIDS, Tuberculosis and Malaria (Global Fund) is used to support treatment focused on second-line regimens and paediatric formulations.

In contrast, Viet Nam's HIV programme relies heavily on international funding (98%), primarily from PEPFAR and the Global Fund. Cambodia also relies heavily on external funding from PEPFAR and the Global Fund; the government provides funds for only 11% of the prevention programme and only 1% for treatment. In Papua New Guinea, 90% of treatment costs are provided through Global Fund grants. The other small HIV programmes, such as in Fiji, Lao People's Democratic Republic, the Philippines and Mongolia, are primarily dependent on international funding.¹²¹

Figure 7.2. Sources of funding for national HIV/AIDS programming





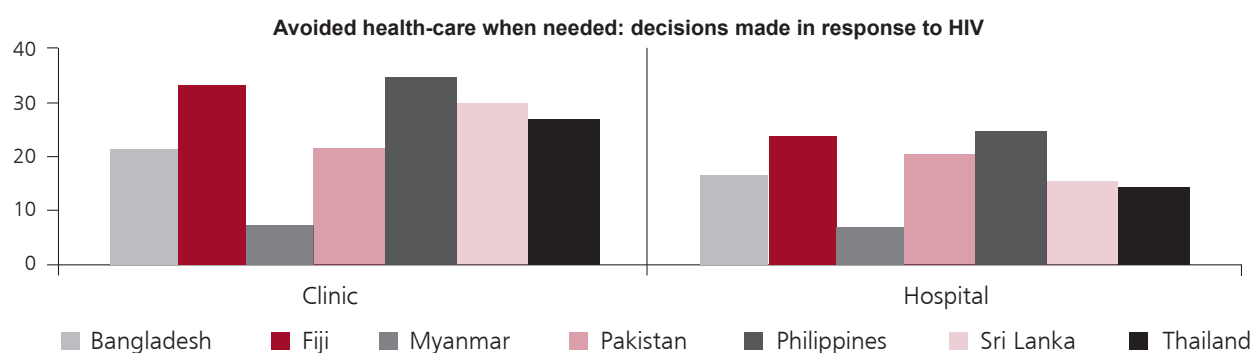
Low-cost ART regimens are key to sustaining and expanding ART coverage. A large number of ARV drugs used in WPR are generic forms manufactured in India. In Malaysia, the ability to purchase generic drugs made in India, and to negotiate prices as a large consumer has made it possible for the government to afford its HIV programme. National programmes and their Regional partners must be proactive in maintaining affordable drug prices as regimens change, and influencing trade agreements that may affect the production of generic drugs. Reducing the cost of delivery of ART services through strengthening health systems should be explored, including improving procurement and supply management, decentralizing service delivery and developing low-cost service delivery models through integrating or linking services.

7.5 ADDRESSING HIV-RELATED STIGMA AND DISCRIMINATION IN HEALTH-CARE SETTINGS

Stigma and discrimination against PLHIV and key populations, e.g. FSWs, PWID and MSM, can have profound effects on scaling up universal access as well as on health outcomes and quality of life. A report published in 2011¹²² describes and compares countries on a number of areas of stigma and discrimination. The findings are related most specifically to stigma and discrimination in the health sector.

One of the most direct effects of stigma and discrimination is the avoidance of PLHIV to seek needed care because of the way they will be treated at the health-care facility (Figure 7.3). In both Fiji and the Philippines, more than 30% of PLHIV interviewed said they avoided seeking care at health clinics, and 25% avoided seeking care at hospitals. Fear of having their HIV status disclosed to others is a potentially important deterrent for people to access HTC services. This fear is well founded, according to the large proportion (41%) of PLHIV in Fiji, who reported that their HIV status was shared with health-care workers without their consent. The proportion was much smaller in Cambodia, where only 4% of PLHIV revealed this to be their experience.¹²²

Figure 7.3. Impact of stigma and discrimination on service utilization by PLHIV*



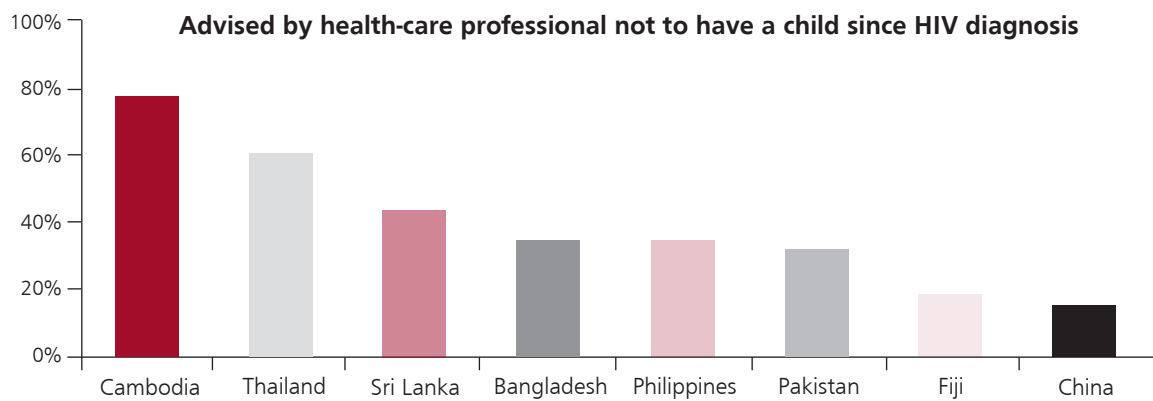
Source: Cameron S, 2011; *Based on responses to Section 2C:2



The handling of patient medical records is one area that can lead to breach in confidentiality. In Fiji, more than 45% of PLHIV interviewed either believed that their medical records were not confidential or had some doubts about the way medical records were kept. The comparable percentage in the Philippines was 36%, but only 14% in Cambodia and 11% in China.¹²²

An important form of discrimination against PLHIV relates to the type of advice or counselling they receive when considering whether to have children or not. With appropriate care and adherence to prophylaxis protocols, it is possible to greatly reduce the risk of transmission to infants from HIV-positive women who wish to have children. Receiving appropriate counselling to help PLHIV make decisions about their own situation is critical. In Cambodia, 73% of PLHIV reported receiving counselling regarding their reproductive options. Overall, 79% of PLHIV reported having been advised not to have children and 19% were actually coerced into being sterilized. In the Philippines, the proportion who received counselling about their reproductive options was much lower at 41%, but only 35% reported being advised not to have children. The degree of coercion to be sterilized was also much lower; only 4%, reported by PLHIV in the Philippines. However, as many as 10% of respondents said that there were told that their ability to receive ART was conditional on being sterilized. In Fiji, the percentage receiving counselling was even lower at 34%, but only 19% were advised not to have children. As much as 9% of PLHIV in Fiji reported that they were coerced into being sterilized, and 7% were told that being eligible for ART was conditional on being sterilized (Figure 7.4).¹²²

Figure 7.4. Discriminatory advice by health-care providers reported by PLHIV*



Source: Cameron S, 2011; *Based on responses to Section 3D:3

The specific experience with stigma and discrimination of populations at risk such as FSWs, MSM and PWID should also be monitored, as this group may face more severe negative responses in health-care settings than even other PLHIV. These issues are particularly relevant for WPR countries, given the role of the health sector in preventing new infections, i.e. providing services for people at risk rather than only to PLHIV. There is much that can



be done to address stigma and discrimination as well as to make services more friendly for key populations. These include, for example, providing training and guidance for providers to improve their ability to communicate with patients, gain their trust, and provide more sensitive and respectful services.

COUNTRY-SPECIFIC SIZE ESTIMATION
OF THE HIV AND AIDS EPIDEMIC

ANNEX 8



8.1 ESTIMATION OF NUMBER OF PEOPLE (ALL AGES) LIVING WITH HIV IN WPR COUNTRIES, 1990–2009

	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
AUSTRALIA	20 000 [15 000–25 000]	19 000 [15 000–24 000]	18 000 [14 000–23 000]	17 000 [13 000–21 000]	16 000 [13 000–20 000]	15 000 [12 000–19 000]	14 000 [11 000–18 000]	13 000 [11 000–17 000]	13 000 [10 000–16 000]	12 000 [9 400–15 000]
CAMBODIA	63 000 [42 000–90 000]	65 000 [44 000–92 000]	67 000 [47 000–95 000]	70 000 [48 000–100 000]	74 000 [50 000–100 000]	79 000 [52 000–110 000]	83 000 [56 000–120 000]	88 000 [60 000–120 000]	92 000 [63 000–130 000]	95 000 [65 000–130 000]
CHINA	740 000 [540 000–1 000 000]									
FIJI	<1000 [<500–<1000]	<1000 [<500–<1000]	<500 [<500–<1000]	<500 [<500–<1000]	<500 [<500–<500]	<500 [<200–<500]	<500 [<200–<500]	<500 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]
JAPAN	8100 [6300–10 000]	7900 [6300–9900]	7600 [6100–9600]	7500 [6000–9300]	7200 [5900–9000]	7100 [5800–8800]	6800 [5600–8500]	6700 [5400–8300]	6500 [5200–8100]	6300 [5000–8100]
LAO PEOPLE'S DEMOCRATIC REPUBLIC	8500 [6000–13 000]	7100 [5100–10 000]	5700 [4100–7800]	4400 [2500–6100]	3300 [1200–4700]	2500 [<500–3700]	1800 [<100–2800]	1300 [<100–2100]	<1000 [<100–1700]	<1000 [<100–1400]
MALAYSIA	100 000 [83 000–120 000]	97 000 [80 000–120 000]	93 000 [77 000–110 000]	89 000 [74 000–110 000]	85 000 [71 000–100 000]	80 000 [67 000 – 96 000]	76 000 [64 000–90 000]	71 000 [60 000–85 000]	67 000 [57 000–80 000]	63 000 [53 000–75 000]
MONGOLIA	<500 [<500–<1000]	<500 [<500–<1000]	<500 [<500–<500]	<500 [<200–<500]	<500 [<100–<500]	<200 [<100 – <500]	<200 [<100–<500]	<200 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]
NEW ZEALAND	2500 [2000–3200]	2400 [1900–3000]	2300 [1900–2900]	2200 [1800–2700]	2100 [1700–2600]	2000 [1700–2400]	1900 [1600–2300]	1800 [1500–2200]	1600 [1400–2100]	1500 [1300–1900]
PAPUA NEW GUINEA	34 000 [30 000–39 000]	32 000 [28 000–37 000]	31 000 [27 000–36 000]	29 000 [24 000–34 000]	27 000 [22 000–32 000]	24 000 [19 000–30 000]	21 000 [16 000–27 000]	18 000 [13 000–24 000]	14 000 [9400–21 000]	11 000 [6800–17 000]
PHILIPPINES	8700 [6100–13 000]	6800 [4900–9300]	5500 [3600–7300]	4400 [1600–5900]	3600 [<500–5100]	2900 [<100–4500]	2400 [<100–4100]	2000 [<100–3900]	1700 [<100–4000]	1400 [<100–4100]
REPUBLIC OF KOREA	9500 [7000–13 000]	9300 [6900–13 000]	9100 [6800–12 000]	8700 [6600–12 000]	8300 [6300–11 000]	7700 [6000–10 000]	7000 [5500–9400]	6200 [4900–8000]	5200 [4100–6700]	4100 [2700–5500]
SINGAPORE	3400 [2500–4400]	3300 [2500–4300]	3200 [2500–4100]	3100 [2500–3900]	3000 [2400–3800]	2900 [2300–3800]	2900 [2300–3800]	2800 [2200–3800]	2800 [2200–3800]	2700 [2100–3900]
VIET NAM	280 000 [220 000–350 000]	270 000 [220 000–330 000]	260 000 [210 000–320 000]	240 000 [200 000–300 000]	230 000 [190 000–80 000]	210 000 [170 000–260 000]	190 000 [150 000–240 000]	160 000 [130 000–210 000]	140 000 [110 000–180 000]	110 000 [88 000–140 000]

Source: WHO, Global Health Observatory Data Repository

Note: Numbers in [] indicate uncertainty bounds.

8.1 ESTIMATION OF NUMBER OF PEOPLE (ALL AGES) LIVING WITH HIV IN WPR COUNTRIES, 1990–2009 (CONTINUED)

	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
AUSTRALIA	11 000 [8900–14 000]	11 000 [8400–14 000]	10 000 [8000–14 000]	10 000 [7700–13 000]	10 000 [7700–14 000]	11 000 [7800–14 000]	11 000 [8000–15 000]	11 000 [8100–15 000]	11 000 [8200–16 000]	11 000 [8100–16 000]
CAMBODIA	96 000 [66 000–130 000]	95 000 [65 000–130 000]	93 000 [63 000–130 000]	87 000 [58 000–130 000]	81 000 [52 000–120 000]	73 000 [45 000–120 000]	64 000 [38 000–110 000]	54 000 [31 000–96 000]	42 000 [24 000–82 000]	23 000 [13 000–51 000]
CHINA										
FIJI	<200 [<100–<500]	<200 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<500]	<100 [<100–<500]
JAPAN	6300 [4900–8000]	6100 [4700–8000]	6000 [4600–7900]	6000 [4600–8000]	6000 [4600–8000]	6000 [4600–8000]	6000 [4600–7900]	6000 [4600–7800]	5800 [4400–7500]	5700 [4200–7300]
LAO PEOPLE'S DEMOCRATIC REPUBLIC	<500 [<100–1400]	<500 [<100–2500]	<200 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
MALAYSIA	59 000 [50 000–71 000]	55 000 [45 000–66 000]	50 000 [41 000–62 000]	45 000 [36 000–56 000]	39 000 [31 000–49 000]	32 000 [24 000–41 000]	25 000 [17 000–33 000]	17 000 [9200–25 000]	11 000 [4100–17 000]	6500 [1500–10 000]
MONGOLIA	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<500]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
NEW ZEALAND	1400 [1200–1800]	1300 [1100–1700]	1200 [1000–1600]	1200 [<1000–1600]	1100 [<1000–1500]	1100 [<1000–1600]	1100 [<1000–1600]	1100 [<1000–1600]	1100 [<1000–1700]	1100 [<1000–1700]
PAPUA NEW GUINEA	8100 [4600–14 000]	6000 [3200–12 000]	4400 [2100–9700]	3300 [1500–8100]	2400 [1100–7400]	1900 [<1000–7100]	1400 [<1000–6000]	1100 [<500–3300]	<1000 [<500–2100]	<1000 [<100–1800]
PHILIPPINES	1200 [<100–4400]	<1000 [<100–5100]	<1000 [<100–6300]	<1000 [<100–11 000]	<1000 [<100–<100]	<500 [<100–<100]	<500 [<100–<100]	<500 [<100–<100]	<500 [<100–<100]	<100 [<100–<100]
REPUBLIC OF KOREA	2900 [<1000–4200]	2800 [<1000–4100]	2700 [<500–4100]	2600 [<200–4000]	2500 [<100–4000]	2500 [<100–3900]	2300 [<100–3900]	2200 [<100–3800]	2100 [<100–3700]	2000 [<100–3600]
SINGAPORE	2600 [2000–3800]	2500 [1900–3800]	2400 [1800–3600]	2200 [1600–3400]	2000 [1500–3200]	1700 [1300–2900]	1400 [1100–2500]	1100 [<1000–2000]	<1000 [<1000–1400]	<1000 [<500–<1000]
VIET NAM	99 000 [78 000–130 000]	81 000 [62 000–110 000]	65 000 [46 000–86 000]	52 000 [32 000–69 000]	41 000 [22 000–57 000]	32 000 [15 000–47 000]	25 000 [10 000–39 000]	20 000 [7000–32 000]	15 000 [4700–27 000]	12 000 [3200–22 000]

Source: WHO, Global Health Observatory Data Repository

Note: Numbers in [] indicate uncertainty bounds.

8.2 ESTIMATION OF PREVALENCE OF HIV AMONG ADULTS AGED 15–49 YEARS (%) IN WPR COUNTRIES, 1990–2009

	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
AUSTRALIA	0.1 [0.1–0.2]	0.1 [0.1–0.2]	0.1 [0.1–0.2]	0.1 [0.1–0.2]	0.1 [0.1–0.2]	0.1 [0.1–0.2]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]
CAMBODIA	0.5 [0.4–0.8]	0.6 [0.4–0.8]	0.6 [0.4–0.9]	0.7 [0.5–1.0]	0.8 [0.5–1.1]	0.8 [0.6–1.2]	0.9 [0.6–1.3]	1.1 [0.7–1.5]	1.2 [0.8–1.6]	1.3 [0.9–1.7]
CHINA	0.1 [0.1–0.1]	... [0.1–0.1]	... [0.1–0.1]	... [<0.1–0.1]	... [<0.1–0.1]	... [<0.1–0.1]	... [<0.1–0.1]	... [<0.1–0.1]	... [<0.1–0.1]	... [<0.1–0.1]
FIJI	0.1 [0.1–0.2]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]
JAPAN	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]
LAO PEOPLE'S DEMOCRATIC REPUBLIC	0.2 [0.2–0.4]	0.2 [0.1–0.3]	0.2 [0.1–0.2]	0.1 [0.1–0.2]	0.1 [0.1–0.2]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]
MALAYSIA	0.5 [0.4–0.6]	0.5 [0.4–0.6]	0.5 [0.4–0.6]	0.5 [0.4–0.6]	0.5 [0.4–0.5]	0.4 [0.4–0.5]	0.4 [0.4–0.5]	0.4 [0.3–0.5]	0.4 [0.3–0.5]	0.4 [0.3–0.5]
MONGOLIA	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]
NEW ZEALAND	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]
PAPUA NEW GUINEA	0.9 [0.8–1.0]	0.9 [0.8–1.0]	0.9 [0.8–1.0]	0.8 [0.7–1.0]	0.8 [0.7–0.9]	0.7 [0.6–0.9]	0.7 [0.5–0.8]	0.6 [0.4–0.8]	0.5 [0.3–0.7]	0.4 [0.2–0.6]
PHILIPPINES	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]
REPUBLIC OF KOREA	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]	<0.1 [0.1–0.1]
SINGAPORE	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.1]	0.1 [0.1–0.2]
VIET NAM	0.4 [0.3–0.5]	0.4 [0.3–0.5]	0.4 [0.3–0.5]	0.4 [0.3–0.5]	0.4 [0.3–0.5]	0.4 [0.3–0.4]	0.3 [0.3–0.4]	0.3 [0.2–0.4]	0.3 [0.2–0.3]	0.2 [0.2–0.3]

Source: WHO, Global Health Observatory Data Repository

Note: Numbers in [] indicate uncertainty bounds.

8.2 ESTIMATION OF PREVALENCE OF HIV AMONG ADULTS AGED 15-49 YEARS (%) IN WPR COUNTRIES, 1990-2009 (CONTINUED)

	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
AUSTRALIA	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.2]	0.1 [0.1-0.2]	0.1 [0.1-0.2]
CAMBODIA	1.4 [0.9-1.8]	1.4 [1.0-2.0]	1.4 [1.0-2.0]	1.4 [1.0-2.1]	1.4 [0.9-2.1]	1.3 [0.8-2.0]	1.2 [0.7-1.9]	1 [0.6-1.8]	0.8 [0.4-1.6]	0.5 [0.3-1.0]
CHINA	... [<0.1-<0.1]	... [<0.1-<0.1]	... [<0.1-<0.1]	... [<0.1-<0.1]	... [<0.1-<0.1]	... [<0.1-<0.1]	... [<0.1-<0.1]	... [<0.1-<0.1]	... [<0.1-<0.1]	... [<0.1-<0.1]
FIJI	<0.1 [<0.1-<0.1]	<0.1 [<0.1-<0.1]	<0.1 [<0.1-<0.1]	<0.1 [<0.1-<0.1]	<0.1 [<0.1-<0.1]	<0.1 [<0.1-<0.1]	<0.1 [<0.1-<0.1]	<0.1 [<0.1-<0.1]	<0.1 [<0.1-0.1]	<0.1 [<0.1-0.1]
JAPAN	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]
LAO PEOPLE'S DEMOCRATIC REPUBLIC	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]
MALAYSIA	0.4 [0.3-0.5]	0.4 [0.3-0.4]	0.4 [0.3-0.4]	0.3 [0.3-0.4]	0.3 [0.2-0.4]	0.3 [0.2-0.3]	0.2 [0.1-0.3]	0.1 [0.1-0.2]	0.1 [0.1-0.1]	0.1 [0.1-0.1]
MONGOLIA	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]
NEW ZEA- LAND	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]
PAPUA NEW GUINEA	0.3 [0.2-0.5]	0.2 [0.1-0.4]	0.2 [0.1-0.4]	0.1 [0.1-0.3]	0.1 [0.1-0.3]	0.1 [0.1-0.3]	0.1 [0.1-0.2]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]
PHILIPPINES	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]
REPUBLIC OF KOREA	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]
SINGAPORE	0.1 [0.1-0.2]	0.1 [0.1-0.2]	0.1 [0.1-0.2]	0.1 [0.1-0.2]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]
VIET NAM	0.2 [0.2-0.3]	0.2 [0.1-0.2]	0.1 [0.1-0.2]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]	<0.1 [0.1-0.1]

Source: WHO, Global Health Observatory Data Repository

Note: Numbers in [] indicate uncertainty bounds.

8.3 ESTIMATION OF NUMBER OF AIDS-RELATED DEATHS IN WPR COUNTRIES, 1990–2009

	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
AUSTRALIA	<100 [<100–<1000]	<100 [<100–<1000]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<200]	<200 [<100–<500]
CAMBODIA	3100 [<1000–5600]	3100 [1100–5400]	3200 [1100–5900]	4100 [1800–6900]	5700 [3300–8600]	6800 [4400–9900]	7400 [5000–11 000]	7600 [5100–11 000]	7400 [5000–11 000]	7000 [4700–11 000]
CHINA	26 000 [24 000–49 000]									
FIJI	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
JAPAN	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]
LAO PEOPLE'S DEMOCRATIC REPUBLIC	<200 [<100–<500]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
MALAYSIA	5800 [4500–7200]	5600 [4300–7100]	5400 [4100–6700]	5200 [4000–6500]	4900 [3800–6200]	4600 [3600–5900]	4500 [3500–5800]	4400 [3400–5600]	3900 [3000–5200]	3500 [2600–4600]
MONGOLIA	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
NEW ZEALAND	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
PAPUA NEW GUINEA	1300 [<1000–1900]	1300 [<1000–1900]	1400 [<1000–2000]	1400 [<1000–2000]	1300 [<1000–1900]	1100 [<1000–1700]	<1000 [<1000–1400]	<1000 [<500–1200]	<1000 [<500–<1000]	<500 [<500–<1000]
PHILIPPINES	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]
REPUBLIC OF KOREA	<500 [<500–<1000]	<500 [<500–<1000]	<500 [<500–<1000]	<500 [<500–<500]	<500 [<500–<500]	<500 [<200–<500]	<500 [<100–<500]	<500 [<100–<500]	<500 [<100–<500]	<200 [<100–<500]
SINGAPORE	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]
VIET NAM	14 000 [9500–20 000]	14 000 [9500–19 000]	13 000 [9500–18 000]	13 000 [9400–17 000]	11 000 [8700–15 000]	9800 [7600–13 000]	8200 [6200–11 000]	6800 [5000–9000]	5500 [3900–7500]	4500 [2900–6100]

Source: WHO, Global Health Observatory Data Repository

Note: Numbers in [] indicate uncertainty bounds.

8.3 ESTIMATION OF NUMBER OF AIDS-RELATED DEATHS IN WPR COUNTRIES, 1990–2009 (CONTINUED)

	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
AUSTRALIA	<200 [<200–<500]	<500 [<500–<1000]	<500 [<500–<1000]	<1000 [<1000–<10000]	<1000 [<1000–<1300]	<1000 [<1000–<1300]	<1000 [<1000–<1300]	<1000 [<1000–<1200]	<1000 [<1000–<1100]	<1000 [<500–<1000]
CAMBODIA	6500 [4200–10000]	5900 [3700–9400]	5200 [3100–8500]	4400 [2500–7400]	3500 [2000–6300]	2700 [1500–5000]	1900 [1000–3700]	1200 [<1000–2400]	<1000 [<500–<1300]	<500 [<200–<1000]
CHINA										
FIJI	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
JAPAN	<100 [<100–<200]	<200 [<100–<500]	<500 [<200–<500]	<500 [<500–<500]	<500 [<500–<1000]	<500 [<500–<1000]	<500 [<500–<1000]	<500 [<500–<1000]	<500 [<500–<1000]	<500 [<500–<1000]
LAO PEOPLE'S DEMOCRATIC REPUBLIC	<100 [<100–<100]	<100 [<100–<200]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
MALAYSIA	3000 [2200–4000]	2500 [1800–3400]	2000 [1400–2800]	1500 [<1000–2200]	1100 [<1000–<1600]	<1000 [<500–<1100]	<500 [<200–<1000]	<500 [<100–<500]	<200 [<100–<500]	<100 [<100–<200]
MONGOLIA	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<200]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
NEW ZEALAND	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<100]
PAPUA NEW GUINEA	<500 [<200–<1000]	<500 [<200–<1000]	<200 [<100–<500]	<200 [<100–<500]	<100 [<100–<500]	<100 [<100–<500]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]
PHILIPPINES	<100 [<100–<500]	<100 [<100–<1000]	<100 [<100–<1100]	<100 [<100–<4200]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
REPUBLIC OF KOREA	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<200 [<100–<500]	<100 [<100–<500]
SINGAPORE	<100 [<100–<500]	<100 [<100–<1500]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<200]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]	<100 [<100–<100]
VIET NAM	3600 [2100–5000]	2800 [1500–4100]	2200 [1100–3400]	1700 [<1000–2800]	1300 [<500–2300]	1000 [<500–<1900]	<1000 [<500–<1600]	<1000 [<200–<1300]	<500 [<100–<1000]	<500 [<100–<1000]

Source: WHO, Global Health Observatory Data Repository

Note: Numbers in [] indicate uncertainty bounds.

8.4 ESTIMATION OF NEW HIV INFECTIONS AND INCIDENCE (15–49 YEARS) (%) IN WPR COUNTRIES, 1990–2009

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
CAMBODIA	17 000 [9200–36 000]	20 000 [11 000–34 000]	13 000 [7600–20 000]	12 000 [6200–18 000]	12 000 [5500–17 000]	12 000 [5300–17 000]	12 000 [5700–18 000]	11 000 [5600–16 000]	9200 [5000–13 000]	7600 [4300–11 000]
	0.36 [0.20–0.66]	0.30 [0.17–0.49]	0.22 [0.11–0.33]	0.20 [<0.10–0.29]	0.18 [<0.10–0.28]	0.18 [<0.10–0.29]	0.17 [<0.10–0.27]	0.14 [<0.10–0.23]	0.11 [<0.10–0.17]	<0.10 [<0.10–0.14]
CHINA	...	...	...	...	...	...	...	...	...	...
	<1000–4900]	[1600–9100]	[3300–17 000]	[9100–51 000]	[39 000–180 000]	[34 000–100 000]	[14 000–35 000]	[20 000–42 000]	[25 000–49 000]	[32 000–61 000]
	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]
FIJI	...	...	...	...	...	...	...	...	...	...
	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]
	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]
LAO PEOPLE'S DEMOCRATIC REPUBLIC	...	...	...	...	...	...	...	...	...	...
	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<100]	[<100–<1000]	[<100–<500]
	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]
MALAYSIA	3100	4800	6500	7600	8100	8000	7400	7000	7100	7400
	[1200–4500]	[2800–7400]	[4400–11 000]	[5000–12 000]	[4100–13 000]	[4900–12 000]	[5200–11 000]	[5400–9500]	[5600–9300]	[6000–9400]
	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]
PAPUA NEW GUINEA	<200	<500	<500	<500	<1000	<1000	<1000	1300	1800	2500
	[<100–<500]	[<100–<1000]	[<200–1400]	[<200–2100]	[<500–1700]	[<500–1900]	[<500–2000]	[<1000–2400]	[1200–2900]	[1700–3400]
	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10
	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–0.10]	[<0.10–0.12]	[<0.10–0.13]
PHILIPPINES	<100	<500	<100	<100	<100	<200	<200	<200	<200	<500
	[<100]	[<100]	[<100]	[<100]	[<100]	[<100–<100]	[<100–1600]	[<100–<1000]	[<100–<500]	[<100–<500]
	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	[<0.10]	[<0.10]	[<0.10]	[<0.10]	[<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]
REPUBLIC OF KOREA	...	...	...	...	...	...	...	...	...	...
	[<100–<500]	[<100–<500]	[<100–<500]	[<100–<500]	[<100–<500]	[<100–<500]	[<200–<500]	[<200–<500]	[<500–<500]	[<500–<500]

	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]
SINGAPORE	...	...	...	...	...	...	...	...	...	...
	[<200–<500]	[<200–<500]	[<500–<1000]	[<500–<1000]	[<500–<1000]	[<200–<500]	[<200–<500]	[<100–<500]	[<100–<500]	[<100–<500]

	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]
VIET NAM	...	...	...	...	...	...	...	...	...	...
	[1100–4900]	[1600–5900]	[2500–7300]	[3500–8900]	[5200–11 000]	[7400–14 000]	[9900–17 000]	[12 000–22 000]	[15 000–27 000]	[17 000–32 000]
	<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]
	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]

Source: UNAIDS Report on the Global AIDS Epidemic 2010

Notes: For each country, the first row gives the estimates of new infections, and the second row gives the estimates of HIV incidence (aged 15–49 years). The numbers in [] indicate lower and upper bounds of the estimates.

8.4 ESTIMATION OF NEW HIV INFECTIONS AND INCIDENCE (AGED 15–49 YEARS) (%) IN WPR COUNTRIES, 1990–2009 (CONTINUED)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
CAMBODIA	6200 [3500–10 000] <0.10 [<0.10–0.13]	5100 [2900–9200] <0.10 [<0.10–0.11]	4300 [2400–8300] <0.10 [<0.10–0.10]	3400 [1800–7000] <0.10 [<0.10–0.10]	2600 [1300–5500] <0.10 [<0.10–0.10]	1700 [<1000–3800] <0.10 [<0.10–0.10]	<1000 [<500–2100] <0.10 [<0.10–0.10]	<1000 [<500–2100] <0.10 [<0.10–0.10]	<1000 [<500–2100] <0.10 [<0.10–0.10]	<1000 [<500–2100] <0.10 [<0.10–0.10]	1700 [<1000–4200] <0.10 [<0.10–0.10]
CHINA	...	...	...	...	...	...	...	...	...	...
	[39 000–74 000] [<0.10–<0.10]	[45 000–87 000] [<0.10–<0.10]	[51 000–97 000] [<0.10–<0.10]	[55 000–100 000] [<0.10–<0.10]	[56 000–110 000] [<0.10–<0.10]	[56 000–120 000] [<0.10–<0.10]	[54 000–120 000] [<0.10–<0.10]	[52 000–130 000] [<0.10–<0.10]	[50 000–130 000] [<0.10–<0.10]	[47 000–140 000] [<0.10–<0.10]	
FIJI	...	...	...	...	...	...	...	...	...	...
	[<100–<100] [<0.10–<0.10]	[<100–<100] [<0.10–<0.10]	[<100–<100] [<0.10–<0.10]	[<100–<100] [<0.10–<0.10]	[<100–<100] [<0.10–<0.10]	[<100–<200] [<0.10–<0.10]	[<100–<200] [<0.10–<0.10]	[<100–<200] [<0.10–<0.10]	[<100–<200] [<0.10–<0.10]	[<100–<200] [<0.10–<0.10]	
LAO PEOPLE'S DEMOCRATIC REPUBLIC	...	...	...	...	...	...	...	...	...	...
	[<100–<500] [<0.10–<0.10]	[<100–<1000] [<0.10–<0.10]	[<100–<1000] [<0.10–<0.10]	[<100–<1000] [<0.10–<0.10]	[<500–1100] [<0.10–<0.10]	[<1000–1300] [<0.10–<0.10]	[<1000–1800] [<0.10–<0.10]	[<1000–2400] [<0.10–<0.10]	[<1000–3000] [<0.10–<0.10]	[<1000–3400] [<0.10–<0.10]	
MALAYSIA	7700 [6300–9700] <0.10 [<0.10–0.10]	8100 [6600–10 000] <0.10 [<0.10–0.10]	8400 [6900–10 000] <0.10 [<0.10–0.10]	9200 [7400–11 000] <0.10 [<0.10–0.10]	9600 [7800–12 000] <0.10 [<0.10–0.10]	9600 [7800–12 000] <0.10 [<0.10–0.10]	9800 [8000–12 000] <0.10 [<0.10–0.10]	10 000 [8200–12 000] <0.10 [<0.10–0.10]	10 000 [8400–13 000] <0.10 [<0.10–0.10]	10 000 [8400–13 000] <0.10 [<0.10–0.10]	10 000 [8400–13 000] <0.10 [<0.10–0.10]
PAPUA NEW GINEA	3100 [2300–4100] 0.12 [<0.10–0.15]	3800 [3000–4700] 0.13 [0.11–0.16]	4200 [3400–5100] 0.14 [0.11–0.16]	4400 [3500–5200] 0.13 [0.10–0.16]	4300 [3400–5100] 0.12 [<0.10–0.15]	4000 [3100–5000] 0.11 [<0.10–0.14]	3700 [2800–4800] <0.10 [<0.10–0.13]	3500 [2500–4600] <0.10 [<0.10–0.12]	3200 [2200–4600] <0.10 [<0.10–0.12]	3200 [2200–4600] <0.10 [<0.10–0.12]	3200 [2100–4800] <0.10 [<0.10–0.13]
PHILIPPINES	<500 [<100–<500] <0.10 [<0.10–<0.10]	<500 [<100–<1000] <0.10 [<0.10–<0.10]	<500 [<100–<1000] <0.10 [<0.10–<0.10]	<1000 [<100–<1000] <0.10 [<0.10–<0.10]	<1000 [<100–<1000] <0.10 [<0.10–<0.10]	<1000 [<500–1200] <0.10 [<0.10–<0.10]	<1000 [<1000–1500] <0.10 [<0.10–<0.10]	<1000 [<1000–2200] <0.10 [<0.10–<0.10]	1200 [<1000–3300] <0.10 [<0.10–<0.10]	1600 [<1000–4900] <0.10 [<0.10–<0.10]	2100 [1200–4900] <0.10 [<0.10–<0.10]
REPUBLIC OF KOREA	...	...	...	...	...	...	...	...	...	...
	[<1000–2300] [<0.10–<0.10]	[<1000–2100] [<0.10–<0.10]	[<1000–1800] [<0.10–<0.10]	[<1000–1600] [<0.10–<0.10]	[<1000–1400] [<0.10–<0.10]	[<1000–1200] [<0.10–<0.10]	[<1000–1200] [<0.10–<0.10]	[<1000–1100] [<0.10–<0.10]	[<500–1100] [<0.10–<0.10]	[<500–1000] [<0.10–<0.10]	
SINGAPORE	...	...	...	...	...	...	...	...	...	...
	[<0.10–<0.10] [<100–<200] [<0.10–<0.10]	[<0.10–<0.10] [<100–<500] [<0.10–<0.10]	[<0.10–<0.10] [<100–<500] [<0.10–<0.10]	[<0.10–<0.10] [<100–<500] [<0.10–<0.10]	[<0.10–<0.10] [<100–<500] [<0.10–<0.10]	[<0.10–<0.10] [<100–<500] [<0.10–<0.10]	[<0.10–<0.10] [<100–<500] [<0.10–<0.10]	[<0.10–<0.10] [<100–<500] [<0.10–<0.10]	[<0.10–<0.10] [<100–<500] [<0.10–<0.10]	[<0.10–<0.10] [<100–<500] [<0.10–<0.10]	
VIET NAM	...	...	...	...	...	...	...	...	...	...
	[11 000–19 000] [<0.10–<0.10]	[27 000–47 000] [<0.10–<0.10]	[27 000–45 000] [<0.10–<0.10]	[26 000–43 000] [<0.10–<0.10]	[25 000–41 000] [<0.10–<0.10]	[24 000–40 000] [<0.10–<0.10]	[22 000–38 000] [<0.10–<0.10]	[20 000–38 000] [<0.10–<0.10]	[18 000–38 000] [<0.10–<0.10]	[16 000–38 000] [<0.10–<0.10]	
	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	[<0.10–<0.10]	

Source: UNAIDS
Report on the
Global AIDS
Epidemic 2010

Notes: For each
country, the
first row gives
the estimates of
new infections,
and the second
row gives the
estimates of HIV
incidence (aged
15–49 years).
The numbers
in [] indicate
lower and upper
bounds of the
estimates.

LIST OF KEY PUBLICATIONS BY WPRO, 2000–2011

- *Good practices in Asia: effective paradigm shifts towards an improved response to drugs and HIV/AIDS: scale-up of harm reduction in Malaysia* (2011)
- *Elimination of new paediatric HIV infections and congenital syphilis in Asia–Pacific 2011–2015: conceptual framework and monitoring and evaluation guide* (2011)
- *A strategy to halt and reverse the HIV epidemic among people who inject drugs in Asia and the Pacific, 2010–2015* (2010)
- *Priority HIV and sexual health interventions in the health sector for men who have sex with men and transgender people in the Asia–Pacific Region* (2010)
- *Technical briefs on amphetamine-type stimulants (ATS)* (2010)
- *HIV counselling handbook for the Asia-Pacific* (2009)
- *Assessment of compulsory treatment of people who use drugs in Cambodia, China, Malaysia and Viet Nam: application of selected human rights principles* (2009)
- *Clinical guidelines for withdrawal management and treatment of drug dependence in closed settings* (2009)
- *Guidance on testing and counselling for HIV in settings attended by people who inject drugs: improving access to treatment, care and prevention* (2009)
- *Responding to questions about the 100% condom use programme: a job aid for programme staff* (2009)
- *Training manual for clinical guidelines for withdrawal management and treatment of drug dependence in closed settings* (2009)
- *Asia–Pacific operational framework for linking HIV/STI services with reproductive, adolescent, maternal, newborn and child health services* (2008)
- *Health in Asia and the Pacific* (2008)
- *HIV/AIDS care and treatment for people who inject drugs in Asia and the Pacific: an essential practice guide* (2008)



- *Integrating poverty and gender into health programmes – a sourcebook for health professionals: module on HIV/AIDS* (2008)
- *Regional strategic plan for the prevention and control of sexually transmitted infections, 2008–2012* (2008)
- *Inside out: HIV harm reduction education for closed settings* (2007)
- *Orientation on harm reduction – training course: trainer manual* (2007)
- *The continuum of care for people living with HIV/AIDS in Cambodia: linkages and strengthening in the public health system – case study* (2006)
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- *Biregional strategy for harm reduction 2005–2009: HIV and injecting drug use* (2005)
- *Experiences of 100% condom use programme in selected countries of Asia* (2004)
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- *Prevalence surveys of sexually transmitted infections among seafarers and women attending antenatal clinics in Kiribati: 2002–2003* (2004)
- *Responding to questions about the 100% condom use programme: an aid for programme staff* (2004)
- *Tuberculosis and HIV: a framework to address TB/HIV coinfection in the Western Pacific Region* (2004)
- *Guidelines for scaling-up the 100% condom use programme: experience from Cambodia* (2003)
- *STI/HIV counselling in Pacific Islands: a training manual* (2003)
- *STI/HIV: training course for the 100% condom use programme* (2002)
- *HIV/AIDS in Asia and the Pacific Region* (2001)
- *Promoting condoms in clinics for sexually transmitted infections: a practical guide for programme planners and managers* (2001)
- *100% Condom use programme in entertainment establishments* (2000)



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HIV AND SEXUALLY TRANSMITTED INFECTIONS IN THE WESTERN PACIFIC REGION

2000–2010

The countries in the Western Pacific Region have made good progress in reducing the transmission of HIV and providing services to people living with HIV (PLHIV). However, challenges remain and there are important gaps to be filled. This report documents the achievements and challenges of the health sector's response to the HIV epidemic in the Region over the past decade. It identifies best practices and important opportunities to further reduce the number of new infections, and prolong and improve the quality of life of people living with HIV in the Western Pacific Region.

The last report on HIV and sexually transmitted infections was published by WPRO in 1999. The focus of this Regional report is to bridge the gap in knowledge and history.



WHO Western Pacific Region
PUBLICATION



ISBN-13

978 92 9061 572 9