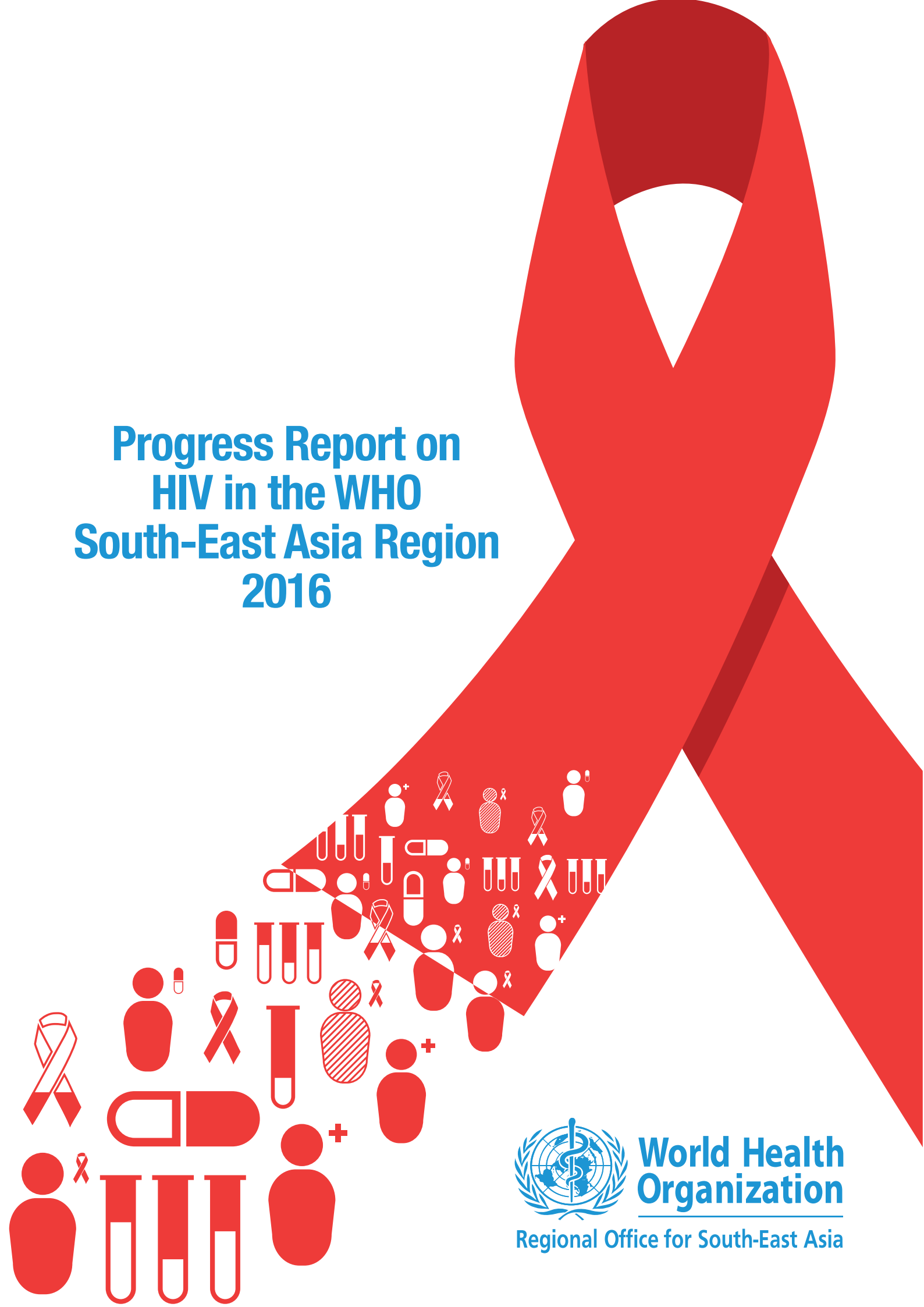
Progress Report on HIV in the WHO South-East Asia Region 2016



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Foreword

We are at a moment in history when having consolidated the gains of the HIV response in the millennium development agenda, the world has committed to end AIDS by 2030 as a target for the sustainable development agenda. HIV response has seen many a turn for the better since the first reported case in 1981 opening the floodgates of a surging epidemic claiming millions of lives and galvanizing the global community into action. In its life of 35 years, HIV has caused around 75 million infections and claimed 30 million lives. Scientific advances have halted and reversed the epidemic – a success of the MDG era. HIV that was a death sentence in its earlier years is now a manageable chronic condition with treatment that is as yet lifelong as a cure still eludes us. AIDS-related deaths have been reduced by 45% since 2005. An estimated 36.7 million (34.0–39.8)million people in the world live with HIV today of whom 17 million are on treatment. We need to find and ensure access to treatment for all these people living with HIV. Early and effective treatment prevents transmission and thus reduces new infections. WHO South-East Asia Region, with 3.5 million people estimated to be living with HIV, bears the second highest burden after sub-Saharan Africa. Approximately 39% of PLHIV in the Region are women and girls. Populous countries in the Region, namely India, Indonesia, Myanmar, Nepal and Thailand contribute to 99% of the regional burden with India alone at 60%.

The HIV epidemic in the Region is concentrated among key populations such as men who have sex with men, transgender people, female sex workers and their clients, people who inject drugs and their regular partners. One of the unique features of AIDS response in the SEA Region has been a focused approach on prevention through community- led interventions for and with key populations. Community led and driven responses have ensured participation in policy and programme planning and implementation resulting in scaling up of treatment, reduction in AIDS-related deaths and decline in new infections. We are making progress in ensuring a generation born HIV free – Thailand became the first country in Asia Pacific and second in the world, the first with a generalized epidemic to eliminate mother-to-child transmission in June 2016, having passed the validation from WHO. Almost 40% of people living with HIV in the Region are on treatment, a doubling of ART rolls since 2010. In 2015, an estimated 180 000 people were newly infected and 130 000 died of AIDS. While these have declined, the rates are now flat-lining. We have every reason to celebrate success that has been made possible due to relentless efforts of national programmes, development partners, scientific communities and above all civil society and people infected and affected by HIV; we need to maintain and accelerate the pace of response to realize the goal of ending AIDS. Too many people still need to know their status, have access to treatment; too many people are still acquiring HIV and losing their lives to a disease that is manageable. Stigma, discrimination and punitive laws continue to pose access barriers to those most in need.
WHO has been updating guidelines and made recommendations for scaling up HIV testing services including community-based trained lay provider testing; removing eligibility conditions to recommend 'Treat All' with HIV, monitoring the testing, treatment, retention and viral suppression cascade for early treatment initiation to reap the prevention benefit and offering pre-exposure prophylaxis to those who are negative but at higher risk of HIV acquisition. National governments in the Region are committed to the cause, and domestic resource allocations for HIV in most countries are increasing. But, we need to maintain further focus to ensure that the targets are met and goals achieved.

This progress report presents the state of the epidemic and response at regional and country levels with challenges and opportunities that will help Member States, WHO and other key stakeholders identify areas for prioritization and focus to fast-track the HIV response at national and subnational levels to reach 90-90-90 targets of 2020 and pave the way for achieving the SDG target of ending AIDS as a public health threat by 2030.

Dr Poonam Khetrapal Singh
Regional Director

Contents

Acronyms

AIDS	Acquired immune deficiency syndrome
ANC	Antenatal care
ART	Antiretroviral therapy
ATT	Anti-TB treatment/therapy
ASEAN	Association of Southeast Asian Nations
EMTCT	Elimination of mother-to-child transmission
FSW	Female sex worker
GARPR	Global AIDS response and progress reporting
HCW	Health-care workers
HIV	Human immunodeficiency virus
HSS	HIV sentinel surveillance
HTC	HIV testing and counseling
IBBS	Integrated biological and behavioural survey
KP	Key populations
MA	Methamphetamine
MDG	Millennium Development Goals
MSM	Men who have sex with men
MSW	Male sex worker
NACO	National AIDS Control Organization – India
NGO	Nongovernmental organization
NHSO	National Health Security Office
PITC	Provider-initiated testing and counseling
PLHIV	People living with HIV
PMTCT	Prevention of mother-to-child transmission
PreP	Pre-exposure prophylaxis
PSE	Population size estimation
PWID	People who inject drugs
RDS	Respondent driven sampling
SD	Strategic directions
SDG	Sustainable Development Goals
SEAR	South-East Asia Region
SEARO	South-East Asia Regional Office
STI	Sexually transmitted infections
TB	Tuberculosis
TGSW	Transgender sex worker
TGW	Transgender women
UHC	Universal health coverage
UNAIDS	Joint United National Programme on HIV/AIDS
UNPD	United Nations Population Division
US CDC	United States Centers for Disease Control and Prevention
VCT	Voluntary counseling and testing
WHO	World Health Organization

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1. Introduction

A. State of the global HIV epidemic

There were an estimated 36.7 million (34.0–39.8) people living with HIV (PLHIV) globally as of December 2015. Annually, there are an estimated 2.1 million (1.8-2.4) new infections 1.1 million (0.94-1.3) AIDS-related deaths. Nearly 17 million people living with HIV (PLHIV) are receiving ART with 46% coverage of those in need of ART.[1] Although significant progress in the control of the epidemic has been made, countries must accelerate the prevention of new infections, implement a Treat All strategy, reduce AIDS deaths and eliminate HIV-related stigma and discrimination.

B. Major changes to the epidemic and response over the last 5 years

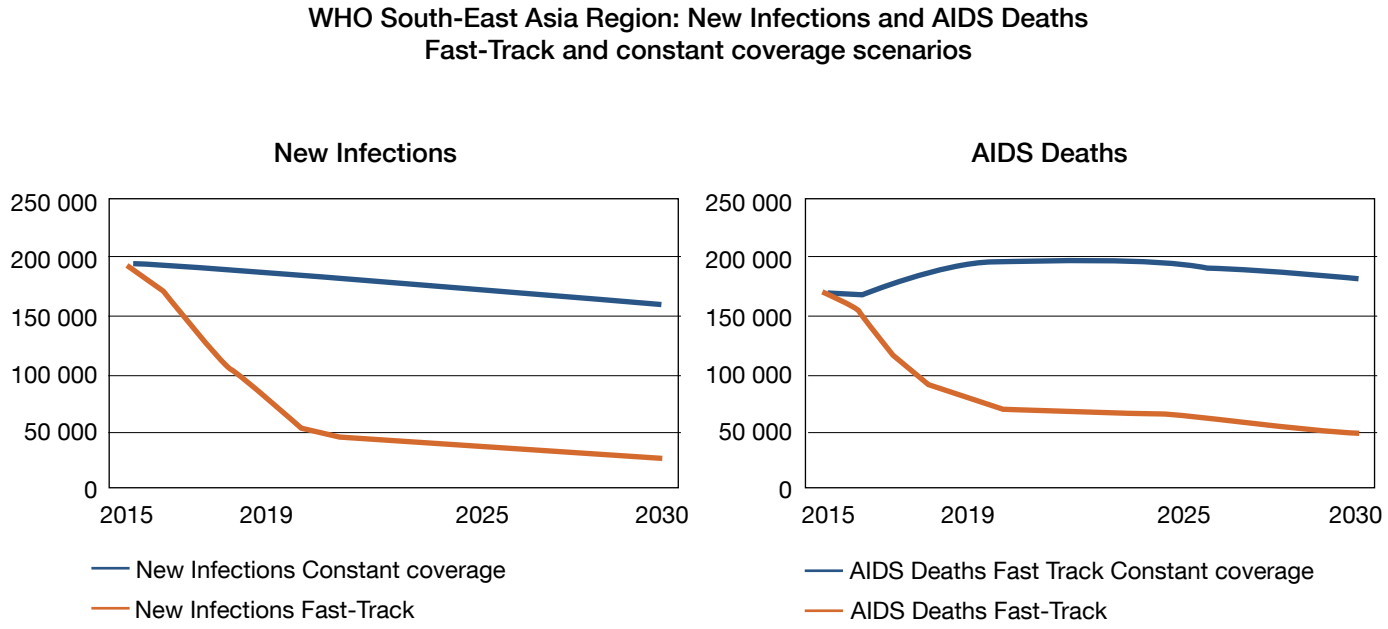
During the 5-year period from 2011–2015, the Regional Health Sector Strategy on HIV, 2011-2015 provided the guiding principles for the WHO South-East Asia Region in supporting member countries. These include:

- Implementing a long term, sustainable HIV response through strengthening health and community systems;
- Tackling the social determinants of health that both drive the epidemic and hinder the response;
- Protecting and promoting human rights and promoting gender equity and
- Integrating HIV and other health services, improving both impact and efficiency.

Another key transition in the international development context during this period has been the reformulation and recommitment to global development goals. In 2015, global partners and countries declared commitments to a set of Sustainable Development Goals (SDGs). The SDGs set the agenda for global development goals for the next 15 years, just as the Millennium Development Goals (MDGs) set targets and spurred countries and development partners to make progress in the areas of poverty, education, women's empowerment, health and environmental sustainability over the period 2000–2015.

The SDGs include a target for ending the AIDS as a public health threat by 2030. In order to meet this SDG target, UNAIDS and its partners, including WHO, called for a

Figure 1. WHO South-East Asia Region Impact on the HIV Epidemic: Fast-Track vs. Constant Coverage Scenarios[3]



Source: UNAIDS modeling.

Fast-Track approach that, by 2020, would result in:

- reducing new HIV infections by 75% from 2.1 million in 2015 to <500 000 globally,
- ensuring 90% of PLHIV knew their status,
- ensuring 90% of people who know their status will receive sustained Antiretroviral therapy (ART), and
- 90% of people on ART will have viral suppression.

Sufficient coverage with early and sustained ART for PLHIV could reduce AIDS-related deaths globally from 1.1 million in 2015 to <500 000 by 2020.[2] The Impact of a Fast-Track approach is no less ambitious in south-east Asia. Figure 1 illustrates the declines in AIDS deaths and new infections targeted over the next 5 years in the Region.

C. Importance of taking stock of the Region

The contribution of the South-East Asia Region (SEAR) to controlling the global epidemic is critical in terms of the potential to prevent new HIV infections among a large key population and sharing effective prevention and care and treatment strategies developed by national programmes in the Region. This 2016 Regional Progress Report on HIV in the South-East Asia Region reviews the current state of the epidemic, course of the response from 2011-2015 and highlights the opportunities and challenges for addressing AIDS in the next 5-year period.

2. Regional HIV Epidemic Situation

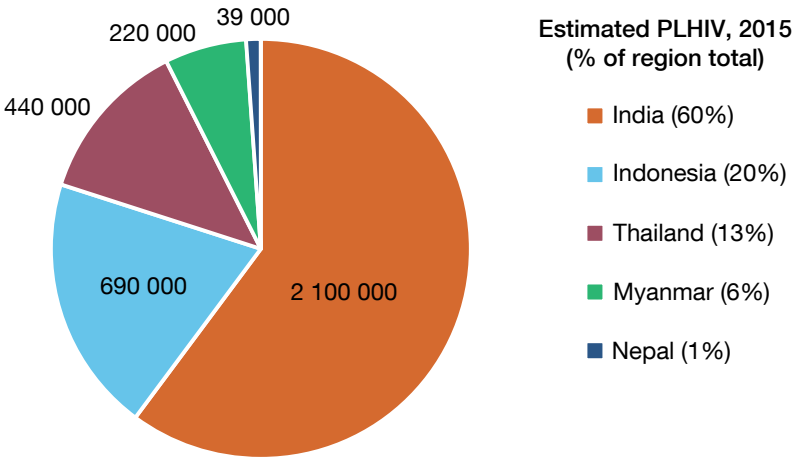
A. Burden of HIV in the region

Approximately 10% of PLHIV globally live in SEAR, an estimated 3.5 million PLHIV in 2015. This represents an overall adult HIV prevalence 0.3%. Of all PLHIV in the Region, 39% are estimated to be women and girls. Across the 10 countries in the Region, 99% of estimated HIV infections are geographically concentrated in five countries: India, Indonesia, Myanmar, Nepal and Thailand.

Figure 2 shows the number of estimated PLHIV in the Region's five high-burden countries and the proportion of HIV infections each country represents in the regional total. Indonesia, Thailand and Myanmar bear a disproportional number of estimated PLHIV with respect to the size of the general population of each country, while India accounts for 60% of burden in the Region, primarily because of its large population.

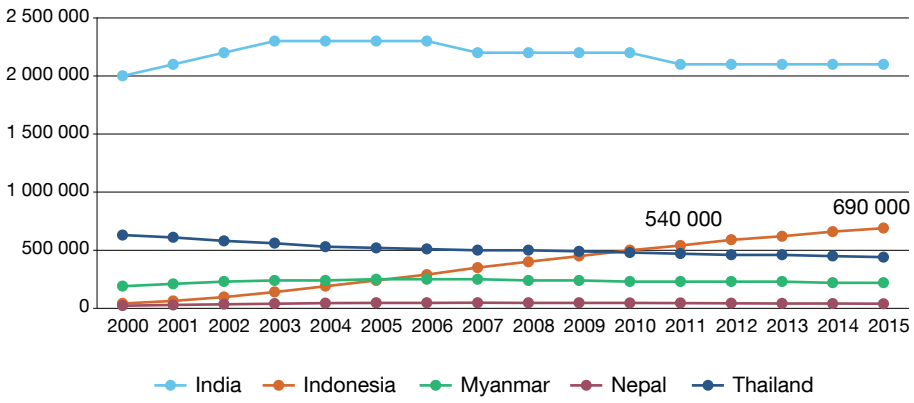
The estimated number of PLHIV shows signs of

Figure 2. Proportion of the Region's estimated PLHIV in five high-burden countries



Source: UNAIDS 2016 estimates.

Figure 3. Trends in estimated PLHIV in 5 high-burden countries (2000-2015)



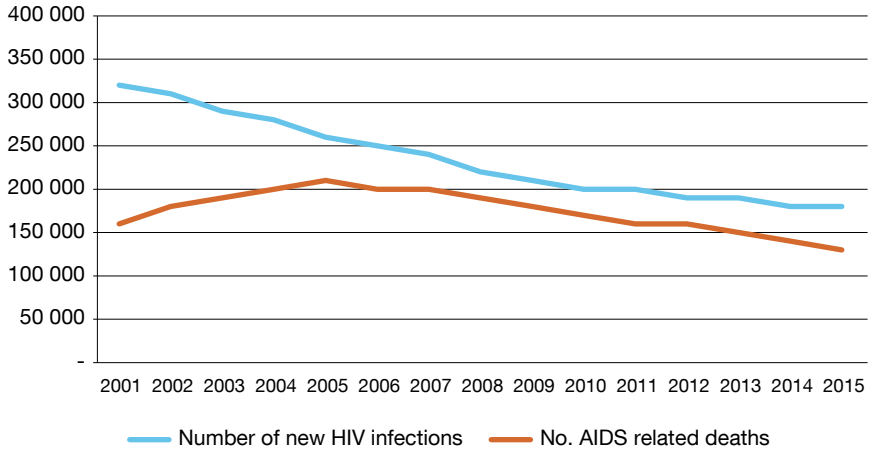
Source: UNAIDS 2016 estimates.

stabilizing or declining in four of the five high-burden countries, with the exception of Indonesia. In Indonesia, estimated PLHIV increased from 540 000 to 690 000, an increase of 28% over the period from 2011–2015.

At the country level, the trend in estimated PLHIV numbers reflects the shifting balance between AIDS-related deaths and new HIV infections. In the Region, an estimated 180 000 new infections and 130 000 AIDS-related deaths occurred in 2015. These estimates suggest steady declines in new infections between 2001 and 2009, followed by a slower decline until 2015. AIDS-related deaths have declined steadily for about 10 years.

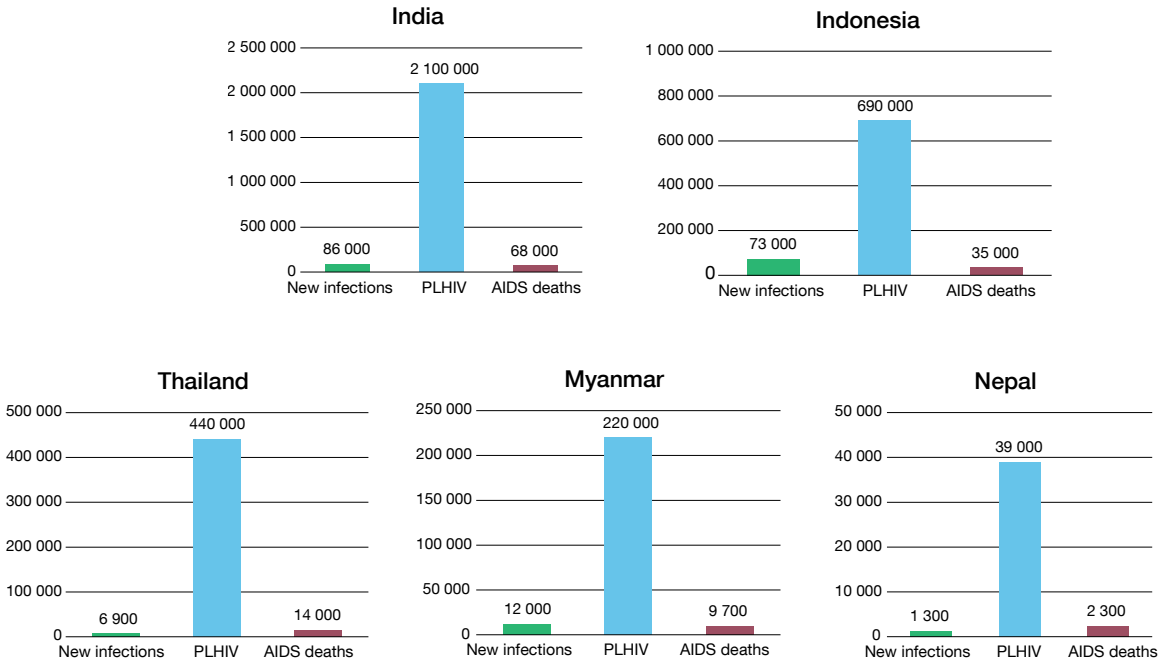
Examining the dynamic between new infections and AIDS deaths at the country level, further illustrates the differences in epidemic context within the Region. In Thailand and Nepal, new infections are roughly one half the number of AIDS deaths, consistent with an overall declining trend in estimated PLHIV. In contrast, in Indonesia due to the newer epidemic and geographically dispersed key populations, new HIV infections outpace the number of AIDS deaths by more than 2:1. New infections

Figure 4. Estimated number of new HIV infections and AIDS deaths in SEAR (2001-2015)



Source: UNAIDS 2016 estimates.

Figure 5. Proportion of the Region's new HIV infections and AIDS deaths contributed by five high-burden countries, 2015



Source: AIDS Info.

also remain higher than AIDS-related deaths in Myanmar and India. However, the number of AIDS-related deaths in Myanmar and India show a decrease of 10% from 2014 to 2015.

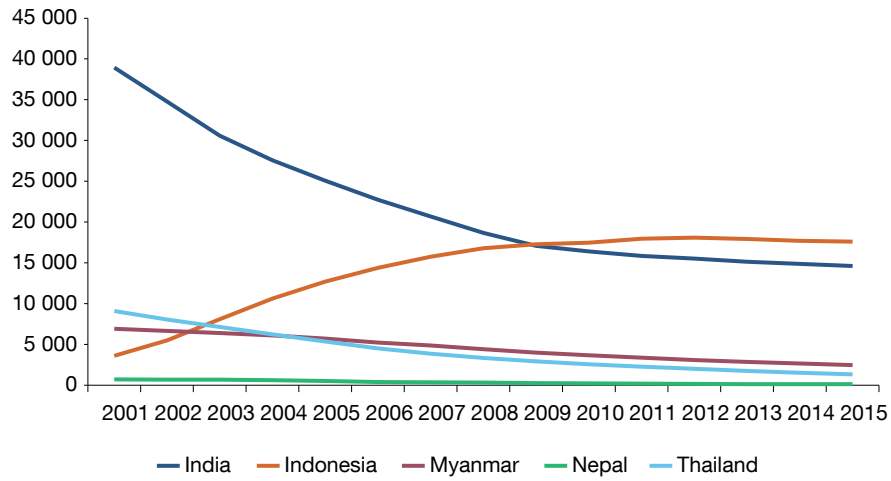
Trends in estimated PLHIV among young adults provide additional insight into patterns of new infections. This is based on the understanding that HIV prevalence trends among those 15-24 years old are minimally distorted by cumulative infections in older adults. And because the mean age of sexual debut and/or initiation of drug use is greater than 18 years of age in most countries of the Region,[4] it is reasonable to assume that prevalent HIV infections among those 15-24 years old represent relatively new infections.

In this Region, epidemic modelling suggests that the number of young adult PLHIV infections have declined in Myanmar, Nepal and Thailand, and implies reductions in new infections among this age group. In Indonesia, estimates of PLHIV among those 15-24 years old have been stable since 2009.

An effective prevention response to the epidemic requires understanding who is most at risk of acquiring and transmitting HIV. The HIV epidemics in SEAR are concentrated among key populations such as men who have sex with men (MSM), transgender, female sex workers (FSW) and clients, people who inject drugs (PWID) and their regular partners. Despite all countries having concentrated HIV epidemics, the relative importance of specific key population varies across countries in the Region.

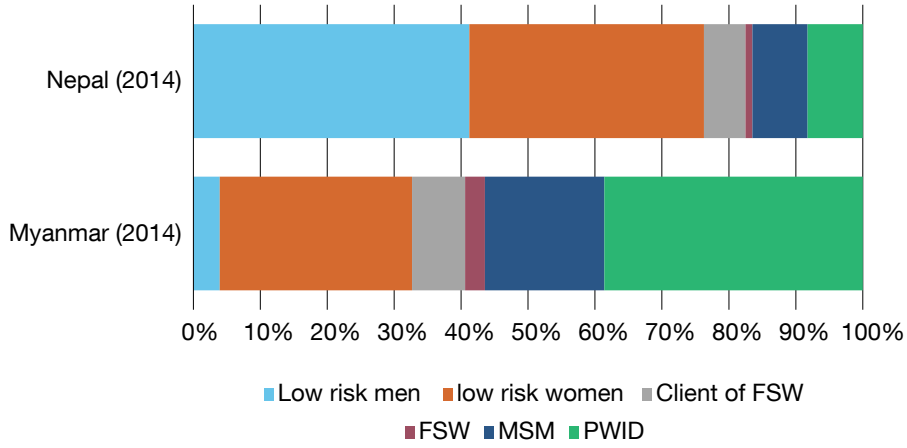
Recent epidemic modelling conducted in Nepal and Myanmar clearly illustrate this diversity. In Myanmar, infections among MSM and PWID contribute more than 50% of all estimated PLHIV, compared to roughly 15% of all PLHIV in Nepal. The high proportion of "low risk" men and women among PLHIV in Nepal is related to patterns of seasonal migration to high prevalence areas of other countries and where high-risk behaviour, such as commercial sex, occurs.[5] And even considering the relative proportion of MSM to PWID PLHIV, the PWID epidemic contributes a much larger portion of infections in Myanmar compared to Nepal.

Figure 6. Trends in estimated number of young PLHIV (15-24 years old; 2001-2015)



Source: UNAIDS 2016 estimates.

Figure 7. Differences in distribution of estimated HIV infections across key populations in Nepal and Myanmar



Source: GARPR 2015.

B. Epidemic trends among key populations

Through integrated biological and behavioural surveys as well as HIV sentinel surveillance systems, countries in the Region have long monitored the sero-prevalence of HIV among various key populations in large cities and other areas where key populations are found in large numbers. Tracking the epidemic in this way allows countries to proactively identify local areas where a more intensive response is required. Trends in sero-prevalence among key populations in the same sites are also critical inputs to epidemic modelling of a concentrated epidemic, including those used to evaluate the impact of localized prevention interventions.

The following section provides a brief overview of the key population epidemic in each of the five high-burden countries, as measured through surveys conducted between 2011 and 2015. Because such surveys cannot be conducted in all areas with key populations, it is difficult to amalgamate the results from the selected survey sites to form a single nationally representative HIV prevalence estimate for MSM, FSW or PWID. When un-modelled sero-prevalence data are presented as such, they most often represent an average or median value across sites, rather than a figure using weights to account for the relative size of the key population contributed from different geographic areas of the country.

Table 1a. HIV sero-prevalence – India[6]

	FSW		MSM		PWID	
	%	95% CI	%	95% CI	%	95% CI
Region 1	0.7	0.4-1.2	1.8	1.1-3.0	1.9	1.1-3.1
Region 2	1.5	0.6-3.9	6.7	3.8-12.0	9.7	6.2-14.8
Region 3	0.8	0.5-1.3	2.9	1.9-4.5	27.2	23.6-31.2
Region 4	1.1	0.5-2.5	1.9	1.0-3.6	13.6	10.5-17.5
Region 5	1.2	0.8-1.7	2	1.3-3.0	9.7	6.6-14.2
Region 6	5.9	4.0-8.6	2.4	1.5-2.8	7.3	5.4-9.7
Region 7	1	0.5-1.9	6.8	4.2-10.9	21.8	15.7-29.4
Region 8 (MSM)			2.9	2.1-4.0		
Andhra Pradesh	6.3	4.1-9.5	10.1	7.4-13.8		
Karnataka	5.8	4.0-8.2	4.1	2.9-5.8		
Maharashtra	7.4	4.5-11.9	4.9	3.3-7.4		
Haryana (MSM)			1.7	1.0-2.9		
Nagaland (PWID)					3.2	2.2-4.7
Manipur (PWID)					12.1	9.7-15.0
Mizoram (PWID)					10	7.2-13.8
National	2.2	1.8-2.6	4.3	3.7-5.1	9.9	9.0-10.9

Note: Sampling for IBBS was based on the estimated size of the key populations in different areas. This necessitated separate selection of districts for sampling and groupings of states for regional estimates for each key population.

Source: IBBS 2014-2015, India

Table 1b. State groupings for each region and key population

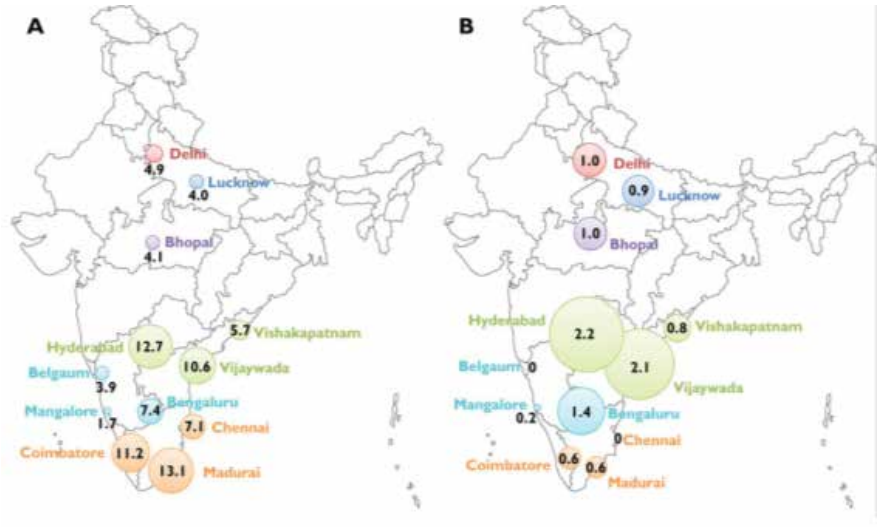
	FSW	MSM	PWID
Region 1	Arunachal Pradesh, Assam, Meghalaya, Tripura	Assam, Nagaland, Tripura	Assam, Meghalaya, Tripura, Arunachal Pradesh, Sikkim;
Region 2	Chandigarh, Haryana, Himachal Pradesh, Delhi, Punjab, Rajasthan	West Bengal, Odisha, Jharkhand	Odisha, Jharkhand, West Bengal
Region 3	Chhattisgarh, Madhya Pradesh, Uttar Pradesh, Uttarakhand	Uttar Pradesh, Uttarakhand	Bihar, Uttar Pradesh, Uttarakhand
Region 4	Gujarat, Goa	Madhya Pradesh, Chhattisgarh	Chhattisgarh, Madhya Pradesh
Region 5	Jharkhand, Odisha, West Bengal	Punjab, Himachal Pradesh, Chandigarh	Punjab, Chandigarh
Region 6	Manipur, Mizoram, Nagaland	Delhi, Rajasthan	Haryana, Himachal Pradesh, Jammu & Kashmir
Region 7	Kerala, Puducherry, Tamil Nadu	Gujarat, Goa	Delhi, Rajasthan
Region 8		Tamil Nadu, Puducherry, Kerala	

Source: IBBS 2014-2015, India

India:
Historically, HIV sentinel surveillance has been the primary source of sero-prevalence data among key populations in India between 2003 and 2010. However, in 2014, the National AIDS Control Organization (NACO) conducted IBBS among FSW, MSM and PWID and developed HIV prevalence estimates for 10 regions and states as well as at the national level. These data illustrate the diversity in epidemic across geographic regions in such a large country. For example, the nationally weighted prevalence of HIV among FSW was 2.2% but regional prevalence ranged from 0.7% to 7.4%. Greater diversity is apparent among PWID communities with a nationally weighted prevalence of 9.9% but a large range across regions: from 1.9% to 27.2% (Table 1a. and Table 1b).

In 2014, large-scale IBBS of MSM and PWID in 26 sites in India have also been conducted using respondent driven sampling (RDS), a method which represents a more hidden, nonvenue-based portion of the population.[7] These results include both HIV prevalence and incidence measures and help characterize important differences in local epidemics. For example, among MSM, HIV prevalence in cities in the state of Andhra Pradesh (shown in green) and Tamil Nadu (shown in orange) appear similar; however, the incidence rate in the cities of Andhra Pradesh appear more than three times higher than those in Tamil Nadu. Interestingly, three cities in

Figure 8. HIV prevalence and incidence by site, India



Source: Map of India courtesy: National AIDS Control Organization, New Delhi.

Central India (Delhi, Lucknow and Bhopal) showed similar HIV prevalence (4.0-4.9%) and incidence (0.9-1.0 per 100 person-years) estimates (Figure 8).

Indonesia:
The national programme conducted IBBS among key populations in alternative years between 2007 and 2015. Because the full report is not yet available for the 2015 IBBS, data from the 2013 survey are described here. In 2013, among people who inject drugs (PWID) in five cities, average HIV prevalence was 39.5%, reaching as high as 61% in Pontianak, West Kalimantan. These data are consistent with reports by service providers of low coverage of harm reduction programmes for PWID. Surveys among MSM found HIV prevalence of 12.8%, reaching 19% and 20% in Tangerang and Yogyakarta, respectively. Prevalence among transgender women (waria) was lower at 7.4%. Compared to PWID and MSM, HIV prevalence was lower among direct sex workers (7.2%) and indirect sex workers (1.6%).

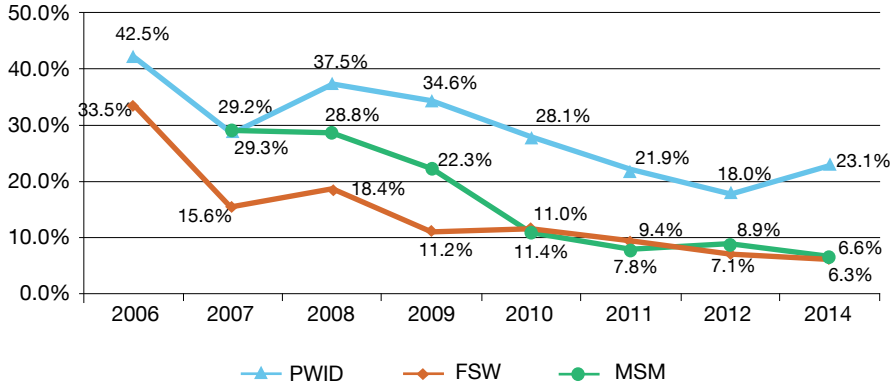
Myanmar:
The primary source of sero-prevalence among key populations in Myanmar comes from HIV sentinel surveillance conducted annually in selected sites. Analysis of consistent sites in Figure 9 shows declining levels of HIV prevalence between 2011 and 2014. Interpreting trends in KP HSS must be done with caution due to the likelihood that this sampling method is biased against including individuals who have already been diagnosed with HIV. Over time, HIV infections detected through HSS may represent newer infections or individuals new to the services. Analysis of the subgroup of young key populations (ages 15-24) represented by the HSS sample suggests similar declining trends over time. It is notable that sero-prevalence measures among the younger subgroup are not substantially

different than those among the overall sample. This may reflect overrepresentation of individuals with recent infections or who are newer to services or that there is high-risk behaviour among young KP.

Nepal:
In Nepal, IBBS was conducted most recently in 2011-2012. Comparisons to surveys conducted in 2006 and 2009 suggest stable-to-declining trends in HIV prevalence among FSW in several large cities and in the Terai (plains) region. All measures of sero-prevalence have remained below 5%. Sero-prevalence measures for MSM have been limited to the Kathmandu Valley, where HIV prevalence has remained steady <5% between 2003 and 2012. Separate surveys conducted among male sex workers (MSW) and transgender sex workers (TGSW) suggest an increase in prevalence between 2007 and 2012 from 2.9% to 6.8%. However, the MSW/TGSW subgroup comprises only a little over 10% of the estimated population of all MSM.

Among PWID across several sites, the 2011-2012 estimates of HIV prevalence declined to 5% from an estimated HIV prevalence in 2005 of greater than 20%. Besides lower incidence among PWID, there may be several contributing explanations for these dramatic declines; for example, increases of PWID population size, a high rate of AIDS-related deaths among PWID and/or discontinuation of injection drug use among those infected with

Figure 9. HIV prevalence among key populations (2006-2014)



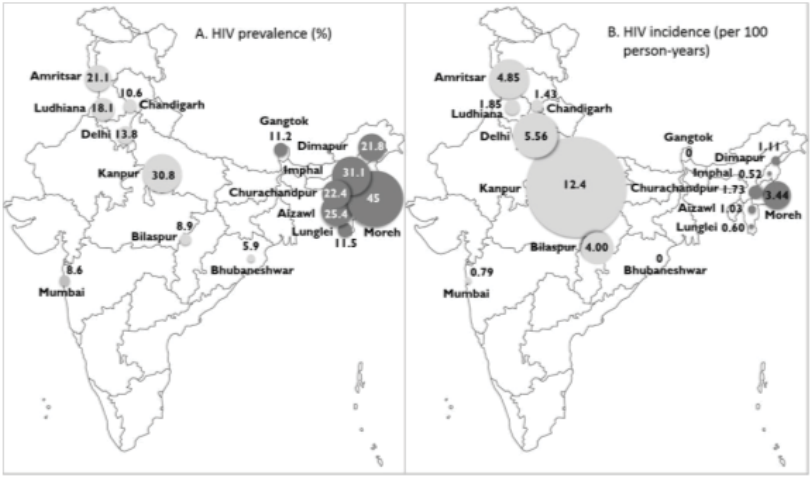
Source: HSS 2006-2014, NAP, Myanmar

Box A: Characterizing HIV epidemics at the city-Level

More and more epidemiologists and programme planners recognize the importance of using cities as a geographic unit in which key populations are concentrated. Globally, cities bear a disproportionate burden of PLHIV. More than one quarter of all PLHIV globally live in one of 200 cities.[8] India provides a strong example of this evolution in geographic focus. Previously, controlling the Indian AIDS epidemic was largely described in terms of intensive response in six high prevalence states (4 southern states and 2 northeastern states). However, as both the epidemic and response has matured, the unit of district/city has become more important for focusing surveillance efforts and allocating resources for service delivery.

In particular, the PWID epidemic in India is often described as concentrated in two northeastern states (Manipur and Nagaland). However, extensive geographic mapping for key populations, including PWID in northern and central states, identified large PWID communities in some cities. In 2015, integrated biological and behavioural surveys conducted in 15 cities found very high HIV prevalence (>15%) and much higher incidence in cities outside of the northeast.[9] The figure below shows the location and prevalence/ incidence among PWID in each city included in these surveys.

Figure 10. Estimated HIV prevalence and incidence among PWIDs



Map of India courtesy: National AIDS Control Organization, New Delhi.

Source: Lucas GM, Solomon SS, Srikrishnan AK et al. High HIV burden among people who inject drugs in 15 Indian cities. *AIDS.* 2015).

HIV (i.e. fewer PLHIV would not be eligible for inclusion in later sero-prevalence surveys).

Thailand:
In Thailand, measures of sero-prevalence among MSM, FSW and PWID have been conducted through three rounds of IBBS between 2010 and 2015. Of greatest concern are sero-prevalence trends among MSM, which remain high and show no decline and have become saturated at 40% among subgroups of older MSM. Furthermore, HIV incidence measures of MSM in Bangkok suggest high rates of new infections, 5-6 per 100 person years. Among young urban MSM (aged 15-22 years) an even higher incidence has been measured (7.6 per 100 person years in 2014). HIV prevalence among MSW declined but remains at high levels (from 16.0% to 11.7%).

During the same period, the IBBS measured steadily declining prevalence among both venue based FSW (from 2.7% to 1.1%) and nonvenue-based FSW (from 5% to 1.2%). Among PWID in three cities, HIV prevalence remained high with modest declines. The national programme cites the importance of monitoring shifts in the proportion of FSW who are venue based and substance use patterns that impact both HIV-related risk and the ability to provide services to these key populations.

In addition to HIV sero-prevalence measures, assessing the potential of the HIV epidemic in low level and concentrated epidemic settings depends on the estimated size of key populations within a country. In the Region, each country has used a different approach to national size estimates. But despite using different methodologies for developing national key population size estimates, there appears to be some consistency in results across countries in the Region. For example, the population percentage of FSW in the Region ranges from 0.2% to 0.5% of the adult female general population. With respect to PWID size, most countries in the Region estimated <0.1% of the adult male population. However, significantly higher estimates are used in Myanmar and Nepal. A bi-modal distribution describes the estimates of MSM population size used in the Region. Bangladesh, India and Sri Lanka use more conservative estimates of 0.1%-0.2% of the adult male population. These estimates generally pertain to higher risk MSM (e.g. venue-based MSM who have had anal sex with other men recently), while Indonesia, Nepal, Thailand and Timor-Leste

Table 2. National estimates of key populations in South-East Asia Region countries (2010-2014)

	MSM	MSM %	TG	FSW	FSW %	PWID	PWID* %	Sources	
Bangladesh	110 581	0.2%	8 882	106 784	0.2%	23 800	0.05%	2010 PSE	GARPR 2015
India	313 000	0.1%	70 000	868 000	0.2%	177 000	0.04%	2010 PSE	PEPFAR COP 2015
Indonesia	1 139 606	1.3%	39 512	239 009	0.3%	77 268	0.09%	2010 PSE	PEPFAR COP 2015
Myanmar	NA		NA	NA		83 000	0.44%	2014 PSE	GARPR 2015
Nepal	196 270	2.5%	9 474	21 175	0.2%	52 174**	0.61%	2010 PSE	GARPR 2015
Sri Lanka	7 551	0.1%		14 132	0.2%	423	0.01%	2013 PSE	GARPR 2015
Thailand	550 000	2.1%		141 769	0.5%	40 300	0.15%	2010 PSE	GARPR 2015
Timor-Leste	8 703	2.5%		1 688	0.5%	53	0.02%	2014 PSE	GARPR 2015

Note: "%" reflects the percentage of the adult (15+ years old) male or female population; general population figures come from UNPD country estimates for 2010 or 2015 depending on which is closest to the date of the corresponding PSE source.

* For PWID % the 15+ male population is used as the denominator.

**Nepal figures include male and female PWID; approximately 7% of PWID are estimated to be female. The PWID % in Nepal is calculated as the number of male PWID/15+ years male population to enable comparison to other countries.

use estimates between 1% and 2.5% of the adult male population. It is notable that estimates for MSM used in Bangladesh, India and Sri Lanka largely come from geographic mapping methods; while Thailand and Timor-Leste have applied multipliers based on data from national level surveys of the general population (Table 2).

D. HIV and Co-Morbidities

TB-HIV Co-infection

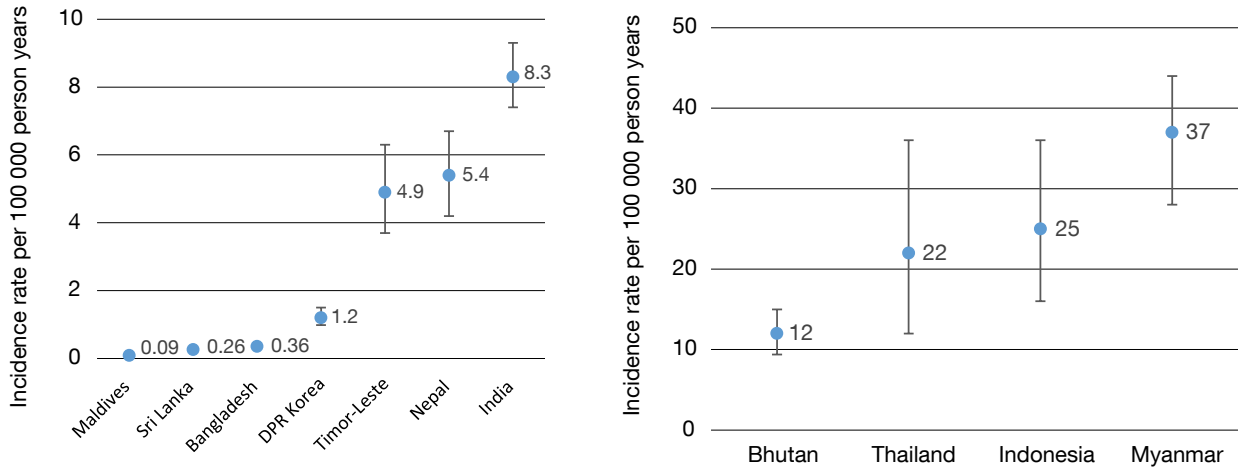
The SEA Region is home to 26% of the world's population; however, the Region accounts for 41% of the global burden in terms of tuberculosis (TB) incidence. India and Indonesia have the largest numbers of cases (23% and 10% of the global total respectively). Globally, people living with HIV are 29 times more likely to develop TB disease compared to people without HIV and living in the same country. In 2014, an estimated 1.2 million (12%) of the 9.6 million people who developed TB worldwide were HIV positive. In SEAR, an estimated 210 000 (5.2%) of the 4 million incident TB cases were HIV positive. This corresponds to 11 per 100 000 estimated TB incident cases. In SEAR, an estimated 62 000 people died of HIV-associated TB in 2014, compared to 390 000 globally. Figure 11 shows incident rate of HIV-TB co-infection in the Region.

HIV Co-infection with Viral Hepatitis

In SEAR, nearly 100 million people are hepatitis B carriers and nearly 300 000 people are estimated to die each year as a result of sequelae of hepatitis B including cirrhosis and liver cancer. An estimated 30 million people in the Region are hepatitis C carriers of whom an estimated 120 000 die annually. Co-infection with HIV and hepatitis B or C has implications for disease management of affected patients. Reliable estimates of prevalence of hepatitis B and C among PLHIV in different countries of the Region are limited. Figures 12 and 13 present data published between 2011 and 2016 on hepatitis B and C prevalence among PLHIV in comparison to prevalence measured among other selected populations.[10] In these figures, blood donors and antenatal mothers provide a proxy for general population prevalence figures. These data suggest that prevalence of hepatitis B and C are generally higher among PLHIV compared to the general population, but substantially lower than hepatitis prevalence among PWID.

Due to their common route of transmission, PWID are

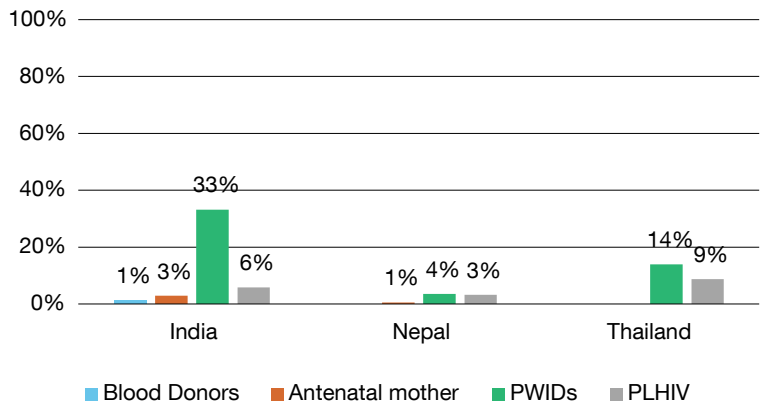
Figure 11. Incidence rate of HIV –TB Co-infection per 100 000 person-years, 2015



Source: GARPR 2016.

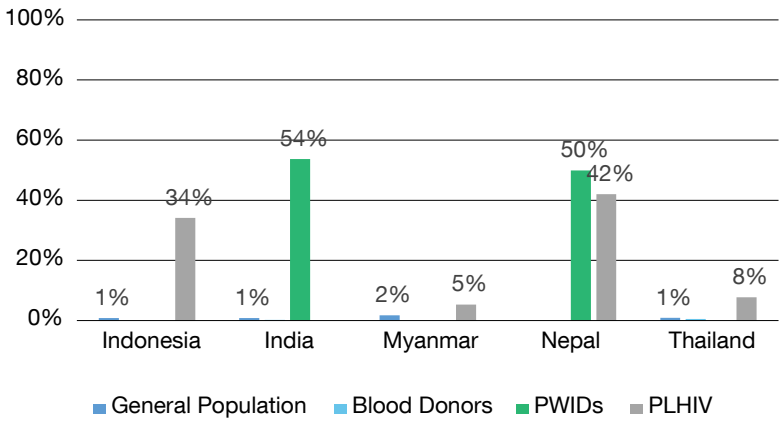
particularly vulnerable to transmission of both HIV and hepatitis B & C compared to other key populations. Figure 14 shows the results of recent surveys among PWID in 15 cities of India depicting high levels of hepatitis C infection.[11] In eight of the cities, about half of those infected with hepatitis C were co-infected with HIV. In the other seven cities (Chandigarh, Delhi, Mumbai, Churchandpur, Aizwal, Dimapur and Lunglei), HIV-co-infection occurred in less than a quarter of PWID infected with HCV.

Figure 12. Hepatitis B prevalence among PLHIV and other selected populations



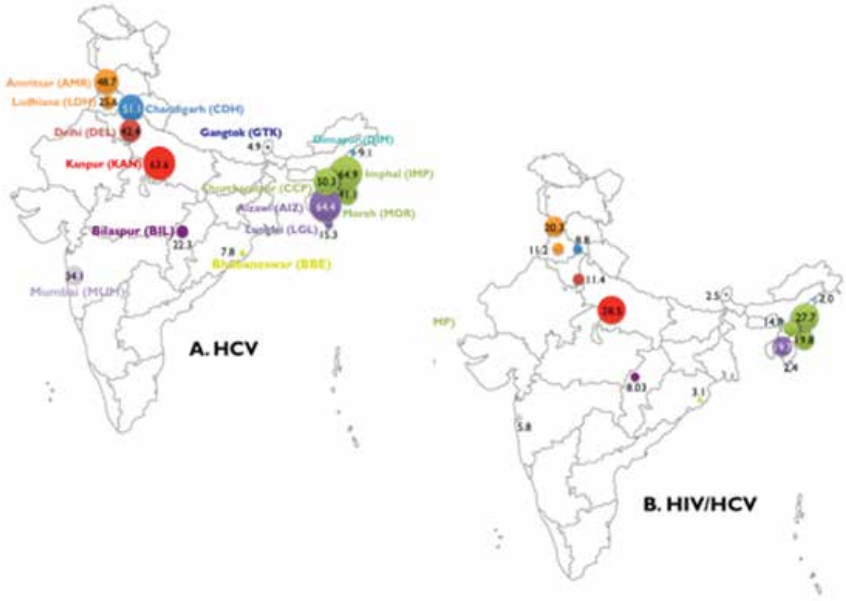
Source: Report of the Workshop for developing the Regional Action Plan for Hepatitis in the WHO South-East Asia Region, April 2016

Figure 13. Hepatitis C-prevalence among PLHIV and other selected populations



Source: Report of the Workshop for developing the Regional action plan for hepatitis in the WHO South-East Asia Region, April 2016.

Figure 14. Hepatitis C/HIV co-infection prevalence among PWID in 15 cities, India



Map of India courtesy: National AIDS Control Organization, New Delhi.

Source: Solomon SS et al; Burden of hepatitis C virus disease and access to hepatitis C virus services in people who inject drugs in India: a cross-sectional study. Lancet ID Dec. 2015.

3. Health Sector Response to the HIV Epidemic (2011-2015)

The Regional Health Sector Strategy for HIV 2011-2015 laid out four strategic directions (SD) to achieving an effective regional response to the HIV epidemic:

SD 1 - Optimizing HIV prevention, care and treatment outcomes

SD 2 - Strengthening strategic information systems for HIV and research

SD 3 – Strengthening health systems for effective integration of health services

SD 4 – Fostering supportive environment to ensure equitable access to HIV services.

The following sections highlight the primary achievements during this period and opportunities for further strengthening over the next 5-year period.

A. Optimizing HIV prevention, care and treatment outcome

i. Prevention effectiveness:

A basic package of services

Within SEAR, prevention efforts focus on reducing transmission among key populations and their partners by providing an effective package of services tailored for FSW, MSM and PWID; offering services in community settings through outreach and use of peers; and ensuring that facility-based services deliver high-quality services in a stigma and discrimination-free environment.

A basic package of prevention services for key populations included promoting condom use through behaviour change communication and outreach, and STI management, as well as needle/syringe exchange and opioid substitution therapy for PWID. Seven of the eleven countries, including all five high-burden countries in the Region currently offer both opioid substitution therapy and needle exchange sites for PWID.

Behavioural outcomes

The short-term behavioural outcome of providing a basic package of prevention services are increased condom use and sterile injection equipment. Table 3 shows the percentage of KP who reported using condoms at last sex and sterile injecting equipment at last injection in the most recent probability survey of key populations conducted in each country. Among FSW in the four of the five high-burden countries, reported condom use at last sex exceeds 80%, except in Indonesia among FSW, and in Myanmar among MSM. With respect to PWID, use of sterile injecting equipment at last injection exceeded 85% in all five high-burden countries in 2015.

New Prevention Technologies

Optimizing the impact of prevention coverage in the Region involves engaging the higher-risk segment of the key population; use of new technologies such as PrEP; and strategies that expand the market for condom use (Box B and Box C).

ii. Overview of the HIV cascade

Over the last 5 years, countries and development partners have developed the use of the HIV cascade

Box B. Use of PrEP in Thailand

Prevention Gap Report 2016[12] lists PrEP in select populations as one of 5 pillars necessary to close the gap. Within SEAR countries, Thailand has been at the forefront in developing protocols for administering PrEP in MSM and PWID populations. These clinical trials and demonstration projects started as early as 2005 with the BTS study in Bangkok which enrolled more than 2000 PWID and in 2007 with the multicentre iPrEX study enrolling about 100 MSM and transgender women (TGW) from Thailand. In 2015, larger-scale implementation of PrEP in Bangkok and four cities began under the programme name, 'Test, treat and prevent' under the coordination of the Thai Red Cross AIDS Research Center.[13]

Table 3. Prevention behaviour indicators

	Condom use, %		PWID	
Country	FSW	MSM	Condom Use, %	Sterile Injection, %
Bangladesh	67 (2014)	46 (2015)	35 (2015)	84 (2015)
Bhutan	38 (2011)		54 (2011)	
India	91 (2015)	84 (2015)	77 (2015)	86 (2015)
Indonesia	68 (2015)	81 (2015)	46 (2015)	89 (2015)
Myanmar	81 (2015)	77 (2015)	23 (2014)	86 (2014)
Nepal	83 (2011)	86 (2015)	52 (2015)	96 (2015)
Sri Lanka	93 (2014)	47 (2014)	26 (2014)	46 (2014)
Thailand	94 (2012)	82 (2014)	47 (2014)	85 (2014)
Timor-Leste	36 (2011)	66 (2011)		

Notes: Condom use refers to: "used a condom at last sex with client (FSW), or last anal sex with a man (MSM), or last sex with a regular partner (PWID); Safe injection refers to: "used a clean/ needle syringe at last injection,"

Source: GARPR reports for all countries, except India (IBBS Report, 2014-2015); where FSW condom use is for last sex with occasional male client; MSM condom use is for last sex with casual male partner.

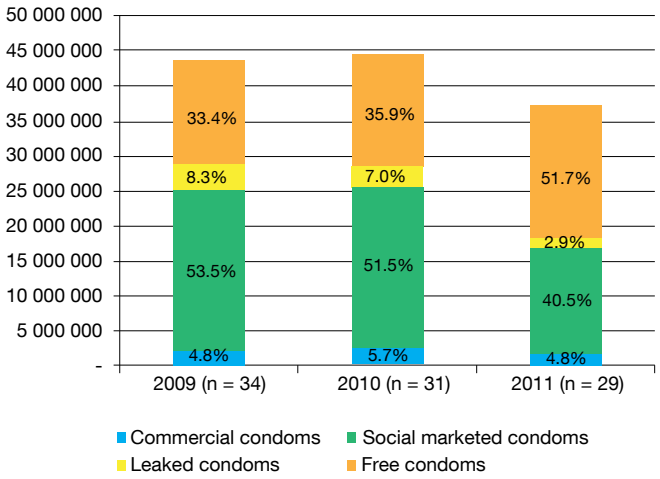
to monitor the coverage of critical services for PLHIV such as testing, enrollment in care and treatment services, and achievement of viral suppression. The concept of the cascade also emphasizes the importance of effective linkages between points of service delivery inherent to an optimal response.

Data from GARPR reporting in 2015 have been used to form the key indicators used for the HIV cascade and show the current levels of achievements. Figure 17 summarizes progress made towards the 90-90-90 indicators for the Region's five high-burden countries. (Further details on achievements in testing, care and treatment are provided in subsequent sections on the response.) Achievements for the 'first 90' – the percentage of PLHIV who have been diagnosed – ranges from 24% in Indonesia to 89% in Thailand. This indicator

Box C. Expanding condom market share in Myanmar

Although free distribution of condoms is an important aspect of increasing condom use, sustainable prevention efforts depend on increasing demand for condoms and the price higher income users are willing to pay. For example, social marketing of condoms at a partially subsidized price has been shown to increase the proportion of clients of sex workers and MSM who are willing to use condoms. Similarly, too much and nontargeted distribution of free condoms depresses the demand for commercial and socially marketed condoms and may not be sustainable. In this example, Htat et al.[14] illustrate how the market share of free condoms has increased over time, largely at the expense of socially marketed condoms. The overall market for condoms has decreased which suggests a problem in sustaining condom use. Greater attention to increasing total market share (commercial, socially marketed and free distribution) rather than singular focus on free distribution numbers can result in a more strategic and cost effective condom promotion strategy at a national level.

Figure 15. Market share for condoms



Market share for commercial, socially marketed, free and 'leaked' condoms—2009, 2010 and 2011.

Source: Htat HW, Longfield K, Mundy G, et al.

Figure 16. HIV treatment and care cascade

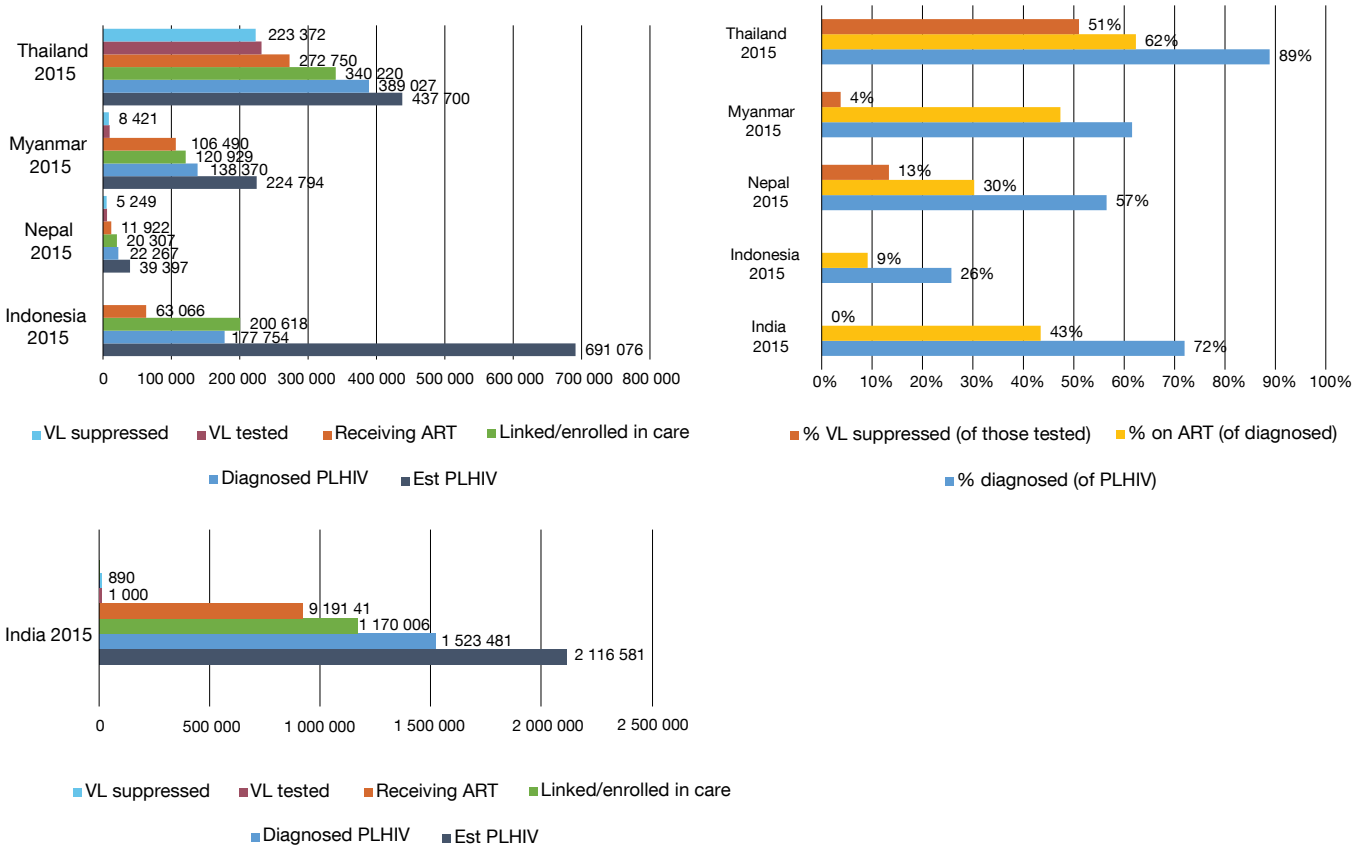
Source: Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. Geneva: World Health Organization; 2013

uses the national estimate of PLHIV as the denominator. The 'second 90' measures the proportion of people diagnosed with HIV who have been enrolled in ART. The 'third 90' presented in Figure 17 shows that only Thailand with 51% has made some progress while other the other countries lag far behind. Many countries in the Region are not able to monitor ART patients with routine viral load testing.

As countries use their data to routinely examine their performance with respect to the HIV cascade, it is possible to identify and address the large drops in performance. For example, in Sri Lanka, from 2010-2014 there was a 38% loss to follow up between diagnosis and enrollment in care. Additional investigation correlated this "leakage" to the 30% of HIV cases diagnosed in private sector testing sites and weak referral mechanisms to public sector provided care and treatment facilities.[15] A score card developed in one state in India provides a simple tool for monitoring key indicators like loss to follow up and improve performance (Box D).

Greater emphasis is also needed to integrate prevention service coverage into the HIV cascade. Due to the impact of early and sustained treatment of PLHIV on reducing new

Figure 17. HIV cascade indicators for 5 high-burden countries



Note: The HIV cascade for India is presented in a separate graphic due to the difference in scale of the x-axis for graphs presenting the absolute number of individuals diagnosed, enrolled in service and achieving viral suppression. Data on viral load suppression were not reported by Indonesia or India in 2015.

Source: GARPR 2016.

Box D. Operational research on strengthening HIV cascade performance

Operational research on strengthening the coverage cascade has also been done in India. Recent analysis of loss to follow up of PLHIV enrolled in pre-ART care revealed that the most common reasons reported by defaulters were inconvenient clinic timings (98%), need for multiple modes of transport (92%). Lack of social support and financial difficulties were also cited as barriers to sustaining pre-ART care. It is notable that these issues would continue to be relevant to patients once they initiated ART, such that measures effective in addressing pre-ART drop out will likely benefit ART maintenance targets as well.

In response, India adopted a scorecard as a simple tool for monitoring ART centres on various key indicators, such as loss to follow-up. Gujarat prepared a prototype colour-coded scorecard with the objective of identifying gaps in services provided by ART centres. An electronic spreadsheet covers twenty-four (24) indicators [12 scoring and 12 non-scoring] collated from existing reporting formats used by ART centres. ART centres are classified as being in a Red, Yellow, or Green zone for each indicator. Individual centres monitor their own change in colour giving special prioritization to addressing issues falling in the Red zone. The score card provides a simple and important tool for highlighting priority areas for improving quality and supporting managers to gain insight into the gaps and plan actions to be taken. Chawla S et al, IJCM (2016).

Table 4. Score card for monitoring ART centers

			AS PER MPR & REPORTS FOR Apr'15 to Jun '15			
	*	Indicator no. L-6, 15-18, 20-21, 23-25 extracted out of Other SACS level reports				
	*	Indicator no. 7-14, 19, 22 extracted out of monthly MPR				
	**	NOT FOR SCORING. FOR INFORMATION ONLY				
Marks		INDICATORS	A	B	C	D
1	10	Baseline CD4 done (current FY)	10	8	10	10
2	20	Pts. started on ART out of found eligible (from general)	14	18	18	20
3	5	ART initiation within 2 mth of assessment of eligibility of ART initiation (Current fiscal)	3	1	4	5
4	10	Pregnant/DIL/Breastfeeding women initiated on ART (Current FY)	10	10	10	10
5	20	Retention in care = Alive/Started (current FY - Transfer out)	20	20	20	20
6	5	On-ART LFU (Cumulative)	2	5	2	5
7	5	On-ART death (Cumulative)	1	5	2	1
8	5	Pre-ART LFU 2011 (Cumulative)	2	5	1	5
9	5	Pre-ART death (Cumulative)	1	3	1	1
10	5	Pre & On ART Opted Out (Cumulative)	4	4	4	4
11	5	% Pre-ART follow-up CD4 test done as scheduled (Current FY Apr-reporting month)	5	1	5	5
12	5	% On-ART follow-up CD4 test done as scheduled (Current FY Apr-reporting month)	5	4	5	5
13	**	CLHIVs initiated OT (out of denominator/found reactive under EID	100.00%	#DIV/0!	#DIV/0!	#DIV/0!
14	**	On-ART LFU (Current FY)	0.00%	0.00%	0.00%	0.00%
15	**	On-ART death (Current FY)	3.42%	2.13%	2.74%	3.03%
16	**	HIV-TB initiated on treatment (FY Apr-two mth before reporting month)	73.68%	100.00%	93.37%	93.33%
17		Eligible pts. not turning-up for starting ART after initial visits (ICTC+PPTCT)	7.22%	9.26%	7.14%	0.00%
18		Eligible pts. who have opted out/stop (written consent given) (ICTC+PPTCT)	0.52%	0.00%	0.00%	0.00%
19	**	Eligible pts. not initiated on ART (under process) (ICTC+PPTCT)	8.25%	0.00%	3.57%	0.00%
20		Eligible pts. transferred prior to ART initiation (ICTC+PPTCT)	1.55%	0.00%	1.19%	0.00%
21		Pts. (eligible) reported died before ART Initiation (ICTC+PPTCT)**	5.15%	1.85%	0.00%	0.00%
22	**	% of Cumulative LFU reported at LAC	0.00%	#DIV/0!	2.63%	0.00%
23	**	% of Cumulative deaths reported at LAC	0.00%	#DIV/0!	1.75%	0.00%
24	**	% of On-ART miss for last month of quarter (reported miss/(ever started-death)	3.14%	12.25%	6.11%	2.53%
	100	The final score for the center is derived as average of sum for individual marks obtained for every applicable indicator (marks indicated in Marking sheet)	77.00	84.00	82.00	91.00
		% obtained	**77.0%**	**84.00%**	**82.00%**	**91.00%**
		VERY GOOD (>=90)				
		GOOD (>=70 & <90)				
		AVERAGE (<70)				

infections, in SEAR countries, conducting cascade analysis for specific key population groups and conceptualizing prevention service coverage as a precursor to achieving high testing coverage/diagnosis among PLHIV becomes especially relevant for tracking the effectiveness of the response (see Figure 18). The accuracy of the cascade relies on the robustness of the estimated number of KP, which in turn is a critical input to a model-based estimate for the size of HIV positive key populations.

iii. HIV testing and case finding

Reaching the 'first 90'

Coverage of HIV testing among PLHIV represents the first stage of the overall HIV cascade, i.e. percentage of HIV cases who have been found/diagnosed. This 'first 90' indicator uses the estimated number of PLHIV as the denominator. Given the challenges of diagnosing asymptomatic PLHIV in a context of low general population prevalence, broad based testing of the general population is inefficient. Instead, countries in SEAR must adopt testing strategies which focus on those at highest risk or most vulnerable for acquiring HIV, e.g. key populations, pregnant women and in some cases persons seeking treatment at STI clinics. However, even when testing coverage among these targeted populations is high, the case finding gap may be large, due to the proportion of PLHIV who do not currently belong to a category of people targeted for HIV testing, i.e. those who are not members of key populations (see Figure 19). To reach the 'first 90' targets, national programmes must simultaneously develop testing strategies that reach a larger proportion of PLHIV and ensure that testing coverage of priority testing populations is high.

Increased testing coverage of priority populations

The ability for a country to increase HIV testing coverage depends on the expanded availability of qualified facilities offering voluntary counseling and testing. The vast majority of HTC sites continue to be public sector health facilities, except in Bangladesh, where almost all HTC sites are operated by nongovernmental organizations (Figure 20).

The number of HTC sites naturally varies by the size of the population and the geographic spread of the country. For example, the crude average number of people tested per HTC site in 2014 is 135 in Bhutan and 270 in Nepal, both sparsely populated, mountainous countries. India provides a stark contrast where high population density results in nearly 1365 tests per HTC site per year.

Figure 18. Example of key population-specific cascade including prevention, care and treatment

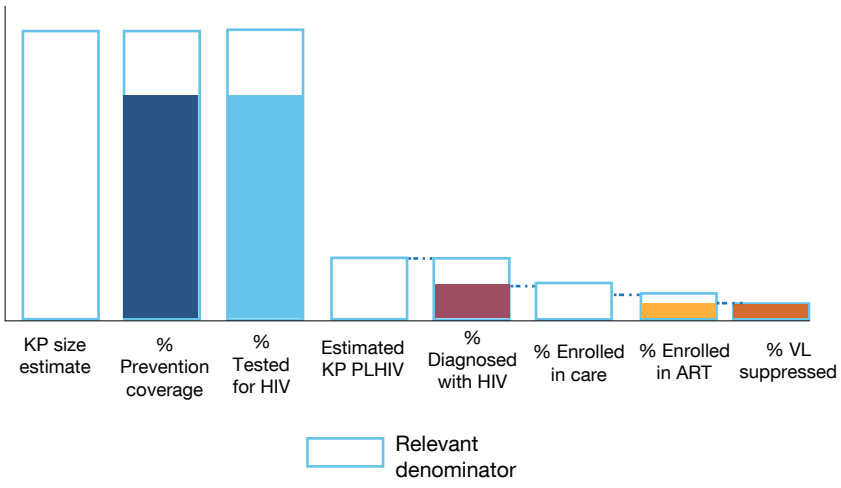
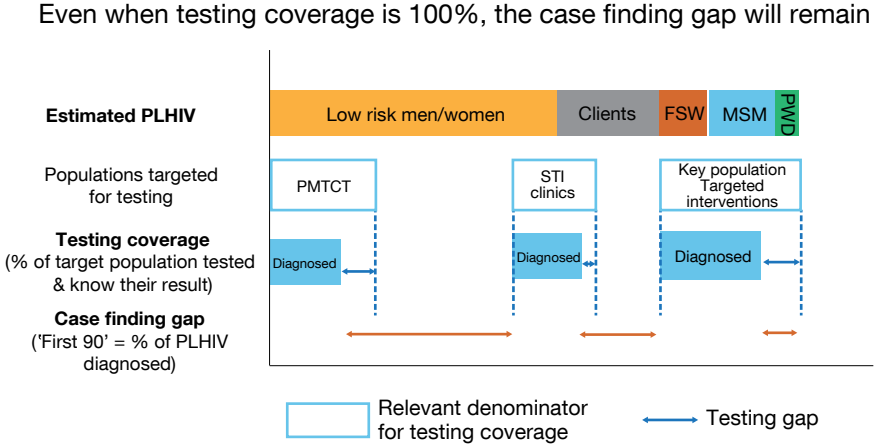


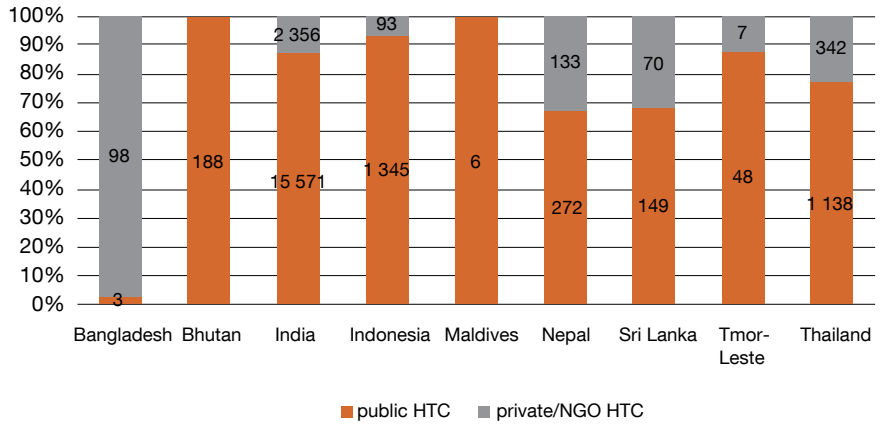
Figure 19. Differences in measuring testing coverage vs. percentage of PLHIV who are diagnosed



Overall testing volume has expanded over the last 5 years and varies from country to country. Among the five high-burden countries, the HIV testing rate among all adults (aged 15 years and older) varies from 0.5% to nearly 4.1% (Figure 21).

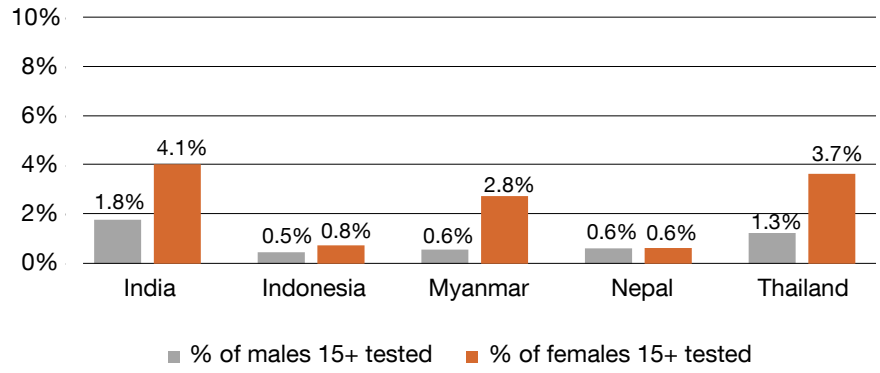
In India, Myanmar and Thailand, a larger proportion of adult women have been tested (2.8%-4.1%) compared to men in this age group (0.6%-1.8%). This is largely due to efforts to routinely offer HIV testing to pregnant women as part of elimination of mother-to-child transmission (EMTCT) of HIV and syphilis programmes. For example, in Myanmar, 94% of women who tested for HIV are pregnant women receiving prevention of mother-to-child transmission (PMTCT) screening; the corresponding figure is 74% of the women tested in Thailand, and 62% in India. In contrast, data from Nepal and Indonesia show that pregnant women comprise less than half of all women tested in 2014, only 28% and 43%, respectively.

Figure 20. Proportion of HIV testing and counseling sites that are public and private/NGO (number of sites shown in bars)



Source: GARPR 2015.

Figure 21. Percentage of all males and females (age 15+ years old) who have been tested for HIV in 2014



Note: Calculated by dividing the reported number of HIV tests among males and females by the estimated size of the general population (age 15+).

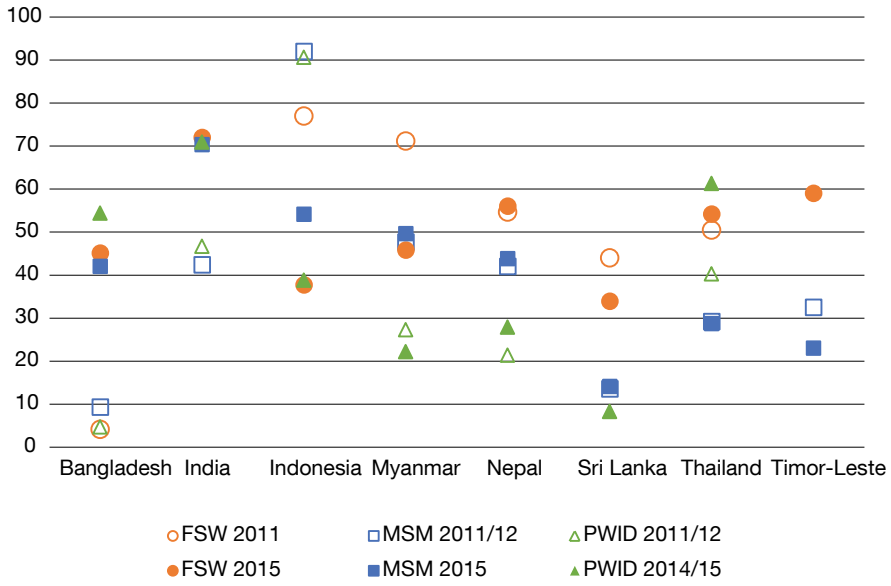
Source: GARPR and UNPD (2010 and 2015 projections).

As part of global reporting guidelines, countries currently report HIV testing coverage among specific key populations. Because not all key population members choose to disclose their status as a key population at the time of testing, countries rely on testing coverage data from probability-based surveys of key population in selected sites that are then aggregated to give national level figures. Due to the limitation on frequency of how often such surveys are conducted, most countries have only one or two data points for the period 2011-2015. Figure 22 compares testing coverage among different key populations for each country, providing data for multiple years when available. (Data from 2011/2012 are indicated in unfilled markers and data from 2014/2015 are indicated in filled markers.) Among survey populations in India, the most recent data suggest >70% testing coverage in the last 12 months for all three KP. This figure also shows that in many countries (Nepal, Sri Lanka and Thailand), reported HIV testing coverage is significantly higher among FSW than MSM and PWID. In countries where two data points are available for the period, more than 20 percentage point improvements in testing coverage were reported among MSM and PWID in India and PWID in Thailand. However, in Indonesia, Myanmar and Sri Lanka the most recent testing coverage data appears to have declined for some key population groups.

To expand case finding efforts, countries have begun to put greater emphasis on couples counselling and testing. This is particularly important in mature concentrated epidemic contexts where epidemic models show a large proportion of PLHIV are regular partners of key population members.

Couples counselling and testing has also become a more integral component of EMTCT programmes, particularly as countries get closer to achieving elimination goals. In Thailand, couples counselling has been recognized as an important component of their highly effective elimination of mother to child transmission. In facilities where couples counselling is offered and ANC attendees came with their partners at an average 46% of the time, ranging from 15.6% to 100% by facility; when offered, acceptability was generally very high, at most facilities, acceptance exceeded 85%. Further analysis of pilot implementation phase of offering couples counselling, of 1604 couples completing testing and counselling, in 6 of the 16 couples where the female partner was HIV positive, the male partner was also HIV positive. There were also seven sero-discordant couples in which the male partner was HIV positive and the female partner was HIV negative.[18] When used in higher prevalence settings, couples counselling in the context of PMTCT programmes provide a strategy for case finding of HIV positive men who are not part of key population communities.

Figure 22. Percentage that have been tested in the last 12 months and know their result, by country, key population and year of survey



Source: GARPR 2016.

Box E. HIV counseling and testing in community settings

In order to reach the goal of 90% of PLHIV being diagnosed for KP populations, countries recognize the need to expand accessibility of HIV testing services beyond traditional health facility settings. More efficient case finding also requires focus on higher risk and hidden segments of key population communities such as young KP or those who are not venue based and otherwise easily reached by current peer outreach efforts. To understand this segment of KP requires using survey methods which are not based on sampling at venues.

A recent online survey of sexually active MSM living in ASEAN countries found a third had never been tested.[16] Among respondents, younger men (age 18-22) were five times less likely to have been tested for HIV compared to MSM >29 years of age and were 1.65 times more likely to consider themselves heterosexual or bisexual (compared to identifying as gay). Of those who had not ever been tested for HIV 50% cited HIV stigma as a reason for not testing.

Similar efforts to understand HIV testing behaviour among methamphetamine[a] users aged 18-24 years old in a high prevalence area of Myanmar was reported by Saw et al.[17] using respondent driven sampling. Never being tested was associated with lower education, being unemployed, never being contacted by a nongovernmental organization (NGO), never being diagnosed with an STI, or never being convicted of a drug related offence. These results suggest that there are strong linkages between HTC services and other services for drug users or parts of the health systems.

[a] Methamphetamine (MA) users in areas traditionally known for saturated HIV epidemic among people who inject drugs are perceived to be at risk due to the association between MA use and increased substance misuse and high risk sexual behaviour. In this population, 28% of MA users also injected heroin in the last 6 months.

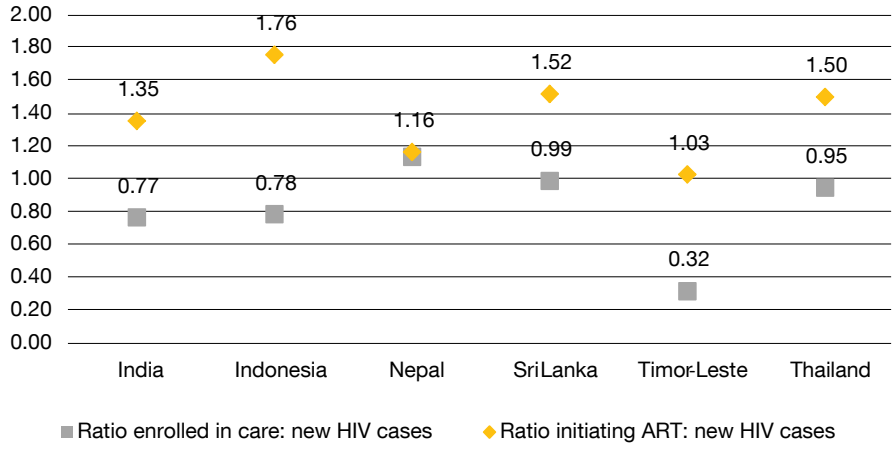
iv. Linkage to care and treatment

Ensuring that all patients diagnosed with HIV are linked to care and treatment has been an area given more attention in the last 5 years. In the absence of individual tracking of patients through the HIV cascade, programmes can rely on crude ratios to

assess the robustness of linkages between testing and care, support and treatment. Ideally, those newly diagnosed with HIV should be immediately linked to HIV care services. Figure 23 shows that among SEAR countries reporting both the number newly enrolled in care and new HIV cases this ratio is very close to 1 in Sri Lanka and Thailand, suggesting strong linkages. In India and Indonesia the ratio is about 0.8:1 meaning there is a gap of about 20% fewer people enrolled in HIV care compared to those who have been recently diagnosed with HIV. In Timor-Leste the ratio is very low, less than 0.4:1 suggesting a large delay in getting those diagnosed with HIV into care.

In countries such as Thailand, where all PLHIV are eligible for ART regardless of CD4 count, ART enrollment should occur soon after diagnosis. In other countries, a ratio lower than 1 might be expected if PLHIV are being diagnosed at a stage earlier than their eligibility for initiating ART.

Figure 23. Ratio of number enrolled in care or ART compared to number of new HIV cases (2014)



Source: GARPR 2015.

v. ART Coverage

Just as estimated global ART coverage has reached 46%, almost doubling between 2010 and 2015 (GARPR, WHO/ UNAIDS estimate), SEAR countries have made major progress in ART coverage in the last 5 years. In particular, among the five high-burden countries in the Region, ART coverage has nearly doubled in Myanmar and Nepal between 2012 and 2015. ART coverage has been highest in Thailand throughout the time period and increased from 52% to 65% during this period. Despite the relatively large numbers of PLHIV in Indonesia, ART coverage has remained below 10%.

Early enrollment contributes significantly to the ability for expanded ART access to make impact on averting AIDS-related deaths and reducing HIV transmission (Box F). For this reason, treatment coverage can be further contextualized considering the CD4 count threshold for initiating treatment adopted by different countries. Table 5 indicates the current ART eligibility thresholds based on CD4 count across the Region using different size circular markers. Thailand's achievements having the highest ART coverage is more impressive given that PLHIV are eligible for treatment regardless of CD4 count. Similarly, gains in treatment coverage in Myanmar and Nepal are against a backdrop of expanded treatment eligibility since 2014 (i.e. to PLHIV with CD4 count up to 500 cells/ mm3). As of May 2016, the CD4 count threshold for the general population PLHIV in India is <500 cells/ mm3. In Indonesia, the threshold remains at <350 cells / mm3, but all PLHIV who are key population members are eligible for ART regardless of CD4 count.

Reaching the '2nd 90'

When ART achievements are measured against the '2nd 90s' target, the denominator of 'PLHIV who have been diagnosed' is used. This indicator more clearly reflects programmes' abilities to link PLHIV who are known to the health system to ART services. As shown in Table 5, against this denominator, in 2015, Thailand had 70% of diagnosed PLHIV on ART, compared to 60% in India and 54% in Nepal. Indonesia's achievements against the

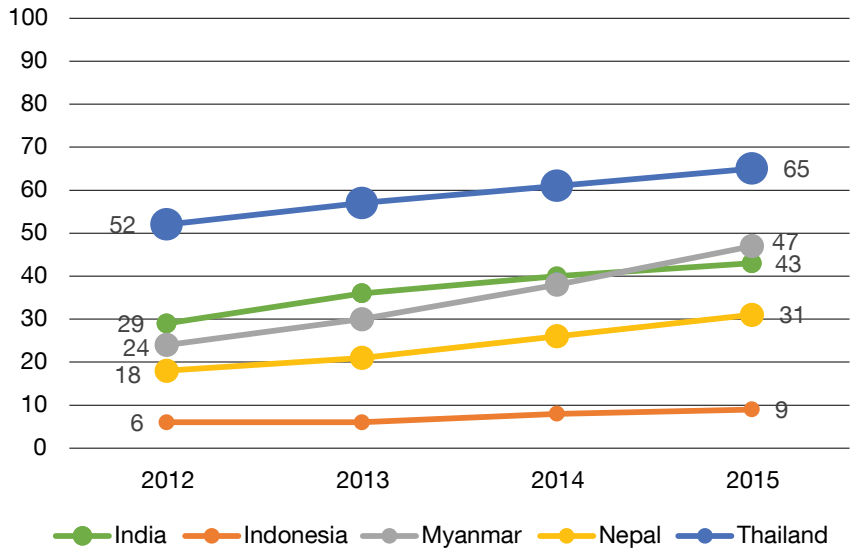
'second 90' is 35% suggests that although case finding is a serious impediment to achieving higher ART coverage, linking diagnosed PLHIV to ART also poses a critical challenge.

Reaching the '3rd 90'

Viral suppression among individual patients provides one measure of effective ART treatment. Achieving the goal of viral suppression among 90% of those on ART relies on high levels of retention and strong adherence to regimens to avert AIDS deaths and slow the development of HIV drug resistance. An ongoing impediment to measuring viral suppression at the population level is the lack of access to viral load testing as a routine component of patient care at many facilities where ART is provided. As shown in Figure 17, patients for whom viral load measures are available show high levels of suppression. However, there remains great uncertainty as to the generalizability of these data to all ART patients in a country. In the absence of systematic viral load measures among ART patients, countries must look to programmatic data on retention of patients on ART.

Programmatic data from SEAR countries shows consistently >80% retention at 12 months in Bangladesh, Bhutan, Myanmar, Nepal and Thailand. Where data are available, levels of retention on ART have historically been relatively steady over the last 5 years. Lower levels of retention (between 60% and 70%) are reported in India

Figure 24. Percentage of PLHIV (adults and children) who receive ART



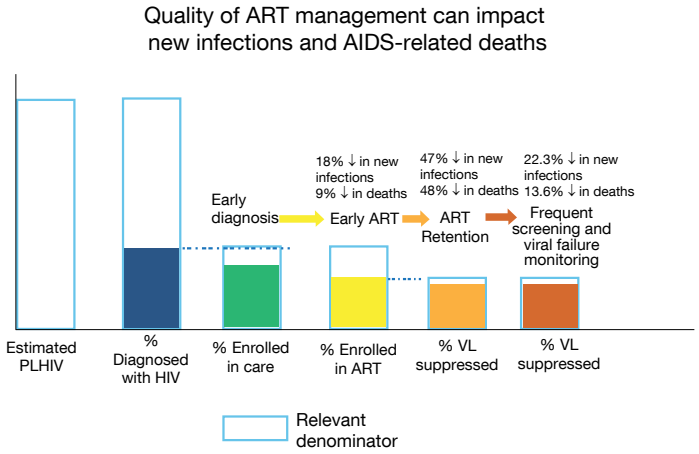
Note: Marker size indicates ART eligibility with respect to CD4 count: Large marker = irrespective of CD4 count; Medium marker = <500 cells/mm^3; small marker = <350 cells/ mm^3.

Source: AIDSInfo.

Box F. Early ART initiation and retention necessary for achieving impact

A recent study by Maddali et al.[19] modeled the potential impact of earlier initiation of ART (i.e. at CD4 counts >350 cells/mm3) in India and found that the programme could be highly cost-effective (costing $442/quality adjusted life-years (QUALY)-gained), but are only possible if current levels of retention in care could be improved. Even with current levels of loss to follow up in care, earlier ART initiation could result in 18% fewer new infections and 9% fewer AIDS related deaths within 20 years. These models demonstrate the strong dependency on multiple stages of the cascade to achieve outcomes in averting deaths and prevention of new infections.

Figure 25. Impact of early initiation of ART and quality ART on averting new infections and AIDS-related deaths in India



Source: Maddali et al. 2015.

and Indonesia, which may reflect the added complexity of providing ART at larger scale and in more dispersed health settings.

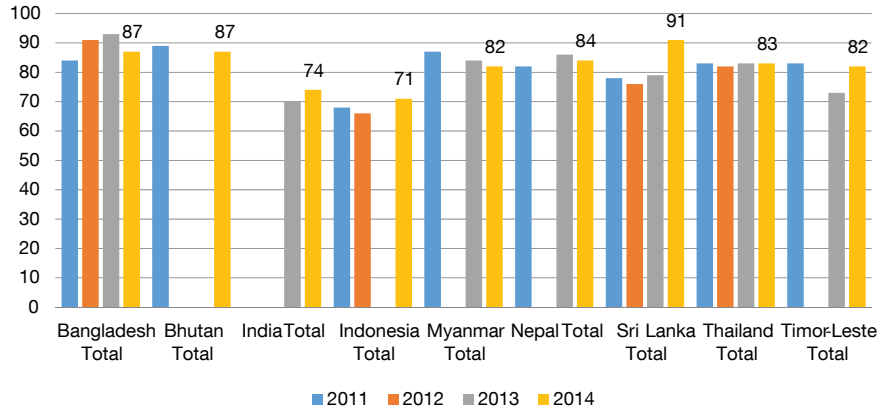
Countries continue to improve ART programme retention through in-depth study and operations research. Recently published data on mortality risk and loss to follow up rate of PLHIV on treatment in Myanmar and Indonesia provide two examples of how operations research is being used to strengthen ART services and improve retention rates. Thida et al.[20] report on multivariate analysis on risk factors for attrition among ART patients enrolled in the Myanmar public sector Integrated HIV Care Program, from June 2005- April 2012. Among the 8500 ART patients included in the programme, 7% of patients were loss to follow up and 9% died. Retention in the programme at 12, 24 and 36 months were over 80%. The primary independent risk factors for attrition among ART patients with sufficient data (N=5718) included late stage of disease at enrollment and being male. Those on anti-TB treatment at ART initiation and literacy were also more likely to be retained on ART. This in-depth analysis of programmatic data demonstrates the importance of early diagnosis of HIV, better management of symptomatic patients and nutritional support as areas of improvement for the national ART programme. In Indonesia, Weaver et al.[21] conducted a cross sectional survey of ART patients in Jakarta with 3-month drug adherence rates of ~75%. This study found that those with higher levels of social support were at 2.5 times greater odds of being adherent to ART regimens over a 3-month period compared to those with lower levels of social support. In this study, social support was measured with the Interpersonal Support Evaluation List, a 40-item Likert scale addressing multiple dimensions of social support. The main reasons patients gave for being nonadherent included forgetfulness, being busy, or being asleep at the time medication should be taken and running out of medication. And the authors recommend approaches in which greater networking and mutual social support given by ART patients to each other could address many of the barriers to adherence cited.

Table 5. ART coverage measured by two different denominators

	ART coverage - 2015 (Denominator: PLHIV eligible for ART)	2nd 90: % on ART – 2015 (Denominator: PLHIV diagnosed)
India	68%	60%
Indonesia	19%	35%
Myanmar	54%	77%
Nepal	34%	54%
Thailand	62%	70%

Source: GARPR 2016 and National Program Reports

Figure 26. Percentage of patients retained on ART at 12 months, 2011-2014



Source: GARPR 2015.

vi. Special focus on EMTCT of HIV and Syphilis

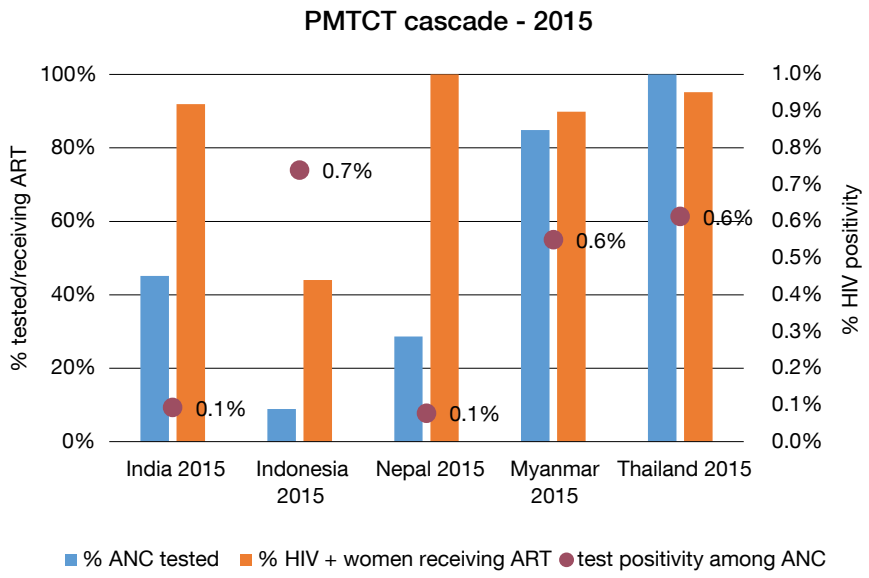
As part of the global effort to eliminate mother to child transmission of HIV and syphilis launched in 2011, SEAR countries have committed significant

resources to their PMTCT programmes. As described earlier, testing provided for EMTCT programmes drives a significant portion of HIV testing efforts focused on women. In 2014, approximately 35% of the more than 20 000 HIV positive pregnant women, received ART perinatally. Figure 27 shows the proportion of ANC attendees who were tested for HIV and the percentage of HIV positive pregnant women who received ART during pregnancy in each country. Although coverage of ANC attendees is moderate in India (45%), more than 90% of pregnant women who are diagnosed receive ART during their pregnancy. In Myanmar, significant achievements in PMTCT coverage have been reported, in terms of both testing ANC attendees (85%) and ensuring those diagnosed with HIV are given ART (90%). In April 2016, Thailand achieved elimination of mother-to-child transmission of both HIV and syphilis. Testing coverage for both HIV and syphilis among ANC attendees at 98% exceed the elimination threshold and more than 95% of women who are HIV positive receive ART during pregnancy.

In India and Nepal, test positivity for HIV among ANC attendees is relatively low (0.1%-0.2%) compared to Myanmar and Thailand (0.6%). In Indonesia, test positivity among those tested is relatively high (0.7%). However, given that HIV testing coverage among pregnant women is low in Indonesia (9%), it is likely that the few ANC sites offering PMTCT in Indonesia are selected to prioritize areas where HIV risk among pregnant women is higher. In the absence of greater resources for scaling up services, countries such as Indonesia must prioritize sites in areas with more severe epidemics.

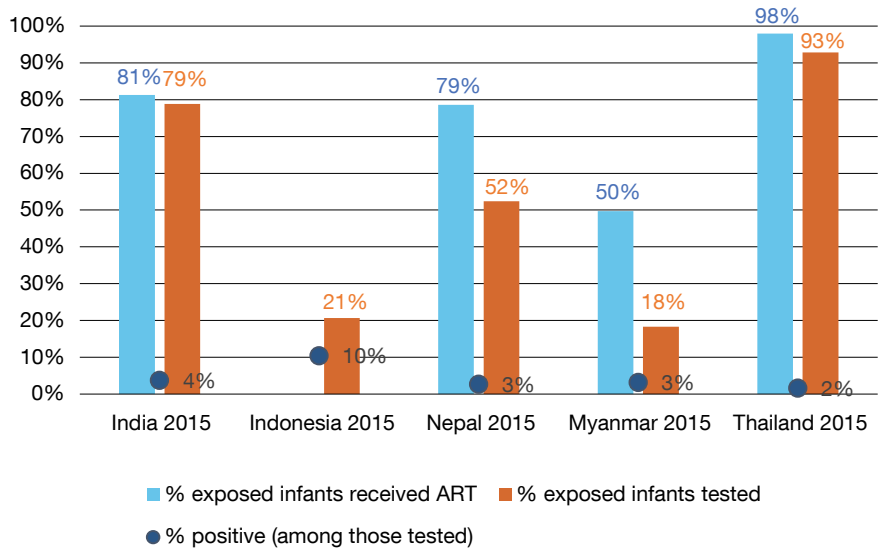
Based on GARPR, Indonesia, Maldives, Myanmar and Timor-Leste report much higher levels of HIV testing among pregnant women compared to syphilis testing, which may represent a missed

Figure 27. PMTCT antenatal cascade indicators, 2015



Source: GARPR 2016 and country reported data

Figure 28. PMTCT pediatric cascade indicators



Source: GARPR 2016 and country reported data

opportunity for elimination of congenital syphilis. In Sri Lanka, the opposite is true, i.e. a vast majority of ANC attendees are tested for syphilis, but not HIV.

In addition to testing pregnant women and providing ART for attendees who are HIV positive, the PMTCT cascade measures coverage of ART prophylaxis and HIV testing for exposed infants. The data presented in Figure 28 suggests performance on ANC indicators for PMTCT do not necessarily reflect performance for pediatric services. For example, despite >80% coverage of ANC attendees with testing and ART prophylaxis in Myanmar, reports indicate only 50% of exposed infants received a course of ART prophylaxis post partum and only 18% received early infant testing.In India, programme performance was stronger for exposed infants: 81% of exposed infants received ART prophylaxis and 79% of infants received early infant diagnosis.

Although HIV testing for exposed infants is low in Indonesia and Nepal, relatively high test positivity (10% and 20%, respectively) was found among those tested. This could reflect the fact that many HIV positive infants would be symptomatic and more likely to get tested. But with less than 50% of HIV positive pregnant women receiving ART during pregnancy, these countries would also be expected to have a higher infection rate among exposed infants. In contrast, data from Myanmar illustrates that when 90% of diagnosed pregnant women received ART only 3% of exposed infants (who were tested[22]) were found to be HIV positive.

Box G. Thailand's successful EMTCT validation in 2016

Thailand commenced its national efforts to prevent mother-to-child transmission of HIV in 1995 within the context of a generalized epidemic of HIV, prevalence among antenatal care (ANC) attendees of 2.3%. By 2015, ANC prevalence had fallen to 0.6%. In 2014, Thailand began the process for obtaining validation of its achievements in EMTCT of HIV and syphilis. Following an in-country mission, the regional validation team reported their findings to the global validation advisory committee in May 2016, which certified elimination had been achieved.

The rate of mother-to-child transmission of HIV declined from 10.3% in 2003 to 1.91% in 2015. Similarly, the incidence of congenital syphilis stood at 10.9 per 100 000 live births in 2015. Thailand also meets all EMTCT process indicators: antenatal care coverage, and HIV and syphilis testing coverage among pregnant women, and treatment coverage for pregnant women testing positive for HIV and/or syphilis.

The success of the programme was attributed to several factors, including strong national ownership and political support for the EMTCT agenda and an effective interface between the community and health systems. The EMTCT response in Thailand is fully integrated into the maternal and child health programme and is offered in the context of a well-functioning public health system that provides universal health coverage to the Thai people.

Box H. Cost-effectiveness of repeated testing in pregnancy in India[23] (Joshi 2015)

India's PMTCT policy includes a single HIV test for ANC attendees during pregnancy; however, the national programme has recently evaluated the cost-effectiveness of including a second HIV test during the third trimester of pregnancy, in accordance with United States Centers for Disease Control and Prevention (US CDC) recommendations for repeat testing in higher HIV incidence settings. Data were analysed from a pilot study conducted in 2 clinics in Pune, India, where overall HIV incidence among pregnant women was measured at 1.2 per 1000 person years. Sensitivity analysis found cost savings for HIV incidence ranging from 0.1 to 5 per 1000 person years. Additional savings are gained when male partners of newly diagnosed women were encouraged to get tested and initiate early treatment. In this setting, two of the four women diagnosed through a second test during pregnancy did not complete ART for PMTCT resulting in one known pediatric HIV case. These incidents further illustrate the importance of strong counseling and support to women who receive their HIV diagnosis late in pregnancy.

vii. Detecting and managing STI & TB

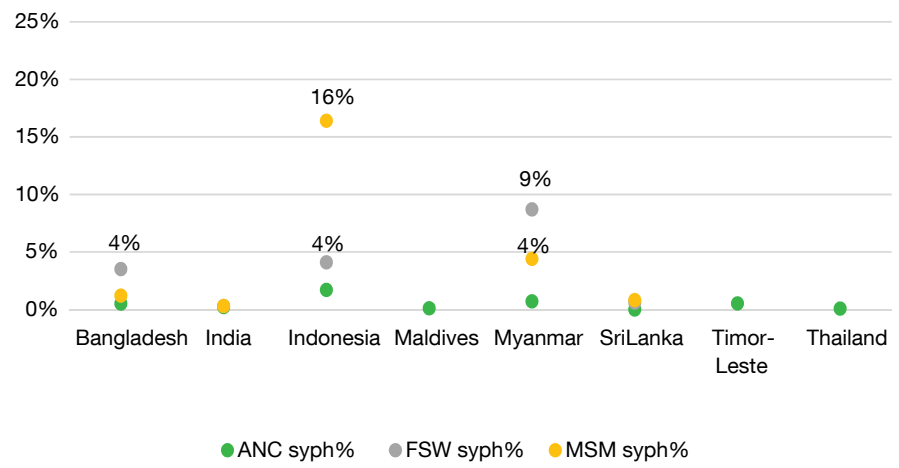
In HIV epidemics, which are largely driven by sexual transmission, an important component of the National HIV strategy is STI management especially for higher risk populations. Recent data among FSW and MSM show that in some countries, e.g. in Indonesia, Myanmar and Bangladesh, relatively high

levels of active syphilis have been detected. These countries also appear to have higher syphilis positivity among ANC attendees, including nearly 2% of pregnant women screened in Indonesia (Figure 29).

With the support of WHO – SEARO, five countries in the Region have updated their STI guidelines in the last 5 years; these include: Thailand (2016), Timor-Leste (2014), Myanmar (2014), the Maldives (2013) and Indonesia (2011). STI guidelines in Bangladesh and Bhutan have not been updated since 2006. According to the 2015 GARPR reports, four countries in the Region conduct surveillance of gonococcol anti-microbial resistance including Bhutan, Indonesia, Sri Lanka and Thailand.

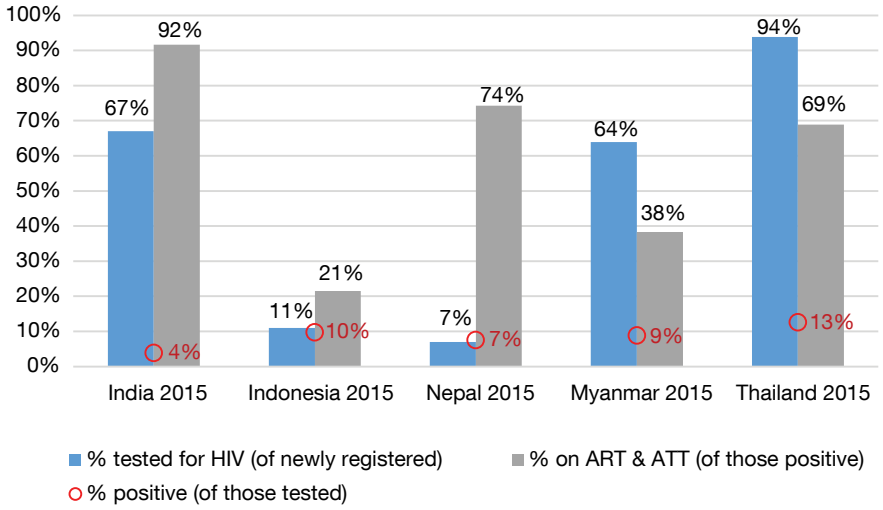
Another important programme area is managing HIV-TB co-infection; in particular, implementing treatment guidelines, which recommend routine HIV testing of newly registered TB patients in order to manage anti-TB treatment (ATT) and ART. Figure 30 shows the proportion of newly registered TB patients who were tested for HIV, the proportion who were HIV positive among those tested and the percentage of patients started on both ART and ATT among those who tested HIV positive. Testing of newly registered TB patients reached nearly 95% in Thailand and was 67% in India and 64% in Myanmar. In Indonesia and Nepal, HIV testing for TB patients is low,

Figure 29. Prevalence of active syphilis among selected populations screened



Source: GARPR 2015.

Figure 30. Diagnosis and management of HIV co-morbidity among newly diagnosed TB patients



Source: WHO. Global TB Report 2016.

at 11% and 7% respectively. Among those tested, between 4% and 13% of newly registered TB patients were HIV positive. In India, where only 4% of newly registered TB patients were co-infected with HIV. Among those co-infected with HIV and TB, 92% of patients in India were on both ART and ATT, compared to 74% in Nepal, 69% in Thailand and 38% in Myanmar. Management of TB-HIV co-infection was weak in Indonesia, with only 21% of patients on both ART and ATT.

In India, expanding efforts to screen TB patients at a national scale has benefitted from operations research.

Kumar et al.[24] describe the process of piloting PITC for presumptive TB patients between January and March 2012 at public sector sputum microscopy centres in one state in order to inform national TB program on this topic. The pilot was conducted in the state of Karnataka, India, and included 115 308 patients; 55% were tested for HIV. Of those tested, 12% were found to be HIV positive, of whom 40% were newly diagnosed. To understand barriers to testing, the team found that the primary reason for not being tested for HIV was because of the nonavailability of testing at the sputum collection site; only 4% of patients opted out of testing. The pilot also allowed the estimation of additional workload experienced at different facilities. Together these results enabled practical adjustments to the policy and resources allocated to enable the change in clinical guidance to be implemented effectively.

In 2014, analysis of India's early warning indicators for development of drug resistance and quality of care among ART patients (EWI) found nearly 20% of patients enrolled in HIV care were diagnosed with TB within two years.[26] Of these co-infected patients, 19% had initiated ART before being diagnosed with TB. Table 8 shows the timing of ART initiation among those not on ART at the time of their TB diagnosis. About 80% of HIV-positive

Box I. Operations research on treatment outcomes of HIV-TB co-infections in India

In India, operations research has also been conducted to look at predictors of poor treatment outcomes among patients co-infected with HIV and TB. Current ART Guidelines for HIV TB co-infected persons recommend that ART be initiated within 2 weeks to 2 months after ATT is started in HIV TB co-infected persons. Shastri et al.[25] examined patterns of initiating ART and anti TB treatment (ATT) among PLHIV at 16 HIV clinics in Karnataka, India, between 2009 and 2011. In this observational study, 64% of co-infected patients had a poor ATT outcome and 44% had a poor ART outcome, including death, loss to follow-up, or discontinuation of ART. There was no association between having a poor ART outcome and whether ART or ATT was initiated first.

Table 6. Time interval between the initiation of ART and the initiation of tuberculosis treatment among HIV-TB co-infected patients (n=602)

Time between initiatiion of ART and initiation of TB treatment (days)	N (%)
ART before ATT	191 (31.7)
0-60	97 (50.8)
61-180	27 (14.1)
181-365	34 (17.8)
>365	33 (17.3)
ART after ATT	411 (68.3)
0-60	288 (70.1)
61-180	81 (19.7)
181-365	38 (9.2)
>365	4 (1.0)

Source: Shastri et al. 2015.

This study also estimated the odds of poor ART outcomes among co-infected. Male patients, those with smear negative TB infections and patients with CD4 counts < 350 cells/ mm^3, had elevated risk of poor ART treatment outcomes. However, the strongest association was found between having a poor ATT outcome and a poor ART outcome. These data underscore the importance of strong collaboration between ART and TB clinics to improve treatment outcomes for both diseases.

Table 7. Factors associated with unfavourable treatment outcome among HIV-TB co-infected patients on ART

Characteristics	Adjusted OR (95% CI)	p-value
Male sex	**1.7 (1.1-2.7)**	**0.02**
Type of TB		
Smear positive	1.5 (0.85-2.6)	0.16
Smear negative	**2.0 (1.2-3.2)**	**0.005**
Extra-pulmonary	Reference	Reference
CD4 count at 12 months		
<50	**3.7 (1.1-12.8)**	**0.03**
50-200	**2.6 (1.4-5.0)**	**0.004**
200-350	**2.4 (1.4-4.2)**	**0.002**
>350	Reference	Reference
Unfavorable TB outcome	**6.1 (3.9-9.8)**	**<0.001**

Note: Adjusted OR from forward conditional multivariable logistic regression to determine factors associated with unfavourable treatment outcome among HIV-TB co-infected patients initiated on ART at 16 ART centres in Karnataka registered during Oct-Dec 2009.

Source: Shastri et al. 2015.

TB patients were started on ART within 8 weeks of TB diagnosis, in line with WHO recommendations.

Table 8. Timing of initiation of ART among PLHIV newly diagnosed with TB, India

Study cohort (adults, n=9468)	Number (%)
Patients diagnosed with TB	1871 (19.8)
Patients already on ART at the time of TB diagnosis	362
Time between TB diagnosis and ART initiation, for the 1429 individuals not already on ART	
<2 weeks	200 (14.0%,95% CI: 12.3–15.9)
2–8 weeks	933 (65.2% 95% CI: 62.7–67.7)
>8 weeks	296 (20.7 % 95% CI: 18.6–22.8)
Median	23 days

Source: WHO. Global TB Report 2015.

B. Strengthening strategic information systems for HIV and research

Strategic information systems for HIV have two main purposes, to enable countries to track the epidemic in terms of where and among who new infections are occurring and to ensure that the response is achieving the intended results in terms of averting new infections, minimizing AIDS-related deaths and reducing stigma and discrimination.

Biological and behavioural surveillance for key populations

Countries in SEAR have historically been at the forefront of developments in HIV surveillance methodologies specific to key populations. This includes the use of HIV sentinel surveillance among KP, developing probability sampling methods for integrated biological and behavioural surveys of KP and various methods, especially geographic mapping, for estimating the size of KP. Table 9 describes the availability of surveillance data for each KP group in the Region's five high-burden countries. Despite the Region's methodological innovations, resources for surveillance have become more limited during this period and some high-burden countries have not conducted sero-prevalence measures among specific key populations in the last 5 years.

Given the importance on focusing on more vulnerable and higher risk segments of key populations, collecting and analyzing surveillance data for sero-prevalence and behaviour risk factors of young key populations (i.e. those aged 15-24 year old) have received more attention in the last 5 years.

All data sources included in Table 9 in the five high-burden countries allow results to be presented in age-disaggregated form. In addition, other countries in the Region that have conducted recent HSS and BSS/IBBS also have begun disaggregating analysis by age group as well. Notably, while age group analysis is included as part of GARPR reporting, not all countries have yet to include age disaggregated analysis in the primary survey reports.

Population size estimates of KP data

In addition to sero-prevalence measures, population size estimates of key populations across geographic areas serve as a critical component to tracking the potential for an HIV epidemic to emerge. This is true in all countries including those with low prevalence and nascent epidemics. Population size estimates are fluid due to the inherent mobility of key populations, the degree to which the environment drives the community into hiding, and changing contexts of commercial sex and drug availability.

A recent global review of the

Table 9. Current HIV survey activities among KP in 5 high-burden countries (2010-2015)

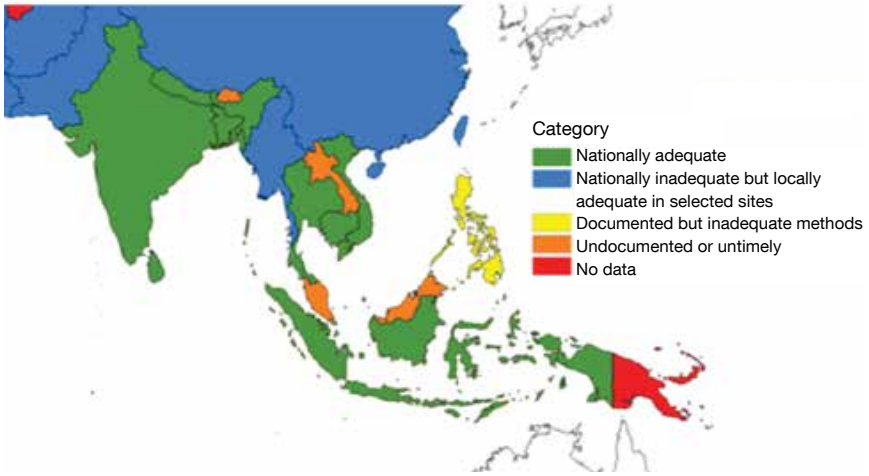
	India	Indonesia	Myanmar	Nepal	Thailand
FEMALE SEX WORKERS					
SURVEY TYPE	HSS (2010–11), IBBS (2014-15)	IBBS (2013)	HSS (2014) IBBS (2015)		IBBS (2015)
PERIODICITY	HSS – bi- annual IBSS - Undefined	Every 2-3 years	HSS - Annual IBSS - undefined		Every 2 years
MEN WHO HAVE SEX WITH MEN					
SURVEY TYPE	HSS (2010-11), IBBS (2014-15)	IBBS (2013)	HSS (2014) IBBS (2015)		IBBS (2014)
PERIODICITY	HSS – bi- annual IBSS - Undefined	Every 2-3 years	HSS - Annual IBSS - undefined		Every 2
PEOPLE WHO INJECT DRUGS					
SURVEY TYPE	HSS (2010-11), IBBS (2014-15)	IBBS (2013)	HSS (2014) IBBS (2014)	IBBS (2011)	IBBS (2014)
PERIODICITY	HSS – bi- annual IBSS - Undefined	Every 2–3 years	HSS - Annual IBSS - Undefined	Every 2–3 years	Every 2 years

Source: SEAR 2015 Regional Workshop on Strategic Information of HIV, STI and Hepatitis Report, 2016.

availability of PSE for key populations between 2010 and 2014 found that 8 out of 11 SEAR countries had "nationally adequate" size estimates for FSW, MSM and PWID(Figure 31). These countries include: Bangladesh, India, Indonesia, Nepal, Sri Lanka, Thailand and Timor-Leste.[27]

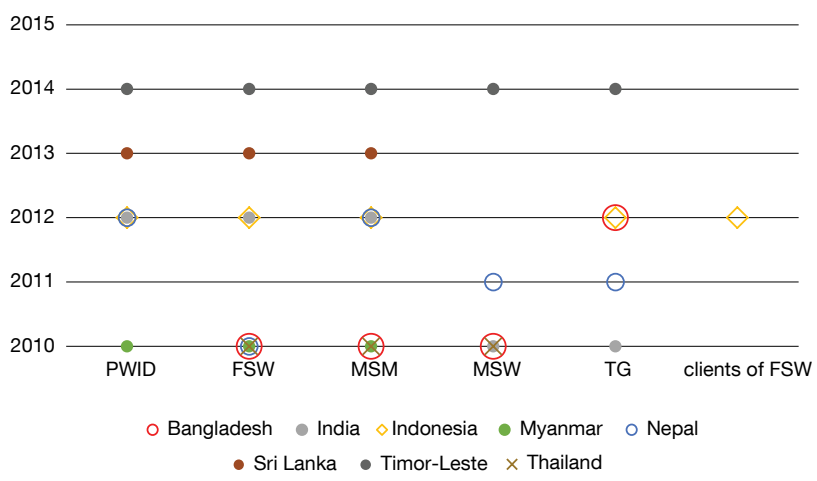
A more detailed schematic of when and for which key population countries generated size estimates are shown in Figure 32. Ideally, PSE are updated routinely in local areas where targeted interventions provide services for KP. This is possible when geographic mapping is used as the source of PSE data. Mapping has been used extensively in India, Bangladesh and Nepal, and increasingly is the source of PSE data being used in Indonesia, Sri Lanka and Myanmar.

Figure 31. Categorizing SEAR countries by adequacy of size estimates for key populations



Source: Sabin K, Zhou J et al. 2016. Availability and Quality of Size Estimations of Female Sex Workers, Men Who Have Sex with Men, People Who Inject Drugs and Transgender Women in Low- and Middle-Income Countries. PLoS ONE. 2016. 11(5): e0155150.

Figure 32. Date of most recent available size estimate of different key population in South-East Asia Region countries – 2010-2015



Source: AIDS Data Hub, 2015.

HIV drug resistance surveillance

As ART use expands, surveillance of HIV drug resistance becomes a more important tool for managing an effective response. Among the five high-burden countries of the Region, HIV DR testing has been conducted at various levels of frequency (see Table 10). According to GARPR data, countries conducting HIV DR surveillance have monitored acquired drug resistance and used early warning indicators (EWI) of drug resistance.

Table 10. Frequency of conducting HIV DR surveillance

	Pre-treatment drug resistance	Acquired drug resistance	Pediatric drug resistance	EWI
India	None	None	None	2015
Indonesia	2012	2012	None	2012
Myanmar	None	2013	None	2013
Nepal	None	2013	None	2013
Thailand	2013	2014	None	2014

Source: GARPR 2016.

Operations research for improving the epidemic response

The progress achieved by SEAR countries has been accompanied by significant investment in operations research on HIV built on current programmatic experience. Throughout this report, examples of operations research used to optimize specific programme areas in prevention, care and treatment have been showcased. Reaping the benefits from operations research requires substantial investment by national governments and partners.

Box J: Building capacity for operations research

Mahendradhata et al.[28] (2014) describe efforts over 10 years to embed operational research into a national disease control programme in Indonesia. This case example comes from the National TB programme (NTP) but has similar parallel efforts to build OR capacity for HIV programming. The model described in Indonesia recognizes the importance of government investment in these efforts rather than dependence on initiatives driven by international agencies and development partners. The steps used to embed OR into the NTP included formation of formal research group comprised of national university partners, the ministry of health and the national institute of health research. The research group serves as technical advisors to local research projects, provides courses in OR for local implementers, reviews OR proposals submitted for funding and recommends how OR results can be applied to improve the national programme.

C. Strengthening health systems for effective integration of health services

Models of decentralizing HIV care in the Region

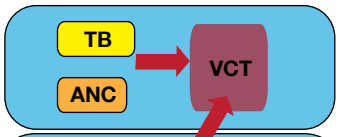
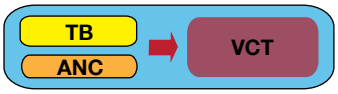
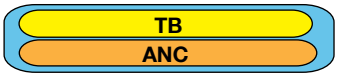
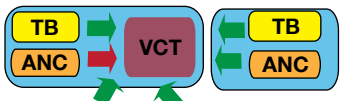
Achieving high levels of coverage across the HIV cascade requires a strong health system into which HIV services can be smoothly integrated at subnational level. A decentralized system provides many points of entry for the populations prioritized for testing and stronger linkages for care and treatment at local level. A recent review of the continuum of HIV care in six Asia-Pacific countries was conducted by Fujita et al.[15] Figure 33 shows the differences in how systematically referrals to HIV testing are made for clients of TB and ANC clinics at district and subdistrict level in different countries.

In Thailand, clients at district level TB and ANC clinics are systematically referred to HTC as part of provider-initiated testing and counseling (PITC) at both district and subdistrict levels (for ANC attendees);
In Nepal, PITC is offered systematically to TB and ANC clinic attendees only at district level facilities and not at subdistrict level facilities; and
In Myanmar, PITC is routine at district level ANC facilities, but not at TB clinics. Where PITC is not routine practice, these priority populations must seek out VCT services, usually at district level.

Role of task shifting in HIV care

Task shifting represents an important strategy for health system expansion of service availability and increase service utilization. In most countries

Figure 33. Models of decentralized diagnosis and care in selected SEAR countries

Country	Illustration of availability and linkages	Geographical distribution and decentralization of services	Linking approach for HIV testing of pregnant women and TB cases
Thailand District		- All districts offer VCT - All districts offer PITC for pregnant women and TB cases	- Systematic referral within a district facility
Sub-district		- All sub-districts offer PITC for pregnant women	- Systematic referral from a sub-district to a district facility
Nepal District		- All districts offer VCT - Only a fraction of districts offer PITC for pregnant women and TB cases	- Systematic referral within a district facility
Sub-district			
Myanmar District (Township)		- 2/3 of districts offer VCT and PITC for pregnant women (and much fewer for TB cases)	- Systematic referral within a district facility - Systematic referral between a district with VCT and without VCT
Sub-district			

A red arrow indicates systematic referral and a green-colored arrow indicates ad-hoc referral.

Source: Fujita M et al. 2015.

this means greater engagement of nurses and midwives as primary care providers for HIV clinical care, including EMTCT of HIV and syphilis at subnational level. In 2015, Elison et al.[29] reviewed nursing and midwifery legislation in SEAR countries with high HIV burdens to assess whether professional regulation of training and practice was consistent with general global standards. In four of the five high HIV-burden countries, legislation regulating practice of nurses and midwives is currently in place, with the exception of Indonesia. The assessment found that the four countries with such acts met a majority of the global standards (15-20 out of 21 elements). One gap noted was that no country mentions continuing education requirements for nurses or midwives, which can be particularly useful for areas of care such as HIV which are under continuous development. Neither did the acts regulating nurses and midwives specify HIV-related tasks within the scope of practice.

Universal Health Coverage and sustainable financing for HIV

Financing for HIV-related services continues to be a major impediment to sustained treatment coverage in the Region. Countries must rely more heavily on domestic sources of funding to support national AIDS programmes, including affordable/no-cost treatment for PLHIV. In parallel, global efforts to move towards Universal Health Coverage (UHC) have made progress and is an explicit component of the SDG. Development of UHC must address three dimensions, as illustrated in Figure 34: a) who is covered, b) which services are covered and c) how much do people have to pay out of pocket.

A key challenge is to consider how HIV can be integrated equitably into these UHC schemes. In 2015, a meeting was convened in SEAR to learn lessons from country experience integrating HIV services into UHC schemes.[30] In the Region, Thailand has the most advanced UHC benefits package,

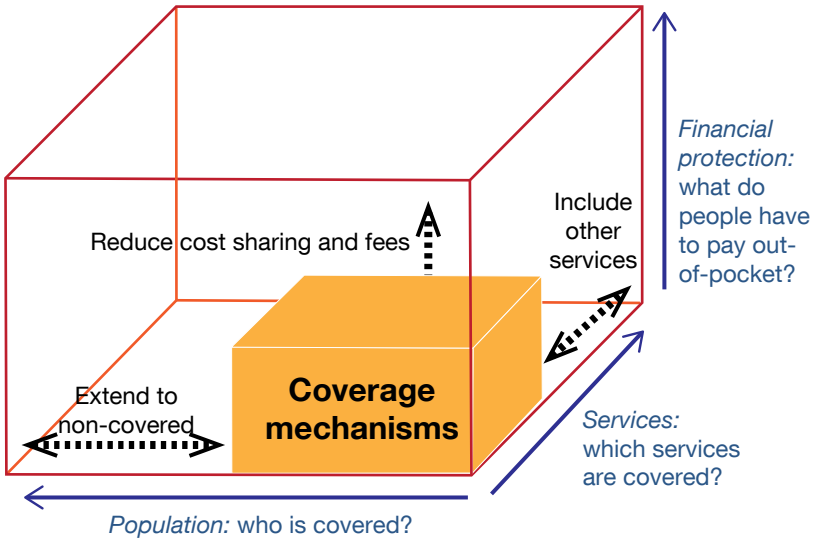
which includes essential services for HIV, including free testing and counseling for priority populations and comprehensive HIV care and treatment for people infected with HIV. Due to the large migrant population in Thailand, health insurance schemes for migrant populations (both registered and unregistered) are now available and include HIV care and treatment services. The National Health Security Office (NHSO) provides health insurance for nearly 75% of the Thai population. As the national purchaser of health care and consumables, the NHSO has been successful in conducting price negotiations for important HIV drugs such as tenofovir, resulting in significant savings for the government.

In Indonesia, UHC schemes covering HIV services are under development and consider different options for purchase through additional contributions from those insured. A basic coverage option would require additional government subsidies for ART but would require a plan for incremental expansion of the basic package. A more comprehensive care option requires coordination of different funding streams and mechanisms for different components of service, and a mechanism for incentivizing service providers to provide comprehensive care.

Optimizing resource allocation

As resources continue to be more limited, countries must develop resource allocation strategies that match where prevention, care and treatment needs are greatest. Geographic prioritization is one important approach for resource allocation used by many countries. For example, countries, such as India, Indonesia, Myanmar and Bangladesh have identified priority districts/townships meeting specific surveillance based criteria which receive funding for more comprehensive packages of service.

Figure 34. Dimensions of Universal Health Coverage schemes



Source: The World Health Report, 2010: WHO Geneva

Table 11. UHC Schemes considered in Indonesia for covering HIV services

	Option 1 - Comprehensive Coverage	Option 2 – Basic Coverage	
SERVICES	Benefit package includes all HIV-related services: counseling, condoms, screening tests (pre-ART, other lab tests), ART, STI screening and treatment, prevention of mother-to-child transmission services, ambulatory care, inpatient services	Current Basic Benefit Package coverage plus ART and screening tests	Current Basic Benefit Package; ART provided through government vertical channeling mechanism
FINANCING	Premium contributions	Premium contributions	Premium contributions and government subsidy for ART
CHALLENGES	• Integration of different funding mechanisms for HIV services • Comprehensive package will require facility readiness • Lack of good incentive mechanisms for service providers • Coordinated planning and budgeting, including synchronized procurement	• Different payment mechanisms (different sources and channeling) • A clear roadmap is needed for an incremental expansion of HIV service coverage in the basic package	

Source: Meeting Report: Regional Workshop on Development of Framework on addressing HIV/AIDS in the context of Universal Health Coverage, 2015.

Table 12. Examples of geographic prioritization criteria used in SEAR countries

	India	Indonesia	Myanmar	Bangladesh
Geographic prioritization scheme	"Category A, B districts"	"141 priority districts"	"46 priority townships"	Investment case framework – geographic focus
Criteria used to prioritize districts/ townships	HIV prevalence	Key population size, # of PLHIV , strong infrastructure and good M&E system	Key population size, # of PLHIV on ART, # of TB-HIV patients # of HIV positive pregnant women	Key population size, # of PLHIV diagnosed, # of patients on ART
Number of district categories	195	141	46	23

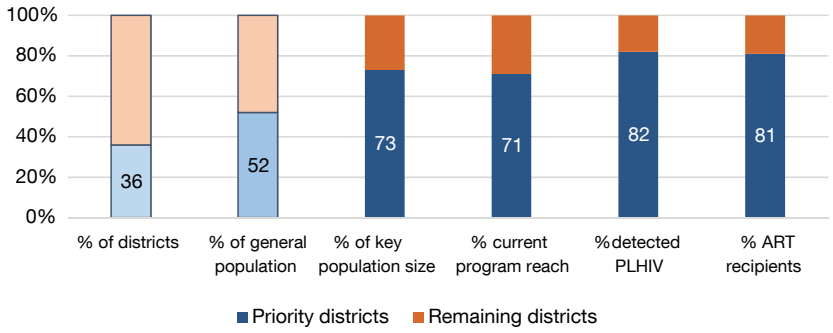
Source: Country reported data

Efforts to optimize resources allocation are informed by costing studies and similar OR that helps project resource needs based on real implementation experience. Recent analysis by Siregar et al.[32] of the cost of ART for Indonesian patients in a large public sector referral hospital in West Java between 2010 and 2012, found the cost of maintaining patients on treatment decreased over time. This pattern was true for both patients initiating ART at very late stages of disease, e.g. <100 CD4 cells / mm3; and among those with CD4 count > 200 cells/ mm3 and is largely related to a reduced need to manage opportunistic infections once patients are stabilized and respond well to ART. This analysis also provides more evidence that earlier initiation of ART can reduce overall costs to the system. Just as important, this study also measured costs to patients and found that average monthly expenditure by patients was about US$ 70 of which 40%-60% was used for transportation. This finding was consistent with earlier studies that attribute some discontinuation of ART to transportation costs born by patients. These data illustrate the complex considerations to developing cost effective models for providing ART which balance health system costs as well as costs to patients.

Box K: Optimizing resources requires geographic focus

In 2016, Bangladesh completed an Investment case framework for reaching their 90-90-90 goal.[31] Their analysis concluded that focusing services in 23 out of 64 districts (roughly 1/3) encompassed 73% of estimated KP, 82% of diagnosed PLHIV and 81% of current ART recipients.

Figure 35. Investment case framework for reaching 90-90-90



The projections estimate that by achieving 90% coverage in the priority districts and 50% coverage in the remaining districts, new infections will decrease to under 300 per year and by 2030, 7635 lives will be saved. This requires an investment of US$ 16 million for direct prevention, which translates to a cost of only US$ 145 per disability adjusted life-year (DALY) saved and a return of US$ 21 by the year 2020 for every US$ 1 invested.

Resource allocation schemes with multiple stakeholder perspectives

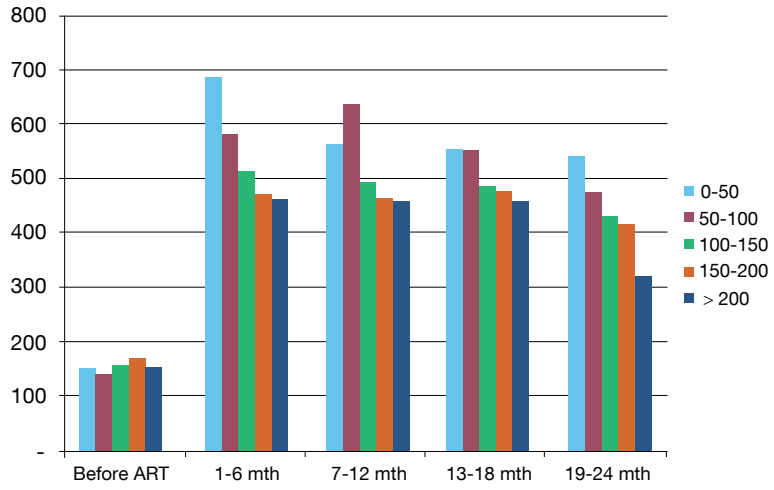
While UHC addresses financial sustainability of clinical services (e.g. testing, care, treatment, etc.), national AIDS programme activities related to HIV prevention, surveillance and efforts to create an enabling environment extend beyond the public sector health system and require appropriate allocation of resources. And until countries adopt a UHC

scheme which fully covers HIV services, the national AIDS strategy will require a resource allocation strategy that addresses prevention, care and treatment needs across different geographic areas. Such a resource allocation strategy requires objective, transparent criteria. Deciding on the best criteria to use may vary across different stakeholders, reflecting different values and perspectives. These differences in perspective found among four groups of stakeholders in Indonesia was recently studied by Tromp et al.[33] Four types of stakeholders: policy-makers, health-care workers, PLHIV and the general public were asked to rank the importance of different risk groups and criteria for HIV priority setting.

In Indonesia, the largest key population group of PLHIV are FSW clients (~40%), followed by PWID (30%) and MSM (15%). In this analysis different groups of stakeholders used multiple consideration for ranking which population as the highest priority group. For example, PLHIV, health-care workers and the general population ranked reduction in the spread of HIV as the top criteria, however, policy-makers chose effectiveness of interventions for individual beneficiaries as the most important criteria. Based on their criteria, policy-makers, PLHIV and health-care workers identified PWID as the highest priority population, but the general population stakeholders considered FSW as the highest priority group. This may be due to lay persons' more common knowledge about sex work as a risk behaviour compared to injection drug use. Stakeholders who were PLHIV and health-care workers ranked quality of care as the second most important criteria for interventions compared to the service requirements/ feasibility prioritized by policy-makers.

This illustration of the diversity in decision-making across different groups underscores the importance of multiple stakeholders engaged in decision-making. There is also a need to conduct important advocacy among different stakeholders to review resource allocation schemes that are eventually adopted.

Figure 36. Reductions in average cost to patients for ART services over time and by CD4 count at ART initiation, West Java, Indonesia (2010-2012)



Note: Average service costs per patient per specified period, health care system perspective (US$). This figure presents the average service costs per patient taking ART. The average costs are separated into specific periods, namely before ART, 1-6 months, 7-12 months, 13-18 months, and 19-24 months within ART. These costs are further separated into CD4 cell count group, namely 0-50, 50-100, 150-200, and >200 cells/mm3. The figure shows how the average costs per patient in different CD4 cell count groups relatively decrease after the start of ART.

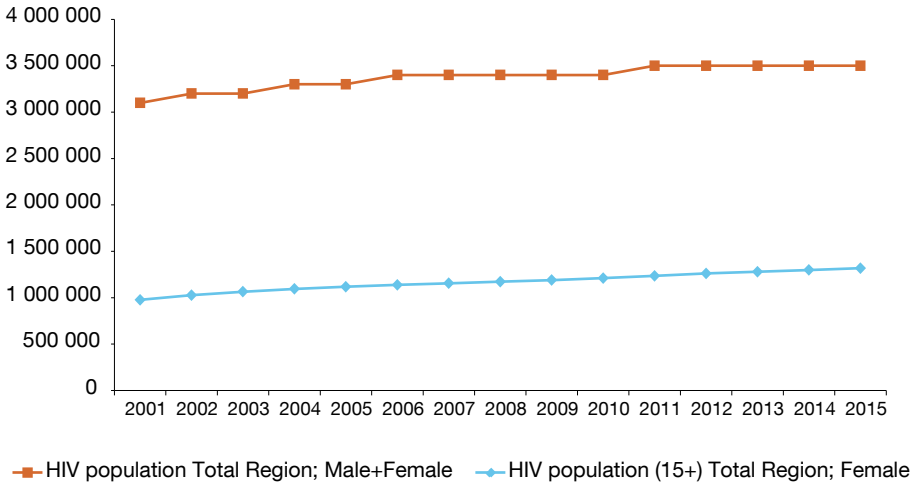
Source: Siregar et al. 2015.

D. Fostering supportive environment to ensure equitable access to HIV services

Gender equity and the response to the HIV epidemic
In SEAR, about 40% of all estimated HIV infections occur among women. And this proportion has remained relatively stable over the last decade. Some countries have reported increasing proportions of female HIV case reports. However, changing female case numbers may reflect differences in testing patterns among male and female priority populations

that have evolved over time and should be interpreted with caution.[34] Whether this increase in reported cases among women reflects trends in new infections or patterns of diagnosis, larger numbers of diagnosed female PLHIV has implications for ensuring gender equity in linkages to care, early initiation in treatment, and potential gender-based stigma and discrimination in health-care facilities and communities, or potential for gender-based violence in the context of disclosure of HIV status to partners or other family members.

Figure 37. Number of PLHIV who are women compared to total PLHIV in SEAR (2001-2015)



Source: UNAIDS estimates 2016.

Most prevention activities in concentrated and low-level epidemic settings have an inherent orientation around gender, e.g. services for female sex workers, male clients, men who have sex with men and PMTCT of HIV. However, prevention services must continue to push the envelope in addressing negative gender norms that impede the effectiveness of these interventions. Historical examples include the 100% condom use programme initiated in Thailand and expanded to many countries in Asia-Pacific that uses structural interventions to remove the burden from individual female sex workers negotiating condom use with clients in the context of unequal power in sexual decision-making between men and women. Advocacy has also been done to focus on transgender populations as a community of greater vulnerability to HIV and distinct sociocultural norms compared to MSM populations. And over the last 5 years, most countries in the Region have adopted Option B+ which has reduced maternal to child transmission as well as ensured early initiation of and sustained treatment, prolonging the life of female PLHIV.

Reducing gender-based violence, especially in the context of sexual behaviour of key populations, remains an important issue in the Region. Recent multi-country studies of intimate partner violence found wide ranging prevalence of perpetration by men. Of the SEAR countries included in the study, more than 50% of men in Bangladesh committed some sort of physical violence ever against their partner, compared to 32.9% in Sri Lanka. In Indonesia the prevalence ranged from 25.7% (rural) to 30.6%(urban) with Papua reporting the highest with 60.2%. Self-report of sexual violence against their partner was reported by about 15% of men in Bangladesh and Sri Lanka, and in Indonesia it ranged from 11.5% to 24% (Table 13).

Among key population communities, sexual violence is a common experience that has been shown to be associated with higher risk behaviours. Approximately one in five FSW in Nepal survey sites reported being forced to have sex and/or experiencing sexual assault in the last 12 months. About one quarter of MSM overall have ever been forced to have sex in Myanmar, compared to 21% of MSW in Bangladesh. And experience of ever being raped or beaten was reported by 28%-45% of MSM, TG and/or MSW in Dhaka, Bangladesh. More systematic reporting on recent experience with sexual violence is needed and should be included as an important surveillance topic to track over time (Table 14).

Table 13. Percentage of ever-partnered men and women who reported having perpetrated or experienced physical or sexual intimate partner violence

Country	Site	Total no. of ever partnered men/women		Physical violence (%)	Sexual Violence (%)	Physical or sexual violence or both (%)
Bangladesh	Rural	Men	830	51.6	15.1	56.8
	Urban	Men	742	52.1	10.4	54.9
Indonesia	Rural	Men	769	11.5	17.9	25.7
	Urban	Men	820	12.5	24.1	30.6
	Papua	Men	858	37.7	43.8	60.2
Sri Lanka	National	Men	1 176	24.2	15.5	32.9
		Women	559	20.8	17.9	27.8

Source: Fulu E et al. 2013.

Table 14. Prevalence of forced sex and sexual assault reported by key population communities – selected SEAR countries (2011-2015)

Forced to have sex	FSW	MSW	TG	MSM	Time Period/ Notes:
Nepal (KTM, POK, Terai Districts, 2012)	21-9%				12 months
Bangladesh (Dhaka, 2013-14)		21%	2%		12 months
Myanmar (Yangon, 2013-14)				25%	Ever
India (National, 2014-15)	17%			12%	12 months
Sexual Assault					
Nepal (Terai districts, 2012)	17%				12 months
Nepal (Kathmandu, 2011)	21%				12 months
Bangladesh (Dhaka, 2013-14)		45%	28%	36%	Ever raped or beaten

Source: AIDS DataHub, 2015.[34]; India data: National IBBS 2014-2015 Report.

In a similar vein, the relationship between food security and women's risk of HIV has been highlighted globally. Within the Region, Tsai et al. report on analysis conducted on the 2011 demographic health survey in Nepal, which found correlations between women living in food insecure households and higher levels of symptoms of sexually transmitted infections in the past 12 months, but not among men. These associations between food insecurity and STI symptoms were found among both partnered and single sexually active women, and were stronger among women with migrant partners.

Table 15. Patient satisfaction by gender among HIV clinic attendees, India

	Gender		
PSQ-18 scale	Male (Mean ±SD)	Female (Mean ±SD)	p-value
General satisfaction	4.35± 0.49	4.52± 0.46	0.001
Technical quality	4.76± 0.24	4.87± 0.16	0.001
Interpersonal manner	4.51± 0.40	4.70± 0.37	0.001
Communication	4.57± 0.44	4.73± 0.37	0.001
Financial aspects	3.16± 0.78	3.34± 0.70	0.018
Time spent with doctor	4.56± 0.44	4.63± 0.45	0.154
Accessibility and convenience	4.41± 0.45	4.63± 0.39	0.001
[Table/Fig-3]:Gender and patient satisfaction.			

Source: Vahab et al. 2016.

Some countries have begun to explicitly measure gender equity in the provision of HIV care and treatment.

Vahab et al. describe the use of a standardized 18 measure patient satisfaction questionnaire (PSQ-18)

among consecutive patients attending an large HIV clinic in Mangalore, India. Comparison of male and female patient assessments showed higher satisfaction among females than males on most measures, suggesting that gender-based discrimination was not an issue at this facility (Table 15).

In concentrated epidemic countries, the impact of stigma and discrimination as a barrier to achieving the 90-90-90 is more pronounced due to the double stigma faced by key populations most affected by HIV, which may inhibit utilization of services provided in clinical settings as well as use of prevention services.

Many prevention interventions in the Region recognize the importance of reaching beyond KP easily found in venues and the need for more effective means of reaching hidden and nonvenue-based KP, many of whom do not openly identify as KP.

Tracking various forms of stigma and discrimination among both PLHIV generally and among KP provides important insight into whether services must make adjustments in order to achieve their coverage targets. Assessing experience of stigma and discrimination towards key populations has been included in several IBBS conducted in the Region in the last 5 years. For example, in the India 2014-2015 IBBS, overall 27% of FSW reported experiencing stigma related to being an FSW from friends, family, or neighbors and 21% reported feeling stigmatized or discriminated against for being an FSW in health-care facilities specifically. Among MSM, these figures were 16% and 13 % respectively. Experience of stigma was greatest among PWID in India, with 46% reporting being treated badly or disrespectfully by friends, family, or neighbors due to being a PWID and 26% perceiving stigma or discrimination specifically in health-care settings.[6]

4. Challenges and Future Directions

As WHO and its member countries embarks global and regional strategies for addressing HIV (2016-2020), a number of lessons learned emerge from the last 5 years. The recent evaluation of the performance of the Region against the 2011-2015 regional strategy's Strategic Directions made the following recommendations for future work:

- While the epidemic has stabilized overall, gains in reductions of new infections plateaued during this period. Achieving fast track goals by 2020 will require a substantive shift in efforts and additional investments.
- WHO efforts have been effective in supporting most countries in the Region in adopting WHO global and regional HIV strategies and guidelines on HIV prevention, care and treatment, with adaptations to address country epidemic and resource contexts. This guidance must be informed by ongoing generation and use of data for decision-making to optimize service coverage while maintaining service quality.
- As the epidemic stabilizes, future impact will rely on focused efforts in prioritized subnational areas. This requires strengthening data collection and use at local levels to inform programmatic action by local implementers.
- Countries must work towards strengthening their health systems in order to expand availability and deliver services of adequate quality. This includes addressing stigma and discrimination against key populations and affected communities to improve service utilization.
- In the long term, sustainable financing for HIV and AIDS services can be fruitfully linked to efforts for achieving universal health coverage.

As countries strive towards the Fast-Track goals, it will be critical to seize opportunities that aid the transition to integrating HIV into broader health system. These aims are consistent with the positioning of ending the HIV epidemic by 2030 within Goal 3 of the SDGs: Ensure healthy lives and promote well-being for all at all ages.

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