



Elimination of New Paediatric HIV Infections and Congenital Syphilis in Asia-Pacific 2011-2015

**Conceptual
Framework**

**Monitoring and
Evaluation Guide**

Elimination of New Paediatric HIV Infections and Congenital Syphilis in Asia-Pacific, 2011-2015

Conceptual Framework
Monitoring and Evaluation Guide



World Health
Organization

Elimination of New Paediatric HIV Infections and Congenital Syphilis in Asia-Pacific, 2011-2015:
Conceptual Framework & Monitoring and Evaluation Guide

By Padmini Srikantiah

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The Asia Pacific United Nations PPTCT Task Force, consisting of representatives from the World Health Organisation Western Pacific Regional Office (WHO WPRO) and South-East Asia Regional Office (WHO SEARO), United Nations Children's Fund East Asia and Pacific Regional Office (UNICEF EAPRO) and Regional Office for South Asia (UNICEF ROSA), United Nations Joint Programme on HIV and AIDS – Regional Support Team for Asia and the Pacific (UNAIDS-RSTAP), the United Nations Population Fund (UNFPA) and other partner agencies, has been supporting the expansion of Prevention of Parents to Child Transmission (PPTCT) efforts in the region since 1999. Recognising the importance of the adoption of the historic goal of the elimination of new paediatric HIV infections and Congenital Syphilis in Asia-Pacific by 2015 at the 8th Meeting of the Asia-Pacific UN Task Force for PPTCT held from 23 – 25 November 2010 in Vientiane, Lao PDR, the Task Force, along with inputs from national programmes and partner agencies, has developed a Conceptual Framework and Monitoring & Evaluation guide for the Asia Pacific.

The Conceptual Framework and Monitoring & Evaluation guide is designed to provide the Asia Pacific region with a common, systematic approach to the elimination of new paediatric HIV infections and Congenital Syphilis, and improvement of maternal and child health and survival in the context of HIV/STIs. The document also serves as a tool to advocate for government endorsement of the elimination initiative at the highest levels, as a key demonstration of regional commitment to working towards a generation free of HIV and Syphilis.

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Acronyms

AIDS	acquired immune deficiency syndrome
ANC	antenatal care
ART	antiretroviral therapy
ARV	antiretroviral
AZT	zidovudine
CS	congenital syphilis
CSW	commercial sex worker
CTEI	costing tool for elimination initiative
DPT3	diphtheria, pertussis tetanus vaccine
ECS	elimination of congenital syphilis
EID	early infant diagnosis
FP	family planning
GFATM	The Global Fund to Fight AIDS, Tuberculosis and Malaria
H4	Health 4 Initiative
HIV	human immunodeficiency virus
IATT	Inter-agency Task Team (for PMTCT)
IMR	infant mortality ratio
IPT	intimate partner transmission
KAP	key affected population
LMIC	low and middle income countries
MDG	Millennium Development Goal
MMR	maternal mortality ratio
MNCH	maternal, newborn and child health
MSM	men who have sex with men
NCGM	National Center for Global Health and Medicine, Tokyo
PCR	polymerase chain reaction
PEPFAR	President's Emergency Plan for AIDS Relief (US)
PITC	provider initiated testing and counseling
PLHIV	people living with HIV
PMNCH	Partnership for Maternal, Neonatal and Child Health
PMTCT	prevention of mother-to-child transmission (of HIV)
PPTCT	prevention of parents-to-child transmission (of HIV)
PTCT	parents-to-child transmission
PWID	people who inject drugs
RPR	Rapid Plasma Reagin
SRH	sexual and reproductive health
STI	sexually transmitted infection
SW	sex worker
UA	Universal Access
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
VDRL	venereal disease research laboratory
WHO	World Health Organization

PART 1

Conceptual Framework

Executive Summary

In 2009, an estimated 22,000 children in the Asia-Pacific region were newly infected with HIV. Without treatment, about half of these infected children will die before their second birthday. Nearly all of these infections can be prevented by comprehensive prevention of parents-to-child transmission (PPTCT) services that provide highly effective prevention and treatment. Each year there are an estimated 600,000 syphilis sero-positive pregnant women in Asia-Pacific countries who can transmit the infection to their fetuses, causing congenital syphilis (CS). Despite effective and inexpensive interventions, adverse outcomes, including stillbirth and neonatal death, are observed in 69 per cent of these pregnancies.

In the setting of the ongoing scale-up of PPTCT services, revitalised global interest in maternal, newborn and child health (MNCH) issues, and the availability of more efficacious antiretroviral (ARV)-based PPTCT interventions and rapid syphilis testing strategies, the elimination of new paediatric HIV and CS infections is, for the first time, considered a realistic public health goal. Because similar strategies apply to the prevention of new paediatric HIV and CS infections, several countries in the Asia-Pacific region have begun to consider a combined approach to the delivery of PPTCT and elimination of congenital syphilis (ECS) services. By providing high quality antenatal and family planning (FP) services to women, identifying and treating HIV or syphilis sero-positive pregnant women, and appropriately treating their newborn infants, Asia-Pacific countries can achieve dramatic reductions in the burden of new paediatric HIV and CS infections, and contribute to improving MNCH.

Indeed, MNCH services function as the primary platform for key PPTCT and ECS interventions, highlighting the importance of developing synergies between HIV/STI and broader health efforts. Comprehensive elimination efforts will demand integration of HIV/STI and MNCH services, broad implementation of highly effective interventions, and improved health systems capacity to reach women and children in need. Together, these efforts can result in dramatic reductions in new paediatric HIV and CS infections, broadly impact maternal and child health and survival, and contribute directly towards reaching key health-related Millennium Development Goals (MDGs).

The Asia-Pacific United Nations PPTCT Task Force, consisting of representatives from the World Health Organization (WHO), United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA), Joint United Nations Programme on HIV/AIDS (UNAIDS) and other partner agencies, has been supporting the expansion of PPTCT efforts in the region since 1999. Recognising that the elimination of new paediatric HIV infections and CS is an aspirational but appropriate goal for the Asia-Pacific region, the Task Force, along with inputs from national programmes and partner agencies, has drafted a ***Framework for the Elimination of New Paediatric HIV Infections and Congenital Syphilis in Asia-Pacific, 2011-2015***.

With its dual goals of eliminating new paediatric HIV and CS infections, and improving maternal and child health and survival in the context of HIV/STIs, the elimination initiative represents a joint activity of the HIV/STI and MNCH sectors. The framework outlines a strategy that HIV, STI and MNCH programmes in the region can adapt to develop country-specific operational plans for a comprehensive national PPTCT and ECS response, with the broader goals of improving maternal and child health and survival in the context of HIV/STIs.

The Key Elements of the Framework are:

Vision

Women and children alive and free from HIV and syphilis

Goal

To eliminate new paediatric HIV infections and congenital syphilis and improve maternal and child health and survival in the context of HIV/STI

Overall Targets (By 2015):

1. Reduce new paediatric HIV infections by 90 per cent by 2015 (from a 2009 baseline)
2. Reduce parents-to-child transmission of HIV to <5 per cent (from a 2009 baseline)
3. Reduce the incidence of congenital syphilis to <0.5 cases/1,000 live births

Programmatic Targets:

1. 50 per cent reduction of HIV incidence among women 15-49 years of age (from a 2009 baseline)
2. Zero unmet need for family planning for women living with HIV
3. ≥90 per cent of pregnant women access antenatal care (ANC) services and skilled care at birth
4. ≥90 per cent of pregnant women know their HIV and syphilis serostatus
5. ≥90 per cent HIV-infected mothers and exposed infants receive effective ARVs to reduce PTCT
6. ≥90 per cent syphilis sero-positive mothers and exposed infants receive effective treatment
7. ≥90 per cent eligible HIV-positive pregnant women remain on ART at 12 months post-partum
8. ≥90 per cent eligible HIV-infected children (0-14 years) receive ART

Building Blocks

1. Ensure **commitment** to achieve goals
2. Enhance **comprehensive, linked services** between HIV/STI and MNCH programmes
3. Employ **highly effective interventions** for HIV/STI prevention and treatment
4. Improve **coverage** and advocate for **equitable access**
5. Promote **health systems development** and enhance **community involvement**
6. Improve **measurement** of programme performance and impact

This document provides a regional perspective and rationale for each element of the framework, and outlines priority actions in each of the six cross-cutting building blocks. The Asia-Pacific PPTCT Task Force will continue to provide support to countries to develop national programme-specific strategies and operational plans, and advocate for the elimination of new paediatric HIV infections and CS and the improvement of MNCH in the region.

1. Background

1.1 Parents-to-Child Transmission of HIV and Congenital Syphilis

HIV infection transmitted from an HIV-infected mother to her child during pregnancy, labour, delivery or breastfeeding is known as parents-to-child transmission (PTCT). Globally, an estimated 370,000 children were newly infected with HIV in 2009, including an estimated 22,000 children in the Asia-Pacific region¹. Nearly all of these infections can be prevented by comprehensive prevention of parents-to-child transmission (PPTCT) services.

Syphilis, another sexually transmitted infection (STI), also remains a global problem with an estimated two million pregnant women infected each year², including an estimated 600,000 pregnant women in Asia-Pacific³. Without treatment, approximately 69 per cent of pregnant women with syphilis experience adverse outcomes such as stillbirth, neonatal death and newborn infection⁴. Effective and inexpensive interventions exist to prevent these outcomes.

Because similar strategies apply to the prevention of new paediatric HIV and congenital syphilis (CS) infections, several countries in the Asia-Pacific region have begun to consider a combined approach to the delivery and implementation of HIV PPTCT and CS services.

1.2 Comprehensive Approach to Prevention and Treatment

UN Comprehensive Approach to PPTCT

Countries can achieve dramatic reductions in new paediatric HIV infections through a comprehensive approach to prevention and treatment⁵. The approach has four key prongs:

Prong 1: Primary prevention of HIV among women of childbearing age.

Prong 2: Prevention of unintended pregnancies among women living with HIV.

Prong 3: Prevention of HIV transmission from a woman living with HIV to her infant.

Prong 4: Provision of appropriate treatment, care and support to women living with HIV and their children and families.

Each prong plays a key role in preventing new paediatric HIV infections and improving maternal and child health and survival in the context of HIV. Indeed, recent analyses have demonstrated the need for action and progress in all four prongs in order to achieve dramatic and sustained reductions in new paediatric HIV infections⁶.

WHO Global Strategy for the Elimination of Congenital Syphilis (ECS)

In 2007, WHO outlined a similar comprehensive strategy for the global ECS⁴. The goal of the initiative is to prevent transmission of syphilis from mother to child through strengthened antenatal care (ANC) systems. The strategy consists of promoting four pillars:

- 1. Ensure advocacy and sustained political commitment;**
- 2. Increase access to, and quality of, maternal and newborn health services;**
- 3. Screen and treat pregnant women and partners; and**
- 4. Establish surveillance, monitoring and evaluation systems.**

Given the similarities in mode of transmission, the comprehensive approach to HIV PPTCT is applicable to the prevention of CS. Similarly, the pillars outlined in the Global CS Strategy are appropriate to the efforts to eliminate new paediatric HIV infections as well as to broader MNCH objectives and selected Millennium Development Goals (MDGs).

1.3 PPTCT, ECS and Improving Maternal, Neonatal and Child Health

PPTCT, ECS and Improving Maternal, Neonatal and Child Health: Interlinked Goals

Efforts to prevent new paediatric HIV or CS infections rely heavily on the successful implementation of basic MNCH services. Improving the coverage and quality of MNCH services is essential to achieving PPTCT and ECS targets. Furthermore, because MNCH services function as the platform for many PPTCT and ECS interventions, elimination efforts should be embedded within broader maternal and newborn mortality reduction strategies.

PPTCT and ECS in the Context of Global Initiatives to improve MNCH Services and Outcomes

In the last few years, there has been renewed global interest in improving MNCH outcomes. The MDGs adopted by the UN General Assembly in 2000 committed the international community to reduce child mortality (MDG 4), improve maternal health (MDG 5), and combat HIV/AIDS, malaria and other diseases (MDG 6) by 2015⁷. In 2008, the United Nations endorsed a bold consensus statement on MNCH, with the broad aims of “Every pregnancy wanted, every birth safe, every newborn and child healthy”. Over the last few years, several global initiatives have focused on achieving key MDG goals related to MNCH, including the Partnership for Maternal, Neonatal and Child Health (PMNCH), the Health 4 Initiative (H4), and the UN Secretary General’s Global Strategy for Women’s and Children’s Health⁸⁻¹⁰ with the accompanying Commission on Information and Accountability (whose TOR focuses on two major areas – resources and results) established under this Strategy (**Table 1**).

Table 1: Key Global Initiatives Focused on Improving Maternal and Child Health

Global Momentum to Improve Maternal and Child Health: Key Initiatives

Partnership for Maternal Neonatal and Child Health (PMNCH)

Launched in 2005, PMNCH is focused on accelerating efforts to achieve MDGs 4 and 5. PMNCH endorses a continuum of care across MNCH services in order for women and children to receive the care they need and lead healthy and productive lives.

Health 4 Initiative (H4+)

H4+ represents an intensified joint effort by UNICEF, WHO, UNFPA, UNAIDS and the World Bank to support countries to reduce the maternal mortality ratio by 75 per cent, achieve universal access to reproductive health (MDG 5) and contribute to reducing child mortality (MDG 4). In 2010, the H4+ published guidance on a core package of interventions for MNCH that recommends integration of HIV/STI services at first level facilities.

UN Secretary General’s Global Strategy for Women’s and Children’s Health with the accompanying Commission on Information and Accountability

Released in 2010, the strategy endorses the development of country-led plans to support the integrated delivery of healthcare, strengthen health systems with sufficient skilled workers, and implement and evaluate innovative approaches to service delivery. The strategy endorses the delivery of a comprehensive integrated package of essential services which includes family planning (FP), ANC, skilled attendance at birth and prevention of HIV/STIs.

Potential Contributions of PPTCT of HIV and CS Elimination toward Health Related MDGs

Understanding concurrent MNCH initiatives helps place PPTCT and ECS targets in the context of broader MNCH and sexual and reproductive health (SRH) agendas. Generating synergies between HIV and broader health and human development efforts represents a major opportunity for the PPTCT and ECS elimination initiatives. Comprehensive efforts to eliminate new paediatric HIV infections and CS may also contribute towards achieving MDGs 4, 5 and 6 (**Table 2**).

Table 2: Potential Contributions of Comprehensive PPTCT and ECS Efforts Towards Achieving Key Health-related MDGs

Millenium Development Goals (MDGS) and Targets	Potential Contributions of PMTCT and ECS Elimination Initiative
<p>MDG 4: Reduce Child Mortality Target 4.A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate</p>	<ul style="list-style-type: none"> - Strengthen MNCH practices to improve infant health - Reduce number of new HIV and CS infections and infected infants to reduce morbidity and mortality - Promote safe infant feeding practices
<p>MDG 5: Improve Maternal Health Target 5.A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio Target 5.B: Achieve, by 2015, universal access to reproductive health</p>	<ul style="list-style-type: none"> - Increase access and quality of MNCH services - Reduce unmet need for family planning - Primary prevention of HIV and syphilis in women - Ensure treatment of HIV-infected women
<p>MDG 6: Combat HIV/AIDS, Malaria and Other Diseases Target 6.A: Have halted, by 2015 and begun to reverse the spread of HIV/AIDS Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it</p>	<ul style="list-style-type: none"> - Prevent spread of HIV and syphilis through primary prevention - Prevent vertical transmission of HIV and syphilis - Ensure treatment of women and children with HIV and syphilis

1.4 Towards Elimination of PTCT of HIV and CS: Evolution of Goals

Increasing Global Momentum and Political Commitment

Over the last decade, global targets for reductions in PTCT of HIV and STI have evolved as countries have initiated and continued to scale-up HIV prevention, care and treatment services. In 2001, at the United Nations General Assembly Special Session (UNGASS) on HIV/AIDS, countries committed to reduce the number of infants infected with HIV by 50 per cent, by 2010¹¹. In 2007, the Inter-Agency Task Team (IATT) on Prevention of HIV Infection in Pregnant Women, Mothers and their Children recommended PPTCT coverage levels of at least 80 per cent⁵. Similar efforts have been initiated to reduce vertical transmission of syphilis. In 2007, WHO recommended that by 2015 at least 90 per cent of pregnant women be screened for syphilis and that at least 90 per cent of pregnant women with syphilis receive adequate treatment⁴.

2010 WHO PMTCT Guidelines: Setting the Stage for Elimination of PTCT of HIV

The updated 2010 WHO guidelines on ARV Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants recommend new approaches for significantly more effective interventions for PPTCT in low and middle income countries (LMIC)¹². The guidelines recommend either lifelong antiretroviral therapy (ART) for HIV-infected women in need of treatment for their own health or ARV prophylaxis during pregnancy, delivery and breastfeeding for HIV-infected women not in need of treatment.

Once implemented, these recommendations could reduce the risk of PTCT to less than 5 per cent in breastfeeding populations (background risk 35 per cent), and to less than 2 per cent in non-breastfeeding populations (background risk 25 per cent), and will ensure increased maternal and child survival¹²⁻¹⁴. The 2010 WHO PMTCT Guidelines provide a platform for countries to work towards the elimination of new paediatric HIV infections and improve maternal and child survival.

Elimination of New Paediatric HIV Infections: Business Case and Specific Targets

In 2010, the UNAIDS Secretariat developed a Business Case for the elimination of PTCT of HIV, prioritizing comprehensive interventions to reduce transmission to <5 per cent and achieve a 90 per cent reduction in new infections among young children¹⁵. In November 2010, WHO held a global technical consultation on PTCT elimination and proposed specific targets for the elimination initiative¹⁶. In light of more efficacious ARV-based PPTCT interventions, renewed global interest in MNCH issues and ongoing HIV and STI scale-up efforts, the elimination of new paediatric HIV infections and CS is, for the first time, considered a realistic public health goal.

1.5 Purpose of this Document

Through the vision, goals, targets and building blocks outlined in this document, the framework is designed to provide the Asia-Pacific region with a common, systematic approach to the elimination of new paediatric HIV infections and CS, and the improvement of maternal and child health survival in the context of HIV/STIs. The framework also serves as a tool to advocate for government endorsement of the elimination initiative at the highest levels, as a key demonstration of regional commitment to working towards a generation free of HIV and syphilis. The intended audience for this document includes working groups within national health programmes updating MNCH, HIV and STI policies and plans. The framework is also intended for donors, implementing partners, programme managers, clinicians, networks of people living with HIV and other civil society groups.

2. Asia-Pacific Region: Current Scenario

2.1 HIV and Parents-to-Child Transmission: Epidemiology and Coverage

Countries in the Asia-Pacific region, home to 60 per cent of the world's population, experience low-level and concentrated HIV epidemics, where the HIV seroprevalence in the general population is <1 per cent¹. Over 95 per cent of the regional HIV burden in the Asia-Pacific is borne by 10 countries: Cambodia, China, India, Indonesia, Malaysia, Myanmar, Nepal, Papua New Guinea, Thailand and Viet Nam¹⁷.

In 2009, there were an estimated 4.9 million people living with HIV in the Asia-Pacific region (0.3 per cent prevalence). Of these, 1.65 million (34 per cent) are women and 160,000 are children (<14 years). In 2009 alone, 360,000 people in the region were newly infected with HIV, including 22,000 new infections in children. Well over 90 per cent of the new infections in young children were due to PTCT of HIV¹.

There are an estimated 69 million pregnancies annually in the Asia-Pacific region. In 2009, only 17 per cent of pregnant women in the region received an HIV test. Of the estimated 73,000 HIV-positive pregnant women in Asia-Pacific countries, 32 per cent received some ARV prophylaxis to prevent PTCT in 2009. Similarly, only 32 per cent of HIV-exposed infants in the region received any ARV prophylaxis for PPTCT¹⁸. Closer examination of national programme data reveals the wide spectrum of coverage for testing and ARV prophylaxis achieved in the region. While high levels of coverage have been achieved in Thailand and Malaysia, antenatal HIV testing and PPTCT maternal and infant ARV prophylaxis coverage remain below 50 per cent for many other countries in the region^{17, 18}.

The 2010 WHO guidelines strongly recommend the expansion of virological testing to enable the early diagnosis of HIV in exposed infants and facilitate prompt referral to care and treatment services¹². Available programme data indicate that most countries in the region are still scaling up early infant diagnosis (EID) services. While 86 per cent of infants received early virologic testing in Malaysia, coverage remains at <10 per cent in most other Asia-Pacific countries. Of the estimated 83,400 children living with HIV in the Asia-Pacific region eligible for ART, only 36,500 (44 per cent) received therapy in 2009¹⁸.

2.2 Congenital Syphilis: Regional Epidemiology and Screening Practices

There are an estimated 600,000 pregnant women who are newly infected with syphilis each year in the Asia-Pacific. Syphilis screening is routinely conducted for all ANC attendees in some countries, including Thailand, Malaysia, Papua New Guinea and Sri Lanka. In other countries, including Cambodia and India, antenatal syphilis screening is routinely available in higher-level health facilities, such as district or referral hospitals. The reported antenatal prevalence of syphilis in Asia-Pacific countries varies widely, from <0.1 per cent in Malaysia, 0.2 per cent in India, 0.4 per cent in China, to 1 per cent in Myanmar and 4 per cent in Papua New Guinea¹⁸.

2.3 Maternal, Neonatal and Child Health: Key Indicators and Outcomes

Because MNCH services function as the platform for many PPTCT and ECS interventions, it is critical to examine the key maternal and child health indicators and outcomes. Overall, the maternal mortality ratio (MMR, risk of maternal death per 100,000 live births) in Asia was estimated at 190 per 100,000 live births in 2008,

though there is significant variability in MMR within the region, ranging from 41 in East Asia to 280 in South Asia (per 100,000 live births). In 2009, the estimated infant mortality ratio (IMR, probability of dying between birth and exactly one year of age, per 1,000 live births) in Asia was 39 per 1,000 live births, and ranged from 21/1,000 live births in East Asia to 55/1,000 live births in South Asia¹⁹.

In the Asia-Pacific region, 79 per cent of pregnant women are attended by skilled personnel at least once in the antenatal period, though only 51 per cent attend ANC at least four times¹⁹⁻²¹. Among pregnant women in Asia, 66 per cent received skilled attendance at birth, while 58 per cent deliver in an institution. However, there is a wide variability in ANC utilisation in the region; ranging from less than 40 per cent of pregnant women in Lao PDR, to well over 90 per cent in China, Viet Nam, Thailand and Sri Lanka^{19, 21}. In many populous countries in the region, including Bangladesh, India and Pakistan, between 50-74 per cent of pregnant women receive care by a skilled provider at least once during pregnancy. In these same countries, the proportion of women who access skilled care at birth is often below 50 per cent.

Recent data also indicate significant variability in unmet need for FP among women in the Asia-Pacific region. The unmet need for FP remains below 5 per cent in some countries, including Timor Leste, Thailand and Viet Nam. In other countries, unmet FP needs range from 13 per cent in India, 25 per cent in Nepal, to over 30 per cent in Lao PDR^{19, 21}.

2.4 Elimination in the Context of the Asia-Pacific Region

Elimination of New Paediatric HIV Infections and CS Builds on Regional HIV/STI and MNCH Initiatives

An Asia-Pacific elimination framework builds on regional efforts to enhance PPTCT/HIV and MNCH. This includes the United Nations Asia-Pacific Prevention of Parents-to-Child Transmission of HIV Task Force that advocates for an effective regional PPTCT response and the development of an Asia-Pacific Operational Framework for Linking HIV/STI Services with Reproductive, Adolescent, Maternal, Newborn and Child Health Services²². Additionally, WHO released a Regional Strategy for the Elimination of Congenital Syphilis in 2009 that emphasizes the importance of combining ECS efforts with PPTCT services³. The multi-agency Maternal, Newborn and Child Health Network for Asia and the Pacific published a case for “Investing in Maternal, Newborn and Child Health” in the region, calling for additional resources to achieve MDG targets²³.

Elimination Targets: Appropriate for Concentrated and Low-Level Epidemic Settings

Over the last decade, the scale-up of PPTCT interventions has led to a significant drop in new HIV infections among children in the Asia-Pacific region. While undoubtedly ambitious, elimination of new paediatric HIV infections is potentially achievable with the further expansion of comprehensive and effective services. Particularly in the broader context of improving overall maternal and child health and working towards achieving select MDGs, the focus on the elimination of new paediatric HIV and CS infections is readily applicable to the Asia-Pacific region.

Table 3: HIV, Congenital Syphilis and MNCH: Current Scenario in Asia-Pacific Region

HIV and Parents-to-Child Transmission	
Regional Epidemiology	<ul style="list-style-type: none"> Concentrated and low-level HIV epidemics >95% regional HIV burden borne by 10 countries* 4.9 million people living with HIV <ul style="list-style-type: none"> 1.65 million (34%) women 160,000 children (<14 years) 360,000 people newly infected with HIV in 2009 22,000 new HIV infections in children in 2009 <ul style="list-style-type: none"> >90% due to parents-to-child transmission (PTCT)
PPTCT: Practices and Coverage	<ul style="list-style-type: none"> 69 million pregnancies annually <ul style="list-style-type: none"> 17% of pregnant women received antenatal HIV testing Estimated 73,000 HIV-positive pregnant women (2009) <ul style="list-style-type: none"> 32% received ARV prophylaxis to prevent PTCT 32% HIV-exposed infants received ARV for PPTCT Countries are scaling up Early Infant Diagnosis (EID) <ul style="list-style-type: none"> Coverage currently <10% in most countries Estimated 83,400 HIV-positive children eligible for ART <ul style="list-style-type: none"> 36,500 (44%) currently receiving treatment
Congenital Syphilis	
Regional Epidemiology and Screening Practices	<ul style="list-style-type: none"> 600,000 pregnant women newly infected with syphilis each year Antenatal syphilis screening practices vary across the region <ul style="list-style-type: none"> Routinely conducted for all ANC attendees: <ul style="list-style-type: none"> Thailand, Malaysia, Papua New Guinea, Sri Lanka Routinely available in higher level health facilities: <ul style="list-style-type: none"> Cambodia, India Antenatal syphilis prevalence ranges from <0.1-0.4% (Malaysia, China, India) to 4% in Papua New Guinea
Maternal, Neonatal and Child Health	
Maternal Health and Antenatal Care	<ul style="list-style-type: none"> Adjusted MMR: 190 per 100,000 live births (2008) 79% pregnant women attended ANC at least once 51% pregnant women attended ANC at least four times 66% pregnant women receive skilled birth attendance 58% pregnant women have an institutional delivery Significant variability between countries
Unmet Need for Family Planning	<ul style="list-style-type: none"> Unmet need for FP varies from country to country <ul style="list-style-type: none"> <5% in Thailand, Viet Nam, Timor Leste Ranges from 13% in India to >30% in Lao PDR
Infant Health	<ul style="list-style-type: none"> Infant Mortality Ratio: 39 per 1,000 live births (2009) <ul style="list-style-type: none"> 21/1,000 live births in East Asia 55/1,000 live births in South Asia 41% infants in general population receive exclusive breastfeeding from birth to six months of age

*Cambodia, China, India, Indonesia, Malaysia, Myanmar, Nepal, Papua New Guinea, Thailand, Viet Nam. Lao PDR and Bangladesh are included as focus countries for the PPTCT elimination initiative based on a combination of syphilis and HIV prevalence, ANC, HIV testing and PPTCT coverage.

3. Guiding Principles

The development of this regional strategic framework for the elimination of paediatric HIV and CS was informed by several guiding principles:

1. Optimise the Public Health Approach

Countries should ensure access to high quality PPTCT and ECS interventions at the population level, and aim to provide the best proven standard of care on a large-scale with the optimal use of limited resources.

2. Adopt a rights-based approach, and ensure equity

It is vital to ensure equitable access to services, particularly for individuals in key affected and other marginalized populations. The delivery of PPTCT and ECS interventions should adhere to principles of medical ethics, safeguard standard human rights, including the right to safe and confidential services with respect for privacy, and autonomy to make informed decisions regarding reproductive health and treatment options.

3. Mainstream gender

PMTCT is a classical example of the axis between the biologically constructed variable, sex and the socially constructed variable, gender. While PMTCT in itself underscores the biological phenomenon of MTCT, the social role of male partners is critical. Efforts to expand PPTCT and ECS services should prioritise and enhance male involvement, including the role of men in the primary prevention of HIV/STI among women. In addition to this biological vulnerability, women are at risk of suffering from the disadvantages that society imposes on them based on their gender alone, such as in barriers to access services. Female sex workers have additional difficulties.

There is a need to address stigma and discrimination, ensuring effective communication and the empowerment of individuals – particularly women. Community-based behaviour also needs to change, ensuring improved access, coverage, utilisation and quality of services across the four prongs.

4. Improve maternal, neonatal and child health

The overall goals of PPTCT and ECS interventions are to improve both maternal, neonatal and child health in the context of HIV/STIs. The elimination of paediatric HIV and CS can contribute directly to broader MNCH goals by achieving specific HIV/STI outcomes and indirectly by catalysing action to strengthen the delivery of quality, integrated MNCH services.

5. Integrate services and collaborating with all relevant sectors

The long-term success of PPTCT and ECS programmes rely on appropriate integration within the health care system between existing HIV prevention and care, SRH and MNCH services. Developing and strengthening underlying health systems is a major building block of this framework. In addition, enhancing community involvement is essential to achieve elimination goals.

6. Ensure a country-led initiative based on local needs

Adaptation of the elimination framework at the country level should be driven by local epidemic needs and on health system features. After careful country-level analysis of barriers and progress toward PPTCT/ECS goals, countries should prioritise the implementation of select aspects of the framework.

7. Forward looking

Current opportunities, including high political commitment and visibility, provide a special impetus for this framework to be truly forward-looking and to set aspirational goals. The availability of more effective interventions for PPTCT and ECS, combined with a renewed global focus on MNCH, have set the stage for realistically envisioning the elimination of new paediatric HIV infections and CS. It is an appropriate time to set ambitious targets.

4. Elimination: Joint HIV/STI/MNCH Initiative

4.1 Elimination: A Joint HIV/STI and MNCH Initiative

Based on these guiding principles and recognising the critical importance of an integrated approach towards elimination, this framework represents the joint activity of the HIV/STI and MNCH sectors in the Asia-Pacific region. Elimination of new paediatric HIV infections and CS requires the full involvement of MNCH programmes and cannot be realised without strengthening SRH and MNCH services. Conversely, comprehensive efforts to reduce PTCT of HIV and CS have the potential to contribute significantly to improved MNCH programme delivery and outcomes, particularly in the context of HIV and STIs.

The elements outlined in the framework build on the four prongs of the comprehensive approach to PPTCT, the four pillars of the global strategy to eliminate CS, and the broad aims of the Consensus Statement for MNCH. Under the joint leadership of the HIV/STI and MNCH programmes, countries in the region can adapt the framework to develop an integrated national elimination strategy. The HIV/STI and MNCH sectors share responsibility to ensure that women, their male partners and their children can access and receive high quality SRH, antenatal and HIV/STI services and interventions. This will help to effectively prevent PTCT of HIV and syphilis and contribute to improvements in maternal and child health and survival in the context of HIV/STIs.

4.2 Elements of the Elimination Framework

The Asia-Pacific Elimination Framework outlines a common strategy that HIV, STI and MNCH programmes in the region can adapt to develop country-specific plans for a comprehensive PPTCT and ECS response (**Figure 1**).

Working toward a **VISION** of “*Women and children alive and free from HIV and Syphilis,*” the dual **GOALS** of the elimination initiative are to:

- *Eliminate new paediatric HIV infections and congenital syphilis, and*
- *Improve maternal and child health and survival in the context of HIV/STI*

In order to achieve elimination goals, specific disease-related targets must be met. The framework outlines three **OVERALL TARGETS** for the elimination initiative. These are:

1. Reduce new paediatric HIV infections by 90 per cent by 2015 (from a 2009 baseline)
2. Reduce parents-to-child transmission of HIV to <5 per cent (from a 2009 baseline)
3. Reduce the incidence of congenital syphilis to <0.5 cases/1,000 live births

In order to meet these elimination targets, it will be essential to achieve key **PROGRAMMATIC TARGETS**, which address issues of access, coverage and quality of services across the entire spectrum of PPTCT and ECS interventions, from primary prevention of HIV and syphilis to care and treatment for those living with HIV. These targets reflect the fact that improving the delivery of key MNCH services is essential to achieving elimination.

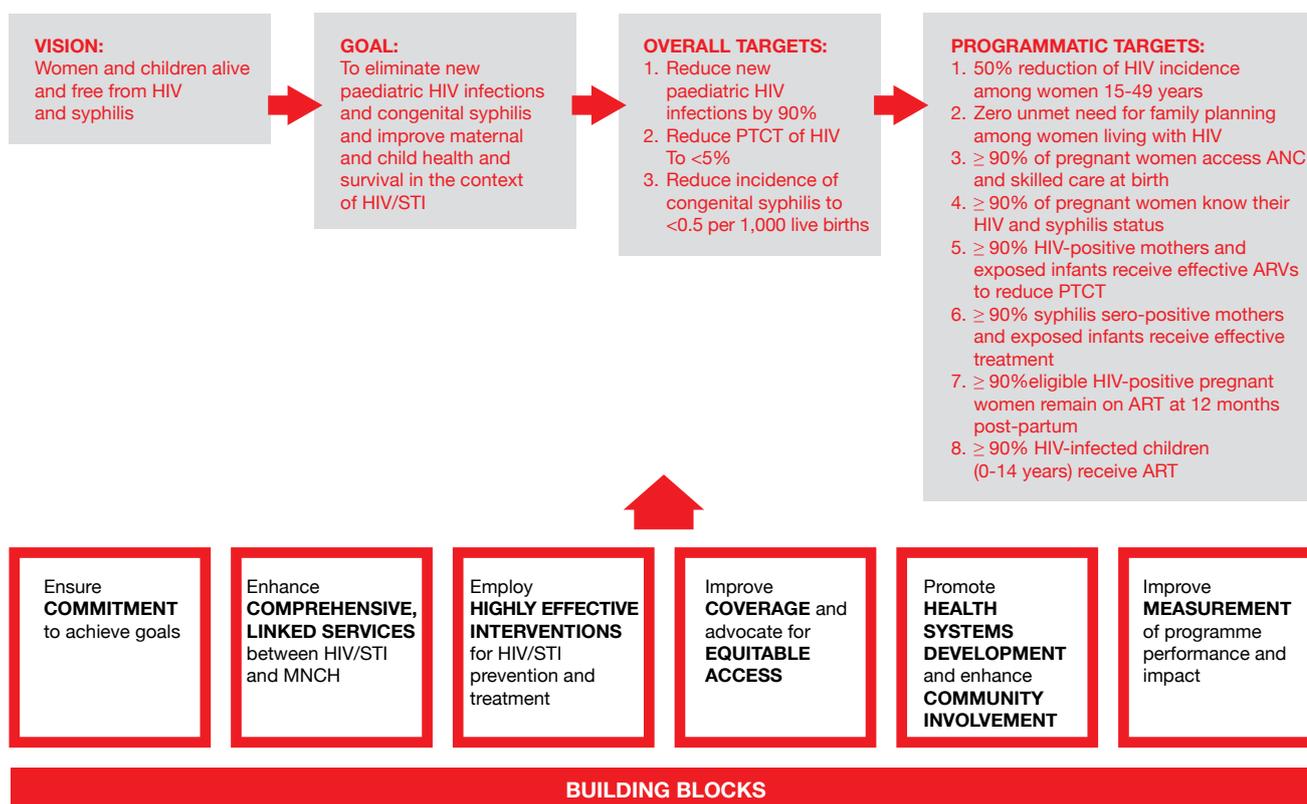
1. 50 per cent reduction of HIV incidence among women 15-49 years of age (from a 2009 baseline)
2. Zero unmet need for family planning for women living with HIV
3. ≥90 per cent of pregnant women access ANC services and skilled care at birth

4. ≥ 90 per cent of pregnant women know their HIV and syphilis serostatus
5. ≥ 90 per cent HIV-infected mothers and exposed infants receive effective ARVs to reduce PTCT
6. ≥ 90 per cent syphilis sero-positive mothers and exposed infants receive effective treatment
7. ≥ 90 per cent eligible HIV-positive pregnant women remain on ART at 12-months post-partum
8. ≥ 90 per cent eligible HIV-infected children (0-14 years) receive ART

The success of the elimination initiative ultimately relies on the implementation of a cohesive and comprehensive response across multiple sectors of healthcare. The six cross-cutting **BUILDING BLOCKS** outlined in the framework form the foundation of an effective response.

1. Ensure **commitment** to achieve goals
2. Enhance **comprehensive, linked services** between HIV/STI and MNCH programmes
3. Employ **highly effective interventions** for HIV/STI prevention and treatment
4. Improve **coverage** and advocate for **equitable access**
5. Promote **health systems development** and enhance **community involvement**
6. Improve **measurement** of programme performance and impact

Figure 1: Conceptual Framework for the Elimination of New Paediatric HIV Infections and Congenital Syphilis in Asia-Pacific



5. Elements of the Framework

This section describes the rationale and implications of each of element of the Framework.

5.1 Vision

'Women and children alive and free from HIV and syphilis'

The overall vision of the elimination initiative is not just focused on reducing vertical transmission of HIV and syphilis, but more broadly applies to comprehensive prevention, care and treatment. This broad vision ensures that both women and children are included as priority populations in PPTCT and ECS interventions.

In the concentrated and low-level HIV epidemic settings of Asia-Pacific, it is important to recognise that this vision is inclusive of interventions to prevent HIV/syphilis in all women, prevent transmission of infection to children, maximise HIV-free survival for exposed infants and extend survival for HIV-positive women and children. The high value placed on the primary prevention of HIV or syphilis among women is particularly relevant in the low-level epidemic settings in Asia-Pacific.

5.2 Goal

'Eliminate new paediatric HIV infections and congenital syphilis and improve maternal and child health and survival in the context of HIV/STI'

In order to realise the vision of the framework, it is necessary to work towards achieving a combined goal of eliminating new paediatric HIV and CS and improving maternal and child health and survival. PPTCT and ECS interventions can be most effectively implemented as part of a comprehensive package of services for women and children accessing MNCH services. As such, achieving PPTCT and CS elimination goals requires improvements in the quality of MNCH services, including increased access and utilisation of quality ANC and FP services, better linkages between different health sectors involved in the care of women and children and strengthened human resource capacity for the management of supplies and resources. The linked goals of eliminating new paediatric HIV and CS infections and improving maternal and child health underscores the applicability of this initiative to concentrated and low-level HIV/STI epidemic countries.

5.3 Overall Targets

In order to achieve elimination goals, specific disease-related targets must be met. These overall targets may seem formidable for many countries in the region, which are still in the process of expanding PPTCT and ECS services to those in need. Nevertheless, when countries are working towards broader MDGs, it is appropriate to consider ambitious elimination targets for PTCT and CS in the context of improving maternal and child health.

'Reduce new paediatric HIV infections by 90 per cent (from a 2009 baseline)'

A 90 per cent reduction of new paediatric infections (from a 2009 baseline) is a clear target which would represent a major reduction of a public health problem. The target can be monitored, and is focused on impact, in that it estimates final infection status. Importantly, this target is inclusive of all prongs of the comprehensive PPTCT/ECS approach, from primary prevention in women of childbearing age, to interventions aimed at reducing vertical transmission and expanding treatment for women and children to improve survival.

'Reduce Parents-to-Child Transmission of HIV to <5 per cent (from a 2009 baseline)'

In the context of the currently recommended highly efficacious ARV options to reduce PTCT of HIV, including the use of extended maternal or infant ARV prophylaxis, vertical transmission can be reduced to <5 per cent in breastfeeding populations (from a background risk of 35 per cent). In the Asia-Pacific region, breastfeeding is currently the most commonly practiced method of infant feeding. As such, the target of <5 per cent PTCT has been selected as an applicable goal for the elimination of new paediatric HIV infections in the region. In certain countries, including Thailand and Malaysia, where replacement feeding with infant formula is already recommended as the preferred method of infant feeding for HIV-exposed infants, <2 per cent PTCT may be a more appropriate target.

'Reduce Incidence of congenital syphilis to <0.5 cases/1,000 live births'

The overall goal of the ECS initiative is to ensure that CS is no longer a public health problem. ECS will be considered to have been achieved when the incidence of CS is below 0.5 per 1,000 live births in a country where syphilis screening and treatment covers more than 90 per cent of pregnant women. Measuring the incidence of CS is difficult, as the diagnosis of congenital infections is neither easy to conduct nor standardised in most settings in the region. Thus, tracking this impact indicator should also be accompanied by process measures to ensure that testing and treatment of all pregnant women is attained.

5.4 Programmatic Targets

Each of the eight programmatic targets outlined in this framework correlates to one of the four prongs of the comprehensive approach to PPTCT. These targets address key issues along the entire spectrum of SRH, HIV and STI services, from services focused on all women of childbearing age, irrespective of pregnancy or HIV sero-status, to interventions specific to mothers and children living with HIV. Recognising that achieving elimination goals requires improvements in the quality of MNCH services, several of these programmatic targets are directly linked to broader MNCH objectives⁹, and are in line with established MDG targets related to improving the health and survival of women and children (**Figure 2**).

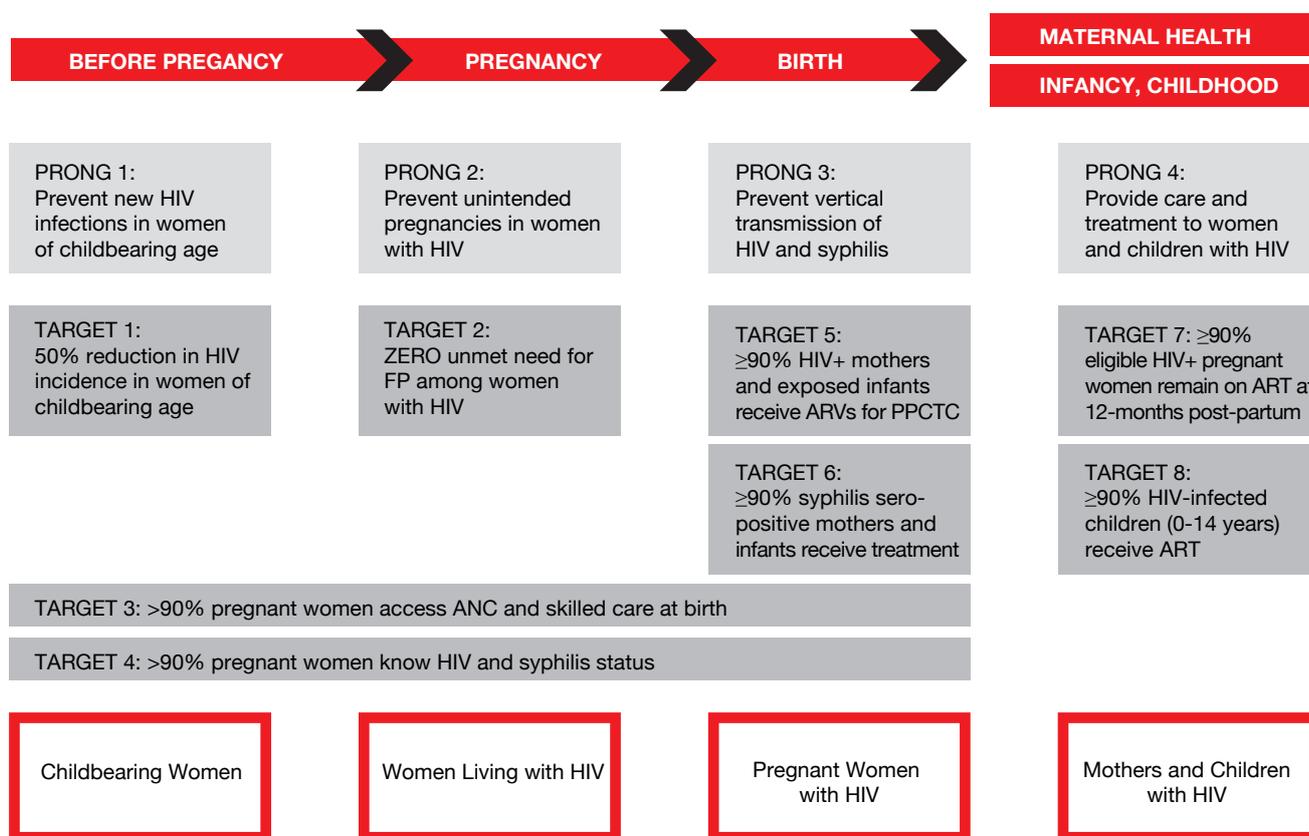
Target 1: 50 per cent reduction of HIV and syphilis incidence among women 15-49 years

In order to achieve the elimination of PTCT and CS, there must be concurrent success in the prevention of HIV and syphilis among women of childbearing age. The first programmatic target highlights the critical importance of primary prevention of HIV and syphilis, and further aligns with MDG 6 goals of reducing the spread of HIV/AIDS. Prevention services should be implemented in any setting where women and their male partners access antenatal services.

Target 2: Zero unmet need for family planning among women living with HIV

The unmet need for FP is defined as the proportion of sexually active women of reproductive age (15-49 years) who want to delay or stop childbearing, but are not using any contraception. The global unintended pregnancy rate is 38 per cent, while the rates of unintended pregnancies among women living with HIV are estimated to be 51-90 per cent. Unintended pregnancies contribute to maternal morbidity and mortality which have a devastating effect on the survival and wellbeing of both women and their children. It is essential to ensure that HIV-positive women attending care and treatment services receive routine, high-quality FP services in order to reduce unintended pregnancies in women living with HIV (Prong 2), and contribute to improved maternal health outcomes in this population. While this target is focused on women with HIV, it should be considered part of a broader goal to reduce unmet need for FP to zero among all women, which is an established global target for MDG 5B.

Figure 2: The Eight Programmatic Targets Correlate to the Four Prongs of the Comprehensive Approach to PPTCT



Target 3: ≥90 per cent of pregnant women access antenatal care services and skilled care at birth

The effectiveness of PPTCT and ECS interventions depends directly on the percentage of pregnant women who access antenatal services. Women who do not access ANC miss receiving critical HIV and STI prevention, diagnosis or treatment services. More broadly, pushes for the increased utilisation of timely ANC services and skilled care at birth are key elements of the global MNCH agenda to reduce maternal mortality and achieve universal access to reproductive health care (MDGs 5A and 5B). Ensuring the provision and utilisation of high quality ANC and skilled birth services can positively impact MNCH outcomes, irrespective of HIV or syphilis serostatus.

Target 4: ≥90 per cent of pregnant women know their HIV and syphilis serostatus

The effectiveness of PPTCT/ECS interventions also critically depend on the percentage of pregnant women who receive the results of their HIV and syphilis serology tests. While women diagnosed in ANC settings can be linked to essential PPTCT and ECS services, undiagnosed pregnant women living with HIV or syphilis remain at an increased risk for vertical transmission and poor health and pregnancy outcomes. Although only 17 per cent of pregnant women in the Asia-Pacific region received routine HIV testing in 2009. Experience from several countries, including China, demonstrates the feasibility of universal antenatal provider initiated testing and counselling (PITC) for HIV and syphilis, often as part of a standard package of screening tests for all pregnant women. Recent analyses also indicate that universal antenatal HIV and syphilis screening is cost-effective.

The expansion of routine ANC testing may be implemented in a phased manner, taking into account the geographic distribution of HIV within a country and concentrating first on implementation in higher prevalence provinces, where a greater number of HIV-positive pregnant women may be identified. The employment of cumbersome risk-assessment tools to guide selective HIV testing among ANC attendees has not been shown to be effective, and should be avoided. On the other hand, male involvement in ANC and couples counselling methods have been shown to improve the uptake of antenatal HIV/STI screening, and should be promoted.

Target 5: ≥ 90 per cent HIV-positive mothers and exposed infants receive effective ARV intervention

Target 6: ≥ 90 per cent syphilis sero-positive mothers and exposed infants receive effective treatment

Dramatic reductions in new paediatric HIV infections will not be possible unless pregnant women living with HIV and their exposed infants receive effective ARV regimens to reduce PTCT. The 2010 WHO PMTCT Guidelines strongly recommend the use of highly efficacious combination ARV regimens to prevent PTCT of HIV, which also includes the use of either maternal or infant ARV prophylaxis during breastfeeding in settings where that is considered the safest option for infant feeding. There are highly effective and inexpensive treatment options for the prevention of CS as well. In order to achieve these ambitious programmatic targets it is essential to expand the use of highly efficacious regimens, and *equally important* to ensure high levels of coverage for these interventions.

Target 7: $\geq 90\%$ eligible HIV+ pregnant women remain on ART at 12-months post-partum

Target 8: $\geq 90\%$ eligible HIV-infected children (0-14 years) receive ART

A key feature of the elimination initiative is its focus on improving the health and survival of women and children in the context of HIV/STIs. These programmatic targets underscore that the PPTCT interventions do not end at delivery, and emphasise the importance of linking HIV-positive mothers to lifelong treatment and care, employing and expanding rapid and EID testing, guarantee the administration of co-trimoxazole prophylaxis for exposed infants and ensuring that HIV-positive infants are promptly linked with treatment services. Developing appropriate methods and adequate capacity to accurately assess survival outcomes at a population level will be a critical component of measuring and achieving these programmatic targets.

5.5 Building Blocks

Simultaneous progress across all six building blocks, as outlined in this framework, is essential in order to achieve the elimination goals, as well as to contribute towards broader improvements in MNCH outcomes, particularly in the context of preventing HIV and syphilis in infants. The key priority actions for each building block are discussed in detail in the next section.

1. Ensure *commitment* to achieve goals
2. Enhance *comprehensive, linked services* between HIV/STI and MNCH programmes
3. Employ *highly effective interventions* for HIV/STI prevention and treatment
4. Improve *coverage* and advocate for *equitable access*
5. Promote *health systems development* and enhance *community involvement*
6. Improve *measurement* of programme performance and impact

6. Building Blocks: Priority Actions

A successful elimination initiative will require cohesive and simultaneous actions in each of the six strategic building blocks outlined in this document. Indeed, the building blocks overlap in their scope. For instance, it is necessary to obtain commitment in order to strengthen health systems, and the integration of services is essential to ensure the delivery of highly effective PPTCT and ECS interventions. This section outlines key priority actions for each building block.

6.1 Building Block 1: Ensure Commitment to Achieve Goals

Strong political commitment at the regional, national and sub-national levels lays the foundation for the development of successful operational plans for elimination. It is critical to ensure endorsement from ministries of health, in particular from HIV/STI and MNCH programmes. It is also important to obtain commitment from other government sectors, development partners, and key stakeholders including people living with HIV (PLHIV), civil society groups, health care providers and implementing partners involved with the delivery of health and welfare services. Together these programmes and partners should work to develop regional and national targets and timelines, define funding needs, and develop an accountability framework. The PTCT and CS elimination initiative should be integrated within broader health sector plans, and be viewed as an opportunity to improve MNCH outcomes, strengthen health systems and reduce the burden of HIV and syphilis.

Priority Actions:

1. Establish commitment for elimination initiative at the highest political level, including from government sectors and development partners involved in health and welfare.
2. Establish a national Task Force for the elimination of PTCT and CS to:
 - a. Formulate evidence-based national targets and timelines
 - b. Develop a national advocacy plan with the involvement of civil society
 - c. Define funding requirements to achieve goals
 - d. Ensure that the elimination of PTCT and CS is incorporated within broader health sector planning processes.

6.2 Building Block 2: Enhance Provision of Comprehensive, Linked Services

Countries should develop a comprehensive, integrated and client-centred package of MNCH services which routinely includes quality PPTCT and ECS interventions in every setting that a woman, her male partner and children may access antenatal, FP, delivery, post-natal or child health care. At each level of health care, the comprehensive package should include services related to the primary prevention of HIV/STIs (**Prong 1**), routine FP services for women living with HIV (**Prong 2**), prevention of vertical transmission of HIV/syphilis (**Prong 3**) and appropriate treatment and care for women and children with HIV (**Prong 4**). Lower-level health facilities may offer a narrower package of services, while tertiary centres are more likely to provide a comprehensive package of SRH/MNCH/PPTCT services.

In order to successfully implement these integrated services, countries should prioritise the development of a *formal* bi-directional system of referrals and linkages between SRH, MNCH and HIV/STI programmes. These

linkages should be formalized between different health sector programmes (*horizontal linkages*) and between different levels of health facilities (*vertical linkages*).

Priority Actions:

1. Define the components of a comprehensive package of integrated SRH, MNCH, PPTCT and ECS services at each level of health facility (e.g. primary, secondary and referral centres).
2. Ascertain key areas of synergy between HIV/STI, SRH and MNCH programmes, and identify missed opportunities to deliver PPTCT/ECS interventions and systematic challenges to linking services.
3. Strengthen systematic bi-directional linkages between PPTCT, ECS and SRH/MNCH programmes that provide services for women, their male partners and their children.
4. Support coordination between SRH, MNCH, HIV and STI programmes to enable more accurate forecasting, procurement and supply management of essential medicines and diagnostics.

6.3 Building Block 3: Employ Highly Effective Interventions

In order to achieve elimination goals, it is essential to employ evidence-based, high quality PPTCT and ECS interventions for prevention and treatment. Importance should be given to improving interventions in each of the four prongs of the comprehensive approach to PPTCT (**Table 3**).

Priority Actions:

1. Prong 1: Primary prevention of HIV and syphilis among women of childbearing age

Expanding implementation of effective HIV/STI prevention activities is especially important in the low and concentrated HIV epidemic settings of Asia-Pacific. This is particularly relevant for women in key affected populations (KAPs), such as female injecting drug users and sex workers (SWs), as well as for the regular female partners of men with high-risk behaviour (male clients of SWs, men who inject drugs and men who have sex with men (MSM)). The prevention of intimate partner transmission (IPT) takes on special significance, as it accounts for a significant percentage of new HIV infections among women in the Asia-Pacific region. As such, it is critical to strengthen prevention, counselling and testing services for KAPs and their female partners, particularly in light of the findings of the HPTN 052 trial, which demonstrate that initiation of ART in HIV-infected individuals substantially protected their uninfected sexual partners from acquiring HIV infection²⁴.

The wider implementation of all HIV prevention services that prioritise male involvement are essential, as this can promote men to take greater responsibility for SRH decisions and contribute to a better uptake of HIV/STI prevention services overall, and PPTCT services in particular. Recognising this, settings where HIV prevention services are provided should be utilised as an avenue to introduce PPTCT and SRH interventions. Similarly, SRH/MNCH services should be employed as an entry point for HIV prevention for all women and their male partners.

2. Prong 2: Prevention of unintended pregnancies among women living with HIV

The inclusion of FP services as part of routine care for HIV-positive women of childbearing age is critical to reduce the number of unintended pregnancies among women living with HIV. Effective FP services for HIV-positive women can improve the uptake of PPTCT services among those who choose to become pregnant, and will contribute to broader, established MDG 5 targets to reduce unmet need for FP among all women. The implementation of routine FP services for women enrolled in HIV care and treatment should prioritise male involvement as a means of strengthening overall SRH decision-making capacity.

3. Prong 3: Prevention of HIV or syphilis transmission from a pregnant woman to her infant

In order to effectively prevent the vertical transmission of HIV, pregnant women with HIV must first be identified. The expansion of routine, opt-out HIV testing and counselling in all ANC settings will contribute significantly to improved identification of pregnant women with HIV, who require care and treatment for their own health, as well as effective PPTCT prophylaxis. Additionally, expanded use of rapid syphilis tests will enhance detection and treatment of sero-positive women and prevention of CS. Building capacity for

expanded utilisation of more efficacious ARV and ART regimens is essential to achieve significant reductions in PTCT. This includes not only the prescription of combination ARV/ART regimens and clinical management during pregnancy and childbirth, but it also encompasses the need to support adherence to infant or maternal ARV prophylaxis throughout the breastfeeding period.

4. Prong 4: Appropriate treatment, care to mothers living with HIV and their children

Strengthening the continuum of services between PPTCT/ECS interventions and lifelong HIV care and treatment is essential to improve the health and survival of mothers with HIV and their exposed children. Priorities include expanding prompt CD4 and ART eligibility assessment for pregnant women with HIV, and the early initiation of treatment for those who require ART for their own health. Linkage to HIV support services is essential for all pregnant women with HIV, who will require lifelong care and treatment services after delivery, irrespective of immunologic status. Additional priorities include EID services for exposed infants and prompt linkage to paediatric care services, including the initiation of co-trimoxazole prophylaxis for all HIV-exposed infants.

6.4 Building Block 4: Improve Coverage and Advocate for Equitable Access

A fundamental weakness that hampers the implementation of PPTCT/ECS interventions in several countries is a low access and utilisation of antenatal services. Achieving high ANC coverage, with a focus on increasing the utilisation of multiple, timely ANC visits and skilled childbirth services, is essential to attain dramatic reductions in PTCT and CS, and is in itself a key MNCH goal.

Table 4: Priority Actions to Employ Highly Effective Interventions for HIV/STI Prevention and Treatment

Comprehensive Approach to PMTCT and ECS	Priority Actions
Prong 1: Primary prevention of HIV and syphilis among women of childbearing age	<ul style="list-style-type: none"> Integrate HIV and STI prevention for women of reproductive age in any setting where women and their male partners access ANC services Strengthen HIV primary prevention services for male and female KAPs and enhance HIV counselling and testing for female partners of male KAPs Ensure that PPTCT and STI counselling is part of harm reduction interventions for women in key at-risk populations, including PWIDs and SWs Prioritise male involvement in the primary prevention of HIV among women, particularly in the prevention of IPT Integrate PPTCT and SRH counselling for men and women in any setting where HIV testing and counselling is provided
Prong 2: Prevention of unintended pregnancies among women living with HIV	<ul style="list-style-type: none"> Standardise the delivery of routine FP services for women attending services in HIV care settings Enhance male involvement in routine SRH and MNCH services
Prong 3: Prevention of HIV or syphilis transmission from a pregnant woman to her infant	<ul style="list-style-type: none"> Prioritise expansion of routine HIV and syphilis testing in all ANC settings Implement and expand usage of highly efficacious combination ARV regimens and ART for women who need treatment Promote safe infant feeding practices and support adherence to ARV prophylaxis during breastfeeding Expand use of same day testing (RPR or rapid) and treatment (STAT) for syphilis in ANC settings
Prong 4: Provision of appropriate treatment and care to mothers living with HIV and their children	<ul style="list-style-type: none"> Early CD4 assessment for treatment eligibility and prompt linkage to ART for women who require it for their own health Early HIV diagnosis and co-trimoxazole in exposed infants and linkage to early ART for HIV-positive infants

In Asia-Pacific countries, improving access to MNCH and HIV/STI services is of particular importance for women from KAPs, including SWs and injecting drug users, who are disproportionately affected by HIV. Women from KAPs frequently do not access MNCH services, in part because of the fear of legal action or discrimination by providers. Furthermore, while ARV drugs are free in many settings, user fees and costs for diagnostic tests are often additional obstacles in expanding the coverage of MNCH and HIV/STI services. Improved engagement with civil society and outreach groups can contribute significantly to an increased uptake of services among all women. It is particularly important to involve community-based organisations of KAPs and positive women in the development of strategies to ensure that women from marginalised groups receive timely MNCH, HIV and STI care and support.

Priority Actions:

1. Identify bottlenecks that hamper equitable access to ANC services, and develop innovative methods to improve access and utilisation of timely ANC and skilled childbirth services.
2. Improve engagement with civil society, PLHIV and community groups to enhance utilisation of MNCH and HIV/STI services, particularly among KAPs.
3. Address legal constraints that impede the delivery of MNCH and HIV/STI services to all women, particularly those in KAPs.
4. Advocate for comprehensive PPTCT and ECS services that are free of cost and develop innovative mechanisms to address economic barriers to access and utilisation, including the expansion of social insurance policies.

6.5 Building Block 5: Promote Health Systems Development and Enhance Community Involvement

The success of PPTCT, ECS and MNCH efforts rests heavily on the capacity of existing basic health systems to effectively deliver services. Weaknesses in human resource capacity, supply chain management, laboratory systems, information systems, service delivery and financing all contribute to the slow pace of scaling up services, and to limits in the effectiveness of interventions. Community-based approaches can effectively promote increased demand for and use of MNCH, PPTCT and ECS services, but remain underutilised.

The lack of sufficient human resources is a critical barrier to effective implementation of PPTCT/ECS services in the region. The development of country-specific approaches to resolve human resource gaps are essential, and include the development of innovative task-shifting and task-sharing mechanisms for clinical service delivery and supply management issues. Developing effective human resource solutions at the community and primary level is also a key component of efforts to further decentralise the delivery of key PPTCT and ECS interventions, which can increase access to services and may contribute to improved adherence. Enhancing the involvement of community groups to generate demand for a comprehensive package of services, and employing community-based approaches to support adherence to follow-up interventions are two other essential components of strengthening the overall platform for the delivery of optimal PPTCT and ECS services.

Significant investments in building laboratory capacity are essential to enable the expansion of rapid HIV and STI testing, prompt CD4 assessment and PCR-based EID testing for HIV-exposed infants. Strengthening basic health information systems, and ensuring linked MNCH and HIV/STI data, will also contribute to improved clinical management and enable accurate programme evaluation. In many Asia-Pacific countries, a sizable proportion of women access MNCH services through the private sector. Developing systematic partnerships with the private health sector can help to improve the delivery of quality, linked MNCH and HIV/STI services to a broader population.

Priority Actions:

1. Identify key bottlenecks and human resource gaps within existing health systems and develop innovative approaches to task-shifting and task-sharing across the continuum of MNCH, HIV and STI services.
2. Prioritise the development of human resource capacity at the primary level, to support decentralisation of services.

3. Enhance community involvement to promote increased utilisation of services and support the delivery of follow-up care.
4. Build capacity for effective supply forecasting and management across health sectors.
5. Invest in strengthening basic laboratory capacity and networks to enable point-of-care HIV/STI testing and referral based CD4 and EID assessment.
6. Develop better integrated health information systems between MNCH and HIV for improved clinical management and programme evaluation.

6.6 Building Block 6: Improve Measurement of Performance and Impact

It is essential for countries to first assess baseline MNCH, HIV and STI programme performance and gaps through careful analysis of national and sub-national data. This will assist programmes to define priority elements of a national PTCT and ECS elimination work plan and to identify areas that will require intensified support. This analysis will also guide programmes to develop ambitious but realistic timelines for meeting targets to ensure accountability at all levels. Countries should also develop integrated MNCH and HIV/STI indicators that measure the progress of comprehensive elimination efforts (See *Asia-Pacific Regional PPTCT/ ECS Monitoring and Evaluation Guide*). In addition to commonly collected process indicators, it is essential to include the routine measurement of outcome and impact indicators. Improved capacity for the collection, management, and analysis of data will be required to support routine programme evaluation.

The role of operational research is also critical to support optimal scale-up and expansion of comprehensive PPTCT and ECS interventions. Well designed and conducted operational research and implementation science studies can serve as a means to identify key bottlenecks to programme success, and a systematic method of evaluating innovative strategies to improve the coverage, quality and optimal delivery of integrated SRH, MNCH and HIV/STI services. Study findings should be utilised to strengthen elimination strategies and enhance the sustainability of interventions.

Priority Actions:

1. Define baseline programme performance and gaps for MNCH, HIV and STI services.
2. Agree upon an integrated set of MNCH, HIV and STI indicators to monitor and evaluate the progress and impact of elimination efforts at the district and national levels.
3. Build capacity for data management and analysis within the MNCH and HIV/STI sectors and systematically track progress through strengthened monitoring mechanisms.
4. Develop regional and national level operational research agendas focused on PPTCT, ECS and improvement of MNCH outcomes in the context of HIV/STI (**Table 4**).

Table 5: Operational Research Priorities for PPTCT and ECS in the Asia-Pacific Region

Eliminating New Paediatric HIV Infections and Congenital Syphilis Operational Research Priorities in the Asia-Pacific Region

- Determine effective and innovative strategies to increase ANC access and skilled birth attendance, including the use of novel mobile communications technology
- Evaluate outcomes of routine integration of HIV prevention interventions in MNCH settings
- Identify successful models to increase male involvement in primary prevention of intimate partner transmission of HIV in women
- Assess impact of routine FP interventions among HIV-positive women of childbearing age in HIV/ART care
- Assess innovative strategies to increase utilisation of MNCH services by women from key affected populations
- Examine methods to increase male involvement in antenatal HIV testing
- Determine effective methods to expand routine rapid HIV and syphilis testing in all ANC settings
- Investigate strategies to support adherence to extended maternal or infant ARV prophylaxis for PPTCT (antenatal and post-partum), including community-based approaches and enhanced male involvement
- Analyse the impact of linkages between MNCH, HIV and STI on HIV and MNCH outcomes

7. Key Next Steps

7.1 Country Level

At the country level, programmes will have to revise national health plans to incorporate PTCT and ECS elimination goals. Beyond simply stating elimination as a goal, national HIV, STI and MNCH programmes will have to determine strategic priorities and programming shifts that are necessary to achieve PPTCT and ECS targets (**Table 6**). Key steps in the development of a comprehensive national elimination plan include:

1. Assess Current Programme Performance and Gaps

Countries must first establish baselines by conducting careful analysis of current MNCH, HIV and STI programme performance. This is essential to identify programme needs and gaps.

2. Set Targets and Goals

Guided by analysis of country level data, national MNCH, HIV and STI programmes, along with other key stakeholders and partners, must then develop ambitious but realistic country elimination goals, targets and timelines.

3. Develop an Integrated Operational Plan

Upon setting appropriate targets, countries should develop an operational plan that describes how PPTCT/ECS efforts will be implemented at the field level. National elimination plans should be linked with broader HIV, STI, SRH, MNCH and MDG plans and goals, and clearly delineate roles and responsibilities to ensure accountability.

4. Implement, Monitor and Evaluate

Implementation of the elimination plan should take place at the national, sub-national and community levels. Programmes should regularly monitor progress and conduct annual country reviews to measure PPTCT/ECS outcomes, and use results to guide improvement to country-level elimination strategies. Critical evaluation of outcomes and impacts should be conducted at mid-term and in 2015.

7.2 Regional Level

High level advocacy

The Asia-Pacific PPTCT Task Force will disseminate the regional elimination framework and advocate for its endorsement at the highest levels. Emphasising the comprehensive nature of the initiative and its potential contribution to MNCH and MDG goals, the Task Force will work to optimise collaborations between HIV, MNCH, STI programmes and agencies within the region.

Harmonised technical support and regional accountability

Together with its member UN agencies and partner organisations, the Task Force will also provide technical assistance to countries to develop and revise national plans. This will also inform the development of a regional accountability framework, with annual targets and planned assessments of regional progress towards elimination.

Platform for exchange of data and lessons learned

The Task Force will support a web-based platform through the HIV and AIDS Data Hub for Asia-Pacific (<http://www.aidsdatahub.org/en/regional-profiles/prevention-of-parent-to-child-transmission>) for countries to share lessons learned and receive new technical updates and guidance. Collaboration between civil society networks, academia and other partner agencies will also strengthen the delivery of comprehensive PPTCT/ECS services.

Mobilising necessary resources

The Task Force will collaborate with technical and funding partners to mobilize necessary resources to accelerate the elimination initiative at country and regional levels. This will include providing support to country programmes to develop proposals and obtain support from key funders, particularly the Global Fund and the US Presidents Emergency Plan for AIDS Relief (PEPFAR).

Table 6: Development of a Comprehensive National PTCT and CS Elimination Plan

Developing a Country Plan for Elimination of New Paediatric HIV Infections and Congenital Syphilis	
1. Assess Current Programme Performance Gaps	
	<ul style="list-style-type: none">• <i>Conduct critical analysis of HIV, STI and MNCH programme performance to facilitate greater understanding of current practices, achievements and service gaps</i>
2. Set Targets and Goals	
	<ul style="list-style-type: none">• <i>Guided by this analysis, develop ambitious, but realistic, country specific elimination goals and targets which include time-bound milestones</i>• <i>Targets and timeline will vary according to many factors, including epidemiologic situation, public policies and basic health service delivery infrastructure</i>
3. Develop an Operational Plan	
	<ul style="list-style-type: none">• <i>Plan should state overall goals and targets, define expected outcomes across all four prongs of the comprehensive approach to PMTCT/ECS, outline time-bound outputs related to these outcomes and detail specific activities that must be implemented to achieve each outcome</i>• <i>Address cross-cutting issues of integration, linkages, equitable access and human resource capacity for each outcome</i>• <i>Integrate within national strategic health plan and clearly link with broader MNCH and health goals</i>• <i>Include an accountability section that clearly delineates roles and responsibilities, and facilitates assessment of progress and challenges</i>• <i>Develop an integrated monitoring and evaluation plan</i>
4. Implement, Monitor and Evaluate	
	<ul style="list-style-type: none">• <i>Implement at the national, sub-national and community levels</i>• <i>Critically evaluate programme performance, outcomes and impact through routinely collected programme and target related indicators</i>• <i>Plan periodic in-depth analyses of updated interventions, innovative service delivery models and linkages between different health sectors</i>

8. Funding Elimination Efforts

8.1 Comprehensive PPTCT and ECS in Asia-Pacific Region is Cost-Saving

A recent systematic review of PPTCT concluded that interventions to prevent HIV PTCT are cost-effective and remain at the forefront of global HIV prevention efforts²⁵. Despite this, a lack of resources is often cited as a barrier in implementing universal HIV screening and comprehensive PPTCT interventions in the Asia-Pacific region. To examine this issue in detail, the National Center for Global Health and Medicine (NCGM) in Tokyo and the Asia-Pacific PPTCT Task Force developed a model to examine the cost implications of routine HIV testing and expanded PPTCT and ECS services for pregnant women in low prevalence settings.

Parameters of Asia-Pacific PPTCT Costing Tool

Model parameters included the estimated number of pregnancies, HIV and syphilis prevalence, proportion of pregnant women tested and the proportion of HIV-positive women who received ARV prophylaxis for PPTCT and/or treatment for maternal syphilis. Assuming a baseline PTCT rate of 35 per cent in a breastfeeding population, model inputs were used to calculate the number of new paediatric HIV infections averted in a hypothetical population of 100,000 pregnant women at differing rates of comprehensive PPTCT coverage²⁶ sero-positive. The costs of HIV and syphilis counselling, testing, routine CD4 assessment, ART or ARV prophylaxis for women with HIV, syphilis treatment for sero-positive women and their infants, and co-trimoxazole and EID for HIV-exposed infants were also compared to the costs of HIV care and treatment for HIV-infected children. Costs for prevention of CS were also examined. The full Asia-Pacific PPTCT costing tool, the Costing Tool for the Elimination Initiative (CTEI), is available at: <http://www.aidsdatahub.org/en/regional-profiles/prevention-of-parent-to-child-transmission>

Sample Results from Asia-Pacific PPTCT Costing Tool: Universal Coverage is COST-SAVING

In a hypothetical population of 100,000 pregnant women, with 0.5 per cent HIV prevalence, implementation of PPTCT services at 2009 coverage rates (17 per cent pregnant women tested for HIV, 32 per cent HIV-positive women receive ARV prophylaxis) would avert 48 new infant HIV infections and result in 127 new infections. However, if 95 per cent of pregnant women received HIV testing, and 95 per cent of HIV-positive women received ARV prophylaxis, 143 new infections would be averted, resulting in cost-savings of over 1.4 million US dollars (**Table 7**). Evaluation of different epidemic scenarios reveals that implementing comprehensive PPTCT and ECS interventions remain cost-saving even when HIV prevalence is as low as 0.04 per cent. While upfront costs for enhanced PPTCT/ECS services are unavoidable, doing nothing is more expensive in the long-run.

Elimination of PTCT and CS: The Need to Develop a Costed Plan

Adequate resources are essential to achieve elimination goals. National programmes should clearly outline the resources needed to achieve PPTCT and ECS goals in order to develop a fully costed country elimination plan. In determining the costs of delivering comprehensive PPTCT and ECS services, programmes should account for interventions across the spectrum of prevention and care, including primary HIV prevention, routine HIV and syphilis screening for pregnant women, providing FP services for women living with HIV, meeting ARV prophylaxis and treatment needs for pregnant women, and meeting diagnostic and treatment needs of HIV-exposed infants. Additional factors include the cost of expanding human resources and investments in strengthening health and community systems. Once resource needs are clarified, programmes can align the budgets of national strategic health plans to account for PPTCT and ECS elimination plans. The identification of funding gaps will also allow programmes to more effectively mobilise resources and support.

Table 7: Cost savings of implementing comprehensive PPTCT services in a concentrated epidemic setting (HIV prevalence 0.5 per cent)

PMTCT Coverage	Expected number of new paediatric infections*	Number of new paediatric HIV infections averted*	Total costs of PMTCT services (USD)*	Total costs of paediatric treatment for 20 years (USD)*	Costs per new paediatric HIV infection averted (USD)	Total savings**
2009 Rates: - 17% pregnant women receive HIV testing - 32% HIV-positive women receive ARV prophylaxis	127	48	63,461	1,064,985	1,322	339,053
Universal coverage: - 95% pregnant women receive HIV testing - 95% HIV-positive pregnant women receive ARV prophylaxis	33	143	237,607	386,413	1,667	1,456,666

*per 100,000 pregnancies,** [(cost of paediatric treatment X number of infections averted) - total cost of PPTCT]

8.2 Asia-Pacific PPTCT Task Force Will Support Resource Mobilisation for Elimination

Securing adequate, sustained funding is critical to the success of the PTCT and CS elimination initiative. The Asia-Pacific UN PPTCT Task Force will strongly push for secured, sustained financing for comprehensive services within the broader context of improving MNCH outcomes. It will be critical to ensure that existing long-term funding commitments by public and private entities are upheld and increased. The Task Force will work to strengthen strategic partnerships with key funding and implementing agencies, including the GFATM, PEPFAR, the Bill and Melinda Gates Foundation, the Clinton Health Access Initiative and the Elizabeth Glaser Pediatric AIDS Foundation. It will also be essential to develop newer sources of financial support for PPTCT, ECS and MNCH efforts in the region, including innovative financing approaches from the private sector and through public-private partnerships.

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PART 2

Monitoring and Evaluation Guide

1. Introduction

1.1 Elimination of New Paediatric HIV Infections and Congenital Syphilis in Asia-Pacific

HIV infection transmitted from an HIV-infected mother to her child during pregnancy, labour, delivery or breastfeeding is known as parents-to-child transmission (PTCT). In 2009, an estimated 22,000 children in the Asia-Pacific region were newly infected with HIV, almost all of them as a result of PTCT¹. Nearly all of these infections can be prevented by comprehensive prevention of parents-to-child transmission (PPTCT) services. At the same time, an estimated 600,000 pregnant women in Asia-Pacific countries are infected with syphilis each year². Without treatment, approximately 69 per cent of these pregnant women experience adverse outcomes, such as stillbirth, neonatal death and newborn infection or congenital syphilis (CS)³.

Dramatic reductions in new paediatric HIV infections can be achieved through the implementation of a comprehensive approach to prevention and treatment⁴. Given the similarities in mode of transmission, the comprehensive approach to HIV PPTCT is also applicable to the prevention of CS. The approach has four key prongs:

Prong 1: Primary prevention of HIV among women of childbearing age

Prong 2: Prevention of unintended pregnancies among women living with HIV

Prong 3: Prevention of HIV transmission from a woman living with HIV to her infant

Prong 4: Provision of appropriate treatment, care and support to women living with HIV and their children and families

Because similar strategies apply to the prevention of new paediatric HIV and CS infections, several countries in the Asia-Pacific region have begun to consider a combined approach to the delivery and implementation of HIV PPTCT and elimination of congenital syphilis (ECS) services. Efforts to prevent new paediatric HIV or CS infections rely heavily on the implementation of basic maternal, neonatal and child health (MNCH) services. Improving the coverage and quality of MNCH services is essential to achieving PPTCT and ECS goals. In the setting of ongoing scale-up of PPTCT of HIV services, a revitalised global interest in MNCH issues and the availability of more efficacious ARV-based PPTCT interventions and rapid syphilis testing strategies, the elimination of new paediatric HIV and CS infections is, for the first time, considered a realistic public health goal.

Recognising the critical importance of an integrated approach towards elimination, the Asia-Pacific PPTCT Task Force has developed a *Conceptual Framework for the Elimination of New Paediatric HIV Infections and Congenital Syphilis in Asia-Pacific, 2011-2015*. This framework represents a joint activity of the HIV/STI and MNCH sectors in the Asia-Pacific region. Elimination of new paediatric HIV infections and CS requires the full involvement of MNCH programmes and cannot be realised without strengthening SRH and MNCH services. Conversely, comprehensive efforts to reduce PTCT of HIV and CS have the potential to contribute significantly to improved MNCH programme delivery and outcomes, particularly in the context of HIV and STIs.

1.2 Elements of the Asia-Pacific Elimination Framework

The conceptual framework outlines a common systematic approach to the elimination of new paediatric HIV and CS infections and improvement of maternal and child health in the context of HIV and sexually transmitted infections (STIs) for countries in the region.

Working towards a **Vision** of “*Women and children alive and free from HIV and Syphilis,*” the dual **GOALS** of the elimination initiative are to

- Eliminate new paediatric HIV infections and congenital syphilis *and*
- Improve maternal and child health and survival in the context of HIV/STI

The **Overall Targets** of the elimination initiative are to:

1. Reduce new paediatric HIV infections by 90 per cent by 2015 (from a 2009 baseline)
2. Reduce parents-to-child transmission of HIV to <5 per cent (from a 2009 baseline)
3. Reduce the incidence of congenital syphilis to <0.5 cases/1,000 live births

The framework further outlines eight key **Programmatic Targets (Figure 1)**, each of which correlates to one of the four prongs of the comprehensive approach to PPTCT⁴. Recognising that achieving PPTCT and ECS elimination goals requires improvements in the quality of MNCH services, several of these programmatic targets are directly linked to broader MNCH objectives⁵, and are in line with established Millennium Development Goals’ (MDGs) targets related to improving the health and survival of women and children⁶.

Monitoring and Evaluation of the Elimination Initiative

A clear strategy to monitor and measure progress is necessary to support the regional PPTCT and ECS elimination initiative. This guide, which encompasses Building Block 6 of the conceptual framework, outlines a common Monitoring and Evaluation Framework for tracking progress towards the elimination of PTCT of HIV and CS in the region. This monitoring and evaluation guide:

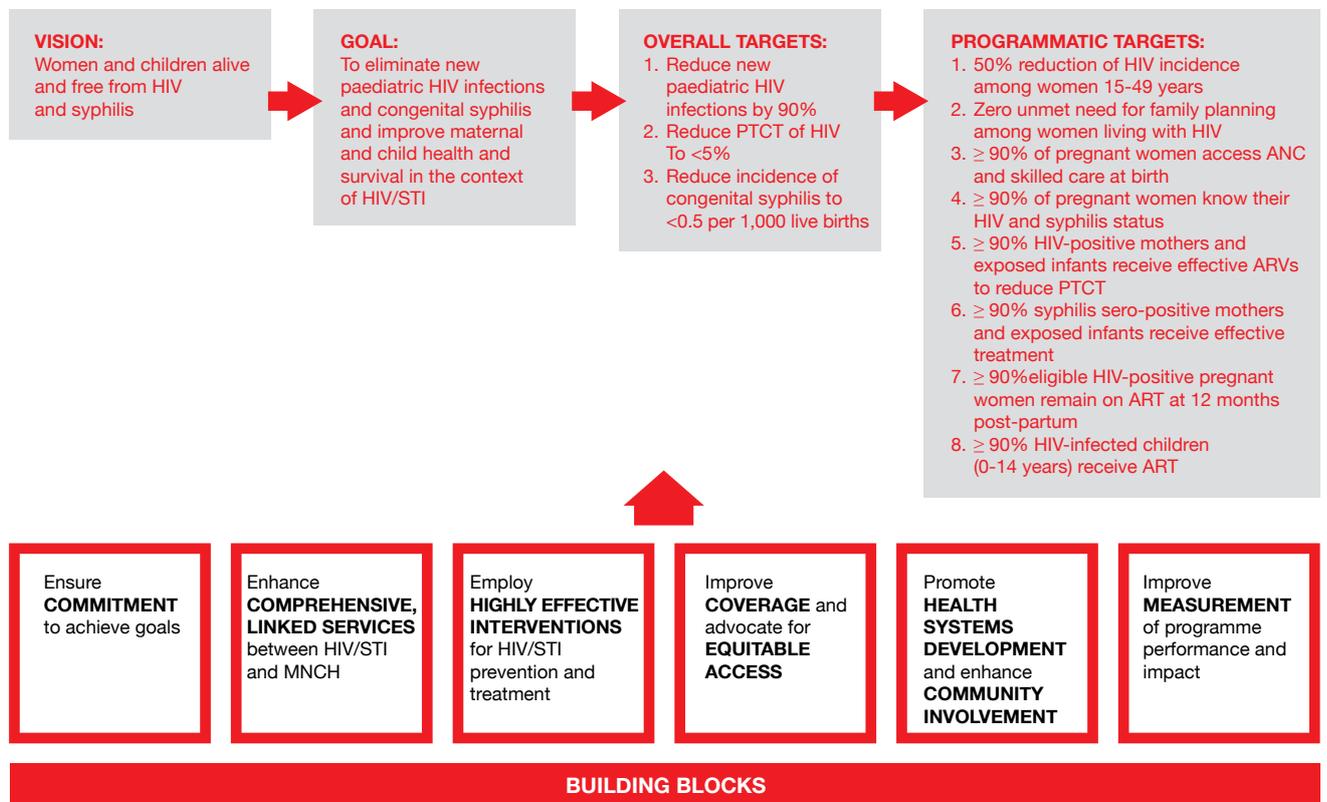
- Outlines methods to measure and set overall elimination targets at the country level, *and*
- Proposes core indicators to measure progress towards each programmatic target.

Most of the core indicators are drawn from routinely collected data. The majority of the proposed indicators to monitor the Elimination initiative are already collected every year as part of the Universal Access (UA) reporting mechanism for the annual HIV progress report “Towards Universal Access: Scaling up priority HIV/AIDS interventions in the health sector” published by WHO/UNAIDS/UNICEF⁷⁻⁹, or as part of the UNAIDS “UNGASS Core Indicators for Monitoring the Declaration of Commitment on HIV/AIDS”^{1, 10, 11}. Because improving MNCH services is vital to the success of PPTCT and ECS efforts, several of the indicators outlined in this guide are directly related to the coverage of basic antenatal and family planning (FP) services, and are routinely collected by sexual and reproductive health (SRH) and MNCH programmes at national and sub-national levels.

1.3 Monitoring and Evaluation Elimination: An opportunity to improve data systems

As with the implementation of comprehensive PPTCT and ECS efforts, monitoring and evaluation of the elimination initiative will require the collaborative efforts of HIV/STI and MNCH sectors. At the country level, HIV, STI and MNCH programmes will need to develop a consensus on accurate baselines, appropriate targets, strengthen country capacity to use HIV estimates and projections models to monitor the Elimination targets. The initiative provides an opportunity for HIV, STI and MNCH programmes to strengthen the quality of existing health information systems and build additional capacity for monitoring and evaluation. To that end, the Asia-Pacific PPTCT Task Force, through its member agencies and key technical partners, will support countries in their reporting requirements, contribute to building capacity for data generation, collection and interpretation at the national and sub-national levels, and assist country programmes to effectively use data to strengthen PPTCT and ECS interventions.

Figure 1: Conceptual Framework for the elimination campaign of mother-to-child transmission of HIV and Congenital Syphilis in Asia-Pacific, 2011-2015



2. Measuring Elimination Targets

2.1 Overall Targets: Definitions

Overall Target 1: Reduce new paediatric HIV infections by 90 per cent by 2015

The target of reducing new paediatric HIV infections by 90 per cent reflects the contributions of the 4-Prong strategy for PPTCT and signifies the importance of a comprehensive approach. While it is recognised that the 90 per cent target by 2015 is aspirational, significant progress towards this target can be made among countries in the Asia-Pacific region.

Overall Target 1: Reduce new paediatric HIV infections by 90 per cent

Regional Baseline (2009): 22,000 new paediatric HIV infections

Regional Target (2015): <2,200 new paediatric HIV infections

- *Successful implementation of all prongs is required to achieve this Elimination target*
- *Momentous achievement in one of the prongs alone is not enough*

Overall Target 2: Reduce PTCT of HIV to <5 per cent

The target of reducing PTCT to less than 5 per cent addresses efforts to eliminate the vertical transmission of HIV. This target directly addresses the public health issue of how well interventions are being provided to prevent new infant infections in pregnant women already infected with HIV. The estimated risk of transmission without any intervention is around 35 per cent (around 20-25 per cent without breastfeeding)¹². The regional target is to reduce PTCT to less than 5 per cent and a sub target of <2 per cent transmission in non-breastfeeding settings.

Overall Target 2: Reduce PTCT to <5 per cent

Numerator: Number of infants born to HIV-infected mothers who are HIV-infected

Denominator: Number of all estimated HIV-positive pregnant women

- *The denominator is not limited to only identified HIV-positive pregnant women*
- *In breastfeeding populations, PTCT should be assessed after cessation of breastfeeding*
- *The percentage of infants who are HIV-infected should decrease as the coverage of interventions for PPTCT and the use of more effective regimens increases*

Overall Target 3: Reduce incidence of CS to <0.5 per 1,000 live births

The target of reducing the incidence of CS addresses efforts to eliminate the vertical transmission of syphilis^{2, 3}. This target directly addresses the public health issue of how well interventions are being provided to prevent new infant infections in women who are already syphilis sero-positive.

Overall Target 3: Reduce incidence of CS to <0.5 per 1,000 live births

Numerator: Number of infants born to syphilis sero-positive mothers who have CS

Denominator: Estimated number of live births in the past 12 months

- *According to the national definition of congenital syphilis*
- *The percentage of infants who have congenital syphilis should decrease as the coverage of interventions for ECS interventions increases*

2.2 Measurement Methods for Overall Elimination Targets

There are several methods countries can use to measure annual progress towards elimination targets. These include modelling, immunisation clinic surveys, household and demographic surveys, and cohort analyses. The two key methods that are *best applicable* to the concentrated and low-level HIV epidemic settings in Asia-Pacific countries include:

1. Retrospective analysis of cohort data, such as antenatal care (ANC) or early infant diagnosis (EID) data.
2. Modelling, using projection software, such as the Spectrum package used by the UN for HIV estimates and projections.

There are advantages and limitations to each method. It is important to recognise that, in reality, countries will need to analyse and triangulate data collected through multiple measurement methods to determine and validate targets for the elimination initiative. Furthermore, the process of determining PPTCT and ECS targets should ideally be incorporated into existing programme exercises for HIV and STI estimations. This can prompt strengthening of the overall HIV/STI estimations process at the country level, and better align PPTCT and ECS efforts with broader health goals.

Analysis of Cohort or Programme Data

One way to develop and measure targets is to try to directly measure the outcomes of women and children using programme data¹³.

ANC cohort of HIV+ mothers:

In this method, programmes select a random sample of HIV-positive women from ANC files who gave birth earlier (e.g. in the past 12 months), and attempt to determine outcomes through data abstraction and linking, and intensive follow-up with post-partum and child records. These analyses can provide a PTCT rate for a cohort with outcome data, and the number of new paediatric HIV infections, out of the cohort tested. However, this method does NOT provide an estimation of the number of HIV-positive women in need of PPTCT.

Analysis of EID Data:

Countries should also analyse EID programme data to calculate the number of HIV-exposed infants with positive EID results. These findings can be combined with estimates of the number of infants lost to follow-up to get a national estimate of number of new infant HIV infections in a given year.

Advantages:

Conducting a cohort analysis can help to promote data linkages and longitudinal follow-up. The findings reflect programme reality, and can guide improvements in the delivery of interventions as well as refinement of programme targets and timelines.

Limitations:

The results of cohort analyses are biased, as they represent only those mother-baby pairs who present to facilities. This is particularly relevant in the case of EID data analysis, which is applicable only where facility attendance is high. Significant attrition is the reality in many settings, and programmes will need to make assumptions for those who are lost to follow-up and those not captured in data. Findings of cohort analyses should thus be interpreted with caution. Additionally, such analyses can be time and resource intensive, particularly when extracting data from multiple facilities.

Modelling using Projection Software

This method uses HIV and STI surveillance data and programme data in a demographic model to estimate results. Modelling will assist with estimation of the PTCT rate, as well as number of new paediatric HIV infections. Models are constructed using projection software, such as Spectrum, which is used by the UN for HIV estimates and projections¹⁴ (<http://www.unaids.org/en/dataanalysis/tools/spectrum>) (See **Annexe 1** for a detailed description of Spectrum.). In partnership with national stakeholders and UN agencies, HIV programmes in most countries in the Asia-Pacific region have already conducted modelling and estimation exercises to assess HIV prevalence and trends. Efforts to set and measure PPTCT elimination targets should be integrated with broader HIV estimation exercises and viewed as an opportunity to refine and strengthen current measurements.

Advantages:

There are advantages to using Spectrum to estimate PPTCT elimination targets as it is consistently supported by the UN in over 100 countries, and thus estimates from multiple countries are produced using a standardised approach relatively easily. Furthermore, UNAIDS, WHO and partners train and assist countries to produce country Spectrum files to model and estimate their HIV epidemic every two years.

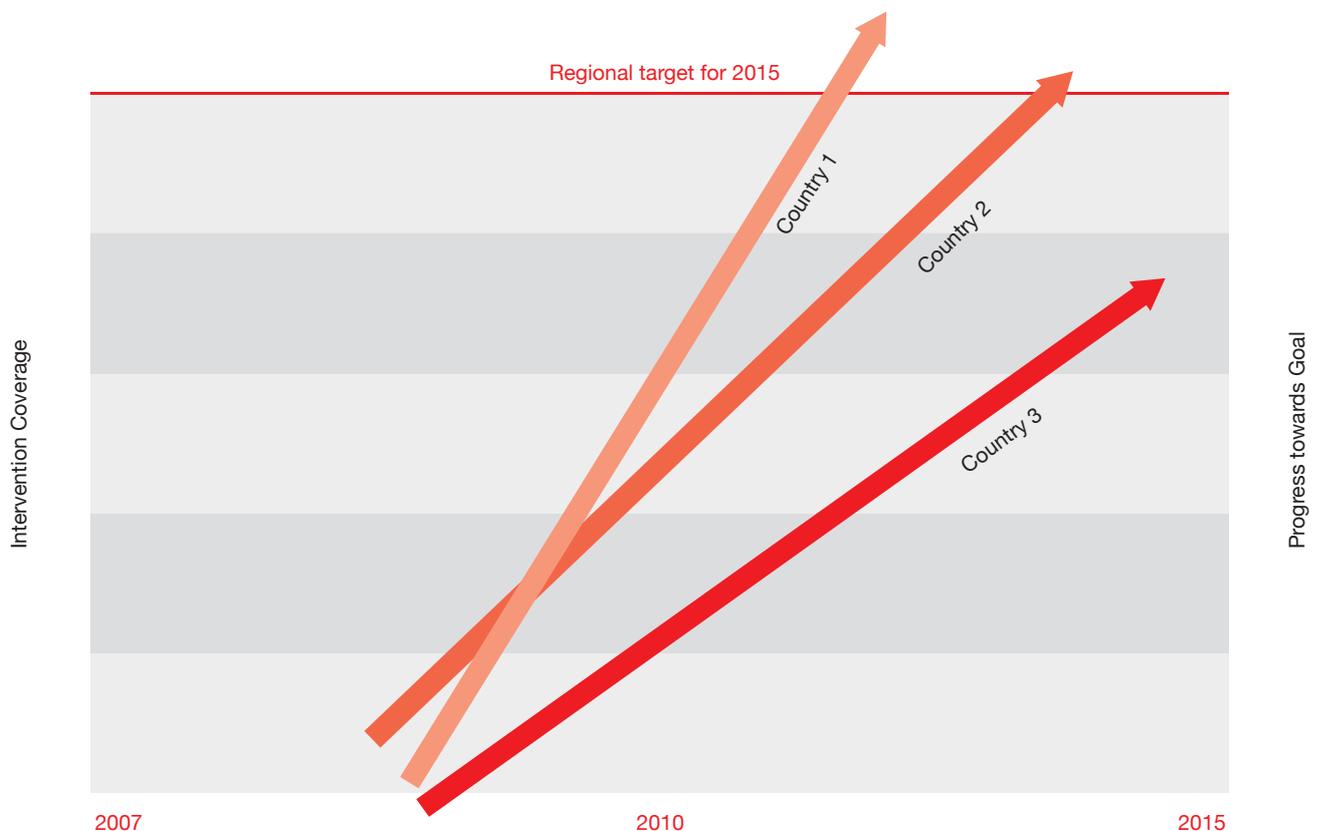
Limitations:

However, some caveats exist in relying on modelling. The strength of the model is strongly influenced by model assumptions and the quality of the data entered. Factors such as adherence and outcomes are often based on results of research studies, which may not reflect the field realities of programme implementation. Models may thus overestimate the impact of PPTCT interventions. As countries intensify efforts to measure progress towards elimination, greater emphasis must be placed on improving and validating routine data collected as well as capturing adherence to improve the input into models.

2.3 Setting Country-specific Elimination Targets

The aspirational goals and target outlines in the regional PPTCT and ECS elimination framework should prompt Asia-Pacific countries to develop ambitious national overall targets that remain guided by data and programme realities. National MNCH, HIV and STI programmes, along with other key stakeholders and partners, must develop ambitious yet achievable country-specific elimination goals, targets and timelines. While countries should strive towards the same elimination goals, in each given year country specific targets may differ (**Figure 2**).

Figure 2: Countries need to set context-appropriate targets and timelines



While countries may strive towards the same elimination goals, in each given year, targets and timelines will vary from country to country. Factors that will influence this include the epidemiological situation, public policies, health service delivery infrastructure and the anticipated pace of scale-up.

Necessary Analyses:

In order to guide the selection of appropriate elimination targets and timelines, countries should conduct a few key analyses:

1. Establish clear baselines

In order to develop appropriate, context-specific targets, it is first essential to examine current data and practices to establish clear baselines. This includes determining baselines for each of the three overall elimination targets (number of new paediatric HIV infections, PTCT of HIV rate and incidence of CS in 2009). In addition, it is important to gain a clear understanding of the baseline for each of the eight programmatic targets. This process will require close examination of existing programme data, and should prompt improved data generation and collection for future reviews of elimination targets.

2. Critically review country programme data

Countries should examine epidemiological data to develop a clear and updated understanding of the population in need of services. Programmes should further critically review the historical pace of scale-up as well as current programme practices and coverage rates to identify key bottlenecks to achieving elimination targets. Programmes should also examine human resource capacity and gaps, as well as anticipated funding sources to comprehend what is achievable on an annual basis in terms of access, coverage and quality of MNCH, PPTCT and ECS interventions.

3. Model the Impact of Different Target Scenarios

Programmes may utilise modelling software to examine demographic and epidemiologic data, including HIV prevalence and incidence trends and levels of MNCH, HIV and STI service coverage, to understand what level of impact (PTCT rate, or number of new paediatric HIV infections) can be achieved at varying levels of coverage.

Setting a Target

Finally, countries should take into account the results of all three analyses to develop ambitious and achievable national targets that are tied to logical programming and timelines. Based on current baselines, the anticipated pace of scale-up and the expected impact at increasing levels of service coverage, HIV, STI and MNCH programmes should arrive at a consensus on overall elimination targets and appropriate timelines for achieving these goals.

2.4 Measuring Elimination Targets: Proposal for Countries, 2011-2015

2011:

- Establish clear baselines for each of the overall targets and determine country-specific targets and timelines.
- Agree on a standard method to measure populations in need, including HIV+ pregnant women and syphilis sero-positive pregnant women.
- Measurement strategies in the Asia-Pacific region should take into account the need to measure hard to reach populations, including key affected populations (KAPs).

2011-2014:

- Model elimination targets every one to two years, with careful validation of input data.
- Periodically use other methods (cohort analyses, EID data analyses) to assess targets.
- Improve availability of cohort and EID data, as well as case reporting and health facility survey data.
- Develop and refine outcome assumptions for populations without data.
- Validate estimates based on information from different sources and methods.

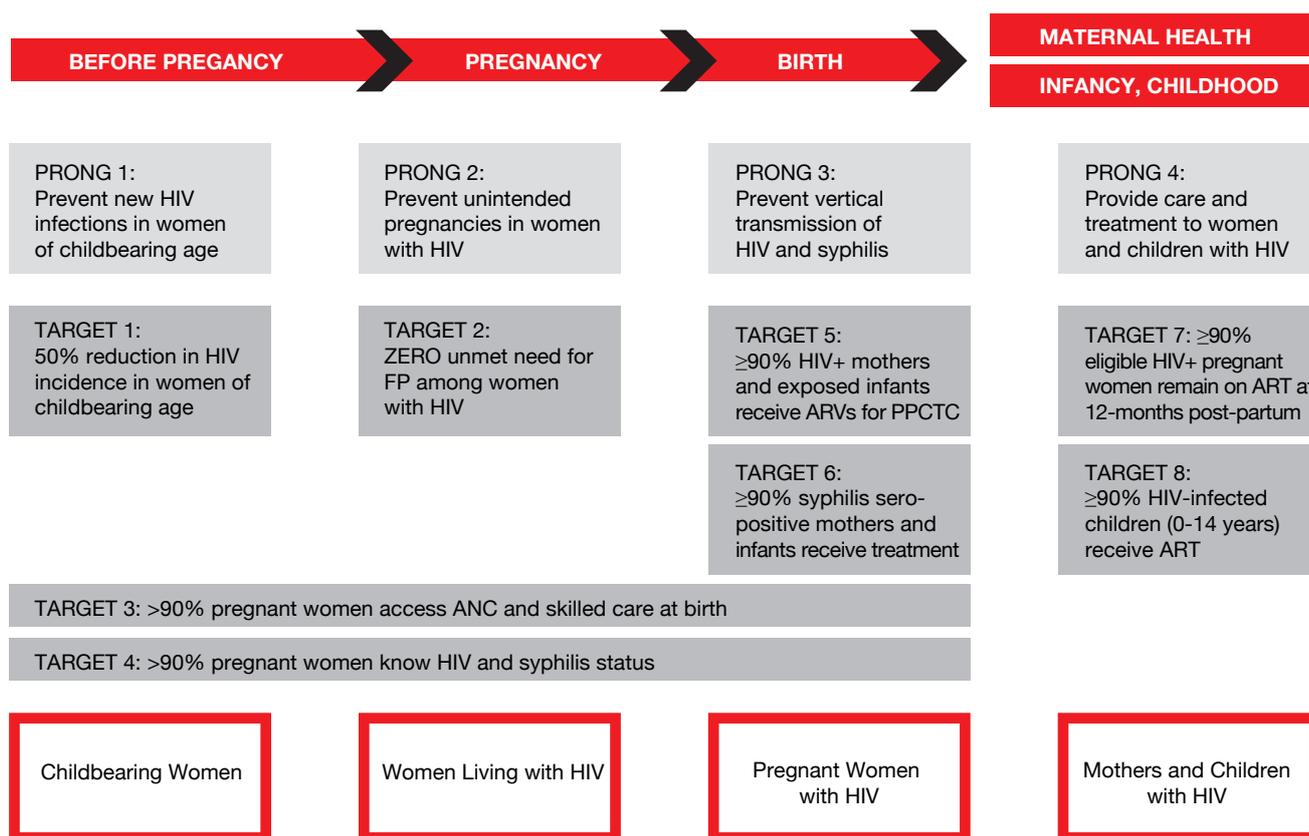
2015:

- Repeat model, with refined input data and assumptions.
- Directly measure new infections where possible *AND* estimate population with no data and model new infections for this population.

Programmatic Targets and Indicators

Elimination of PTCT of HIV and CS requires a comprehensive approach that addresses all four prongs of the comprehensive approach to PPTCT. Each of the eight programmatic targets outlined in the conceptual framework correlates to one of the four prongs of the comprehensive approach to PPTCT (**Figure 3**). Several of these targets also directly correlate with broader MNCH programme objectives and are in line with established MDG targets related to improving the health and survival of women and children, particularly in the context of HIV and STIs.

Figure 3: The Eight Programmatic Targets Correlate to the Four Prongs of the Comprehensive Approach to PPTCT



Progress towards achieving each of these programmatic targets is critical for countries to realizing overall elimination goals. In addition to measuring progress towards attaining overall elimination targets, it is therefore equally important to monitor progress towards reaching each of these eight programmatic targets. The following tables outline one to two key measures for each of the eight programmatic targets.

Programmatic Target 1: 50% Reduction of HIV Incidence Among Women Aged 15-49 Years

Prevention of HIV in women of reproductive age (age 15-49) leads to a reduction in women living with HIV who may subsequently get pregnant, reducing the overall number of potential future paediatric HIV infections.

Measure of Target	Numerator	Denominator	Method of Measurement
HIV incidence among women aged 15-49 years (UNGASS Indicator)	<i>Number of new HIV infections among women aged 15-49 years in a given calendar year</i>	<i>Number of women aged 15-49 in the given calendar year, excluding the female HIV population in that year</i>	<i>The baseline incidence and reduction in incidence in women of reproductive age (15-49) should be modelled using the Spectrum software (see Annex 1)</i>

Additional Indicators for Programmatic Target 1

Indicator	What Does It Measure	Numerator	Denominator	Method of Measurement
Percentage of key at-risk populations (KAPs) who received an HIV test in the last 12 months and who know their results (UA/UNGASS indicator)	Assesses progress in implementing HIV testing and counselling among KAPs. This indicator should be calculated separately for each population that is considered at-risk in a given country, (includes sex workers (SW), people who inject drugs (PWID), men who have sex with men (MSM) and prisoners)	Number of KAP respondents who have been tested for HIV during the last 12 months and who know their results	Number of KAPs included in the sample	Numerator and Denominator: Behavioural surveillance or other special surveys, sampled for specific KAPs can be used
Percentage of Pregnant Women attending ANC whose partner was tested for HIV in the last 12 months* (UA Indicator)	Assesses male involvement, which is important in the prevention of HIV infection. Measures percentage of pregnant women attending ANC whose male partner was tested during their female partner's pregnancy in the last 12 months	Number of pregnant women attending ANC whose male partner was tested in the past 12 months	Number of pregnant women attending ANC in the past 12 months	Numerator and Denominator: National programme records compiled from ANC registers

*Alternatively, programmes may choose to focus on percentage of detected HIV-positive pregnant women whose partner was tested for HIV in the last 12 months. The numerator is the number of pregnant HIV-positive women attending ANC whose male partner was tested in the last 12 months, and the denominator is the number of HIV-positive pregnant women attended ANC detected in the last 12 months.

Programmatic Target 2: Reduce Unmet Need for Family Planning to Zero Among Women Living with HIV

Unmet need for FP is defined as the proportion of women of reproductive age (15-49 years) who are married or are in a union who do not want any more children or want to wait at least two years before having a baby, and yet are not using contraception. Reducing unmet need FP among women living with HIV reduces the number of unplanned pregnancies among HIV+ women, contributing to a reduction in potential new paediatric HIV infections.

Measure of Target	Numerator	Denominator	Method of Measurement
Unmet need for family planning among HIV-positive women of reproductive age (15 - 49 years) who are attending care and treatment services	<i>Number of women of reproductive age living with HIV and attending HIV care and treatment services who either have an unmet need for FP or an unintended pregnancy at the time of the assessment</i>	<i>Total number of women of reproductive age (15-49) living with HIV who are attending HIV care and treatment services</i>	<i>Numerator and Denominator: Review of ART registries; exit interviews with HIV-positive women in care if through special survey; national programme records</i>

Additional Indicators for Programmatic Target 2

Indicator	What Does It Measure	Numerator	Denominator	Method of Measurement
Percentage of HIV service delivery points prepared to provide at least three FP methods	The necessary conditions for ensuring a minimum range of contraceptive methods at HIV care and treatment sites	Number of HIV service delivery points prepared to provide (have unexpired stocks and a trained provider available) ≥ 3 modern FP methods	Number of HIV service delivery points assessed (All sites in country, or a selected sample)	Numerator and Denominator: Representative survey conducted annually or every few years

Programmatic Target 3: >90% of Pregnant Women Access ANC and Skilled Care at Birth

The effectiveness of PPTCT and ECS interventions critically depends on the proportion of pregnant women who access antenatal services and receive skilled attendant services at the time of labour and delivery. These data are collected through the MDG monitoring process (MDG5). These data are often collected in routine programme monitoring and reporting systems. Data are also collected periodically in household surveys, including Demographic and Health Surveys (DHS), Reproductive Health Surveys (RHS), Fertility and Family Surveys (FFS) and are also included in the Multiple Indicator Cluster Surveys (MICS).

Measure of Target	Numerator	Denominator	Method of Measurement	
Percentage of pregnant women attended by skilled personnel at least once in the antenatal period	<i>Number of women age 15-49 years who were attended at least once by skilled personnel during pregnancy in the 12 months preceding the survey</i>	<i>Total number of women aged 15-49 years with a live birth in the 12 months preceding the survey</i>	<i>Numerator and Denominator: Review of national programme data or representative health survey (e.g. MICS)</i>	
Percentage of deliveries attended by skilled birth attendants	<i>Number of women age 15-49 years with a live birth in the 12 months preceding the survey who were attended during childbirth by skilled health personnel</i>	<i>Total number of women age 15-49 years with a live birth in the 12 months preceding the survey</i>	<i>Numerator and Denominator: Review of national programme data or representative health survey (e.g. MICS)</i>	
Additional Indicators for Programmatic Target 3				
Indicator	What Does It Measure	Numerator	Denominator	Method of Measurement
Percentage of pregnant women attended by skilled personnel at least four times during the antenatal period	Access to antenatal services among all women	Number of women age 15-49 years who were attended at least four times by any provider during pregnancy in the 12 months preceding the survey	Total number of women age 15-49 years with a live birth in the 12 months preceding the survey	Numerator and Denominator: Review of national programme data or representative health survey (e.g. MICS)

Programmatic Target 4: >90% Pregnant Women Know Their HIV and Syphilis Status

The effectiveness of PPTCT and ECS interventions critically depends on the proportion of pregnant women who receive the results of their HIV and syphilis serology tests. Women diagnosed in ANC settings can be linked to essential PPTCT and ECS services, as well as to life-saving treatment for their own health. These data are collected from national programmes through the Universal Access (UA) and/or UNAIDS reporting processes.

Measure of Target	Numerator	Denominator	Method of Measurement	
Percentage of pregnant women who know their HIV status results (UA Indicator)	<i>Number of pregnant women who were tested for HIV and received results during pregnancy, during labour and delivery, and during the post-partum period (<72 hours), including those with previously known HIV status in the last 12 months</i>	<i>Estimated number of total pregnant women in the last 12 months</i>	<i>Numerator: National programme records aggregated from facility registers for ANC, labour and delivery and post-partum care. Denominator: Derived from a population estimate*</i>	
Percentage of women accessing ANC services who were tested for syphilis at first ANC visit (UA Indicator)	<i>Number of women attending first visit ANC services who were tested for syphilis</i>	<i>Number of women attending first visit ANC services</i>	<i>Numerator and Denominator: National programme records aggregated from facility registers for ANC</i>	

* Can be obtained from estimates of births from the central statistics office, United Nations Population Division, or pregnancy registration systems with complete data

Additional Indicators for Programmatic Target 4				
Indicator	What Does It Measure	Numerator	Denominator	Method of Measurement
Percentage of health facilities providing ANC services that also provide HIV testing and counselling for pregnant women (UA Indicator)	On-site availability of HIV testing at all health facilities that provide ANC	Number of health facilities providing ANC services that offer HIV testing on site at the end of the reporting period	Total number of health facilities providing ANC	Numerator and Denominator: National programme records, e.g. list of facilities and available services
Percentage of health facilities providing ANC services that also provide syphilis screening for pregnant women	On-site availability of syphilis screening at all health facilities that provide ANC	Number of health facilities providing ANC services that offer syphilis screening on site at the end of the reporting period	Total number of health facilities providing ANC	Numerator and Denominator: National programme records, e.g. list of facilities and available services

Programmatic Target 5: 90% HIV-Positive Mothers and Exposed Infants Received Effective ARVs to Reduce PTCT

Dramatic reductions in new paediatric HIV infections will not be possible unless pregnant women living with HIV and their exposed infants receive effective ARV regimens to reduce PTCT. These data are collected from national programmes through the Universal Access (UA) and/or UNAIDS reporting processes.

Measure of Target	Numerator	Denominator	Method of Measurement
Percentage of HIV-infected pregnant women who received ARV drugs to reduce the risk of PTCT (UA Indicator)	<i>Number of HIV-infected pregnant women who received ARV to reduce PTCT during the preceding 12 months. This includes:</i> 1) ART for eligible women 2) Maternal triple ARV prophylaxis; 3) Maternal AZT, and 4) Single-dose nevirapine only (Disaggregate by ARV option)	<i>Estimated number of pregnant HIV-infected women in the preceding 12 months</i>	<i>Numerator: National programme records aggregated from facility registers (ANC, labour and delivery, HIV care and treatment, post-partum care site) Denominator: Projection model such as Spectrum*</i>
Percentage of infants born to HIV infected women who received ARV prophylaxis to reduce risk of peri-partum PTCT (UA Indicator)	<i>Number of infants born to HIV-infected women during the past 12 months who were started on ARV prophylaxis to reduce peri-partum PTCT</i>	<i>Estimated number of live births to pregnant HIV-infected women in the past 12 months</i>	<i>Numerator: National programme records aggregated from facility registers (labour and delivery, HIV care/treatment, post-natal care) Denominator: Projection model such as Spectrum*</i>

Additional Indicators for Programmatic Target 5

Indicator	What Does It Measure	Numerator	Denominator	Method of Measurement
Percentage of infants born to HIV-infected mothers who are provided with ARV (maternal or infant) to reduce the risk of HIV transmission during breastfeeding period	Progress in the prevention of PTCT in breastfeeding populations by the provision of ARVs to reduce the risk of HIV transmission during the breastfeeding period.	Number of infants born to HIV-infected women who, during the past 12 months, are breastfeeding and protected by an ARV intervention to reduce vertical transmission through breastfeeding, namely either maternal or infant ARVs	Estimated number of infants born to HIV-infected women (HIV exposed infants) who are breastfeeding during the past 12 months	Numerator and Denominator: Stand-alone or integrated HIV-exposed infant register; reporting form

* Multiply the number of women who gave birth in the past 12 months by the most recent national estimate of HIV prevalence in pregnant women (which can be derived from HIV sentinel surveillance in antenatal care clinics), if Spectrum projections are unavailable.

Programmatic Target 6: >90% Syphilis Sero-positive Mothers and Exposed Infants Received Effective Treatment

Dramatic reductions in congenital syphilis infections will not be possible unless syphilis sero-positive pregnant women and their exposed infants receive effective treatment to reduce vertical transmission.

Measure of Target	Numerator	Denominator	Method of Measurement
Percentage of ANC attendees who were positive for syphilis (UA Indicator)	<i>Number of ANC attendees who tested positive for syphilis</i>	<i>Number of ANC attendees who were tested for syphilis</i>	<i>Numerator and Denominator: National programme data aggregated from health facility data (ANC register, reporting form)</i>
Percentage of ANC attendees positive for syphilis who received treatment (UA Indicator)	<i>Number of ANC attendees with a positive syphilis serology who received at least one dose of benzathine penicillin 2.4 mU IM</i>	<i>Number of ANC attendees with a positive syphilis serology</i>	<i>Numerator and Denominator: National programme data aggregated from health facility data (ANC or labour and delivery register; reporting form)</i>
Percentage of infants born to syphilis sero-positive women are treated appropriately	<i>Number of infants born to syphilis sero-positive women who received syphilis treatment to reduce CS</i>	<i>Total number of live births to sero-positive pregnant women</i>	<i>Numerator and Denominator: National Programme data aggregated from health facility data (labour and delivery, post-partum registers)</i>

There are no additional indicators for Programmatic Target 6.

Programmatic Target 7: >90% Eligible HIV-Positive Pregnant Women Remain on ART at 12 Months Post-Partum

A key feature of the elimination initiative is its focus on improving the health and survival of women and children in the context of HIV/STIs. This target underscores that PPTCT interventions do not end at delivery, and emphasise the importance of linking HIV-positive mothers to lifelong treatment and care.

Measure of Target	Numerator	Denominator	Method of Measurement
Percentage of eligible HIV-positive mothers still alive and known to be on treatment 12 months after ART initiation (among estimated eligible HIV-positive mothers in a given year)	<i>Number of HIV-infected pregnant women attending PPTCT services in the past 12 months assessed as eligible for ART (by either clinical or CD4 criteria) who were started and remain on ART at 12-months post-partum</i>	<i>Estimated number of HIV-positive pregnant women eligible for ART (by either clinical or CD4 criteria) in a given year</i>	<i>Numerator and Denominator: ANC or other register for HIV-positive women, pre-ART or ART register depending on context; reporting form for special cohort analysis</i>

Additional Indicators for Programmatic Target 7				
Indicator	What Does It Measure	Numerator	Denominator	Method of Measurement
Percentage of HIV-infected pregnant women assessed for ART eligibility through either clinical staging or CD4 testing <i>(UA Indicator)</i>	Coverage of eligibility assessment for ART among HIV-infected pregnant women, either by clinical staging criteria or by CD4 testing	Number of HIV-infected pregnant women attending services for PPTCT in the past 12 months assessed for eligibility for ART by either clinical staging or CD4 testing, on site or by referral (Disaggregate by method of assessment)	Estimated number of HIV-infected pregnant women in the past 12 months	Numerator: National programme data aggregate from health facility registers (ANC, or other register for HIV-positive women, pre-ART, or ART register Denominator: Projection model such as Spectrum*
Percentage of eligible HIV-infected pregnant women started on ART	Coverage of ART among HIV-infected pregnant women who require treatment for their own health	Number of HIV-infected pregnant women attending services for PPTCT in the past 12 months started on ART for their own health	Estimated number of HIV-infected pregnant women eligible for ART in the past 12 months	Numerator and Denominator: National programme data aggregated from health facility (ANC, pre-ART, ART) register or reporting form

Programmatic Target 8: >90% HIV-Infected Children (0-14 Years) Receive ART

A key feature of the elimination initiative is its focus on improving the health and survival of women and children in the context of HIV/STIs. This target underscores that PPTCT interventions do not end at delivery, and emphasises the importance of linking HIV-infected children with lifesaving care and treatment.

Measure of Target	Numerator	Denominator	Method of Measurement
Percentage of HIV-infected children (aged 0-14 years) who are currently receiving ART <i>(UA Indicator)</i>	<i>Number of children who are receiving ART in accordance with the nationally approved treatment protocol (or WHO/UNAIDS standards) at the end of the reporting period</i>	<i>Estimated number of children with advanced HIV infection</i>	<i>Numerator: National programme records drawn from data collected in ART registers at facilities Denominator: Estimated by the method recommended by the UNAIDS/WHO Reference Group on Estimates, Modelling and Projections using Spectrum software</i>

Additional Indicators for Programmatic Target 8

Indicator	What Does It Measure	Numerator	Denominator	Method of Measurement
Percentage of infants born to HIV-infected women receiving a virological test for HIV within two months of birth <i>(UA Indicator)</i>	The extent to which infants born to HIV-infected women are tested within the first two months of life to determine their HIV status, disaggregated by test results	Number of infants who received an HIV test within two months of birth, during the reporting period, disaggregated by test results including positive, negative, indeterminate, and rejected for testing by the laboratory. Infants tested should only be counted once. The numerator should only include the most recent test result for an infant tested in the first two months of life, and not any earlier tests	Estimated number of HIV-infected pregnant women giving birth in the last 12 months	Numerator: Collected from databases held at Early Infant Diagnosis testing laboratories Denominator: Projection model such as Spectrum*

* Multiply the number of women who gave birth in the past 12 months by the most recent national estimate of HIV prevalence in pregnant women (which can be derived from HIV sentinel surveillance in ANC clinics), if Spectrum projections are unavailable.

Additional Indicators for Programmatic Target 8 (continued)

Indicator	What Does It Measure	Numerator	Denominator	Method of Measurement
<p>Percentage of infants born to HIV-infected women who received an HIV test within 12 months (<i>UA Indicator</i>)</p>	<p>The extent to which infants born to HIV-infected women are tested to determine their HIV status within the first 12 months of life, disaggregated by:</p> <p>(a) early virological testing by 2 months of age; or (b) virological testing between 2 and 12 months of age and initial antibody testing between 9 and 12 months.</p>	<p>Number of infants who received an HIV test by 12 months, disaggregated into:</p> <p>(a) infants who received virological testing before 2 months of age; and (b) infants who were tested virologically for the first time between 2 and 12 months of age or who had an antibody test for the first time between 9 and 12 months of age</p> <p>Both categories should be further disaggregated by HIV test results into seropositive or seronegative.</p> <p>Tested infants should be counted only once. The numerator should include only the initial test.</p>	<p>Estimated number of HIV-infected pregnant women who gave birth in the past 12 months. This a proxy measure of the number of infants born to HIV-infected women</p>	<p>The numerator is calculated from national programme records compiled from data collected in registers at facilities.</p> <p>The number of infants who were tested (not the number of tests performed) should be counted, as many infants may be tested several times.</p> <p>Two methods can be used to eliminate the denominator:</p> <p>(a) a projection model such as that provided by Spectrum software: use the output “number of pregnant woman needing prevention of mother-to-child transmission of HIV” as a proxy, or</p> <p>(b) multiply the number of women who gave birth in the past 12 months (which can be obtained from the central statistics office or the United Nations Population Division or pregnancy registration systems with complete data) by the most recent national estimate of HIV prevalence in pregnant women* (which can be derived from HIV sentinel surveillance in antenatal care clinic), if Spectrum projections are unavailable.</p> <p>If there are data on the number of live births, they should be adjusted to derive a better proxy.</p>

* National estimates of HIV-infected pregnant women should be derived by adjusting surveillance data from sentinel sites at antenatal clinics and other sources, taking into consideration characteristics such as age distribution and rural and urban patterns of HIV prevalence.

Additional Indicators for Programmatic Target 8 (continued)

Indicator	What Does It Measure	Numerator	Denominator	Method of Measurement
<p>Percentage of HIV-exposed infants who are receiving exclusive breastfeeding, replacement feeding or mixed feeding at DPT3 visit (Infants will be aged around three months) <i>(UA Indicator)</i></p>	<p>Feeding of HIV-exposed infants, derived from 24-h recall, measured at the time of the third dose of diphtheria, pertussis and tetanus vaccine (DPT3)</p>	<p>The numerators capture feeding practices only for known HIV-exposed infants who visit a health facility at or around DPT3 visit, and are disaggregated as follows: 10a: Number exclusively breastfeeding 10b: Number receiving replacement feeding 10c: Number receiving mixed feeding</p>	<p>The number of HIV-exposed infants whose feeding practice has been assessed at DPT3 visit</p>	<p>Numerator: National programme records aggregated from stand-alone or integrated HIV-exposed registers Denominator: Total number of exposed infants whose feeding was assessed</p>
<p>Percentage of infants born to HIV-infected women who are started on co-trimoxazole prophylaxis within two months of birth <i>(UA Indicator)</i></p>	<p>The provision and coverage of co-trimoxazole prophylaxis for HIV-exposed infants in line with international guidelines</p>	<p>Number of infants born to HIV-infected women started on co-trimoxazole prophylaxis within two months of birth in the past 12 months</p>	<p>Estimated number of HIV-infected pregnant women who gave birth in the past 12 months</p>	<p>Numerator: National programme records aggregated from stand-alone or integrated HIV-exposed registers Denominator: Projection model such as Spectrum*</p>

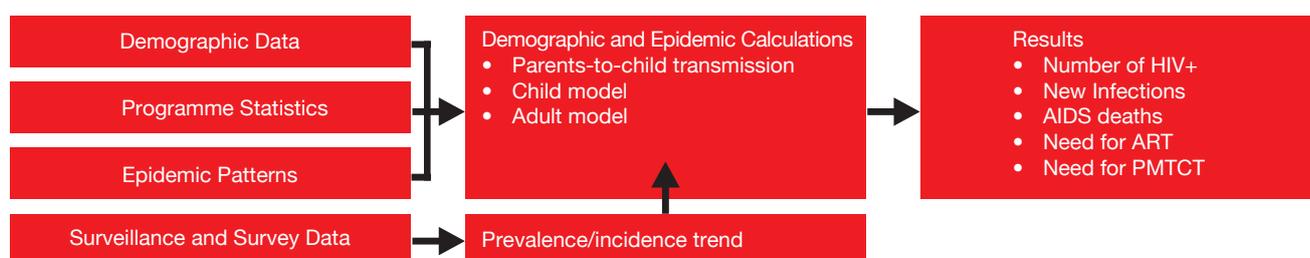
* Multiply the number of women who gave birth in the past 12 months by the most recent national estimate of HIV prevalence in pregnant women (which can be derived from HIV sentinel surveillance in ANC clinics), if Spectrum projections are unavailable.

Annex

Estimating Overall Targets with Spectrum

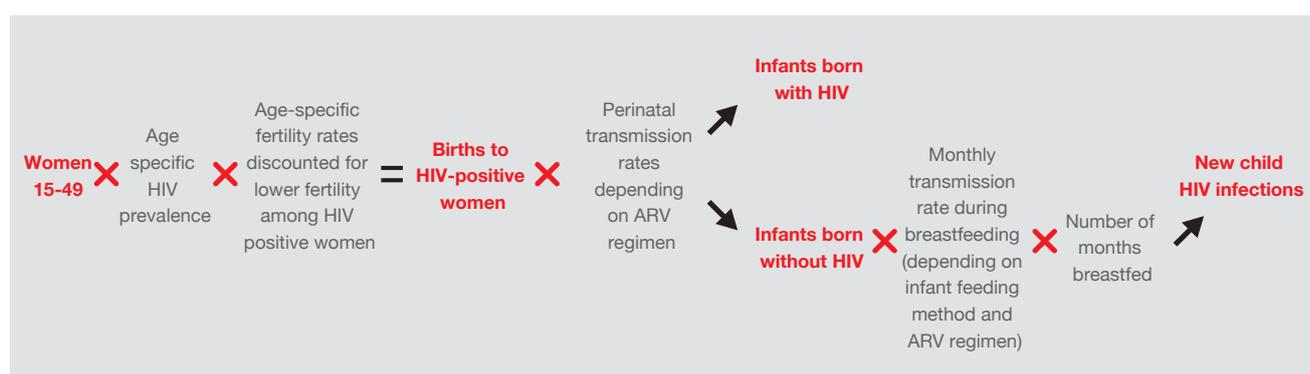
The Spectrum software combines a range of existing demographic and epidemiological parameters (e.g. population, fertility and mortality rates) with various country data and programme inputs and assumptions (e.g. HIV prevalence from sentinel surveillance surveys, intervention coverage and its effect on HIV infections, progression from HIV incidence to mortality) and provides a demographic projection of various HIV estimates, including HIV incidence, number of new adult and child HIV infections, and estimated PPTCT ARV needs¹⁴ (Figure 4).

Figure 4: Structure of Spectrum Model



From Spectrum 2011 Presentation, UNAIDS

The figure below briefly describes the calculation of the number of new child infections in Spectrum.



Taken from Mahy et al, *STI*, 2010 (What will it take to achieve virtual elimination of Mother to Child Transmission of HIV?)¹⁵

The calculations may need to be adjusted to account for different fertility rates among HIV-positive women in the Asia-Pacific region.

Late post-partum transmission (after six weeks) is calculated based on the duration of breastfeeding. Most countries do not collect this data among the HIV+ population. If the data are available, country teams can modify Spectrum to take these values into account. If the data are not available, Spectrum uses data from the most recent general population survey to identify how many infants are still breastfeeding at different age groups.

The mother-to-child transmission rate is calculated by dividing the number of new child infections by the number of births to HIV+ women, and is also one of the outputs of Spectrum. Countries can produce the number of new child infections and the mother-to-child transmission rate by reviewing the Spectrum outputs on the summary page for children 0-14. All child infections in Spectrum are assumed to be a result of mother-to-child transmission.

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