National Roadmap for the Triple Elimination of Mother-to-Child Transmission of HIV, Syphilis and Hepatitis B in Nepal

2026-2030

Government of Nepal
Ministry of Health and Food Safety
National Centre for AIDS and STD Control
Teku, Kathmandu

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Foreword

The National Centre for AIDS and STD Control is pleased to present the National Roadmap for the Triple Elimination of Mother-to-Child Transmission of HIV, Syphilis and Hepatitis B in Nepal, 2026–2030. This roadmap provides a practical framework for moving Nepal from disease-specific approaches toward an integrated national response to prevent vertical transmission.

Eliminating vertical transmission requires coordinated action at every level of care. Every pregnant woman must receive timely screening, counselling and treatment, and every exposed infant must receive appropriate prophylaxis, vaccination and follow-up. The roadmap establishes an integrated One-Stop Shop model, standardizes a minimum package of care and promotes efficient approaches such as dual and triple testing.

NCASC will continue to provide technical leadership for HIV, STI and hepatitis-related components of the roadmap, working closely with FWD, NPHL, Management Division, NHTC, the National Immunization Programme, CSD and other relevant entities. Priority will be given to harmonizing protocols, strengthening integrated training, improving commodity forecasting, expanding case-based surveillance, supporting mother-baby pair tracking, enhancing private sector reporting and ensuring validation-ready data.

NCASC sincerely appreciates the contributions of technical experts, programme managers, health workers, provincial and local government representatives, civil society organizations, community networks, professional associations and development partners. Their inputs have helped shape a roadmap that is ambitious, practical and responsive to Nepal's needs.

This roadmap is both a technical guide and a shared commitment to protect mothers, newborns and families from preventable infections. NCASC remains committed to working with all partners and all levels of government to translate this roadmap into action and support Nepal in achieving triple elimination by 2030.

Dr. Sarbesh Sharma
Director

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ABBREVIATIONS

AHF	AIDS Healthcare Foundation Nepal
ANC	Antenatal Care
ART	Antiretroviral Therapy
CDA	Center for Disease Analysis
CLM	Community-Led Monitoring
CSD	Curative Service Division
DHIS2	District Health Information System 2
DQA	Data Quality Assurance
EID	Early Infant Diagnosis
EMR	Electronic Medical Reports
EMTCT	Elimination of Mother-To-Child Transmission
FCHV	Female Community Health Volunteers
FWD	Family Welfare Division
GAVI	Global Alliance for Vaccines and Immunization
GoN	Government of Nepal
HBIG	Hepatitis B Immunoglobulin
HBsAg	Hepatitis B Surface Antigen
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
IHIMS	Integrated Health Information Management System
KPs	Key populations
LMIS	Logistic Management Information System
MCH	Maternal and Child Health
MNCH	Maternal, Newborn, and Child Health
MoHFS	Ministry of Health and Food Safety
NCASC	National Center for AIDS and STD Control
NDHS	National Demographic Health Survey
NHEICC	National Health Education Information and Communication Center
NPHL	Nepal Public Health Laboratory
NESC	National EMTCT Steering Committee
NMS	National Medical Standard
NPR	Nepalese Rupee
NTWG	National Technical Working Group
NVC	National Validation Committee
PAMS	Public Assets Management System
PEPFAR	President's Emergency Plan for AIDS Relief
PHD	Provincial Health Directorates
PICT	Provider-Initiated Counselling and Testing
PLHIV	People Living with HIV
PMTCT	Prevention of Mother-To-Child Transmission
RCA	Root Cause Analysis
RDQA	Routine Data Quality Assurance
RDT	Rapid Diagnostic Test
SDG	Sustainable Development Goals
SEARO	South-East Asia Region
STIs	Sexually Transmitted Infections
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Executive Summary

The Constitution of Nepal guarantees the fundamental right of every child to health and a life free from disease. As the 2030 deadline for the Sustainable Development Goals (SDGs) approaches, the Government of Nepal (GoN) reaffirms its commitment to ensuring that no child in the country is born with HIV, syphilis, or hepatitis B. This National Roadmap for the Triple elimination of mother-to-child transmission (EMTCT) of HIV, syphilis and hepatitis B provides the strategic framework to operationalize this commitment and guide coordinated action across federal, provincial and local levels.

Nepal has achieved significant milestones in controlling HIV and expanding immunization coverage. In 2019, the country was certified for achieving hepatitis B control among children through vaccination. However, persistent gaps remain, particularly in syphilis screening during ANC, hepatitis B screening during pregnancy, hepatitis B birth dose administration, private sector reporting and follow-up of exposed infants. These gaps indicate that disease-specific approaches alone are insufficient and that HIV, syphilis and hepatitis B services must be integrated within MNCH (Maternal, Newborn, and Child Health) platform through a standardized minimum package of care.

Vertical transmission of HIV, syphilis and hepatitis B occurs during pregnancy, childbirth and breastfeeding and prevention depends on common service delivery platforms including antenatal, delivery, postnatal, newborn, immunization and follow-up services. Therefore, this roadmap promotes a strategic shift towards integrated service delivery through a One-Stop Shop model within the MNCH platform. Under this model, every pregnant women should receive timely counselling, screening, treatment initiation or referral and documentation for HIV, syphilis and hepatitis B while every exposed infant should receive appropriate prophylaxis, vaccination, follow-up testing, and final outcome documentation.

To realize these goals, the roadmap is organized around four strategic pillars framework for elimination of mother to child transmission. First, primary prevention of infection and vertical transmission will be strengthened through prevention education, counselling, hepatitis B vaccination, risk reduction, partner testing and linkage to services for women and girls of reproductive age, pregnant and breastfeeding women, key populations, migrants, adolescents and other vulnerable groups. Second, sexual and reproductive health linkage and integration will be advanced by integrating family planning, STI prevention, reproductive health counselling and triple EMTCT services within ANC, postnatal care, HIV, STI, hepatitis and reproductive health platforms. Third, essential maternal EMTCT services will be standardized through the triple EMTCT minimum service package including HIV, syphilis and hepatitis B screening during the first ANC, timely counselling, treatment initiation, referral, laboratory confirmation, viral load testing where indicated and uninterrupted availability of essential commodities. Fourth, infant, child and partner services will ensure continuity of prevention, care, testing, vaccination, treatment, partner services and final outcome documentation for exposed infants, children, partners and families.

These four pillars will be supported by cross-cutting implementation measures, including strengthened laboratory and diagnostic systems, reliable commodity forecasting and supply chain management, integrated strategic information and surveillance, case-based mother-baby pair tracking, private sector reporting, community engagement, male partner involvement, sustainable financing and clear governance and accountability across federal, provincial and local levels.

National progress will be monitored through a phased validation readiness pathway aligned with WHO EMTCT validation requirements. The roadmap uses WHO-aligned impact and process indicators as national validation benchmarks, while annual progress will be assessed against Nepal's baseline data and routine monitoring systems. By 2030, Nepal aims to achieve and sustain the required impact targets: 50 or fewer new paediatric HIV infections per 100,000 live births, 50 or fewer congenital syphilis cases per 100,000 live births and HBsAg prevalence of less than 0.1 percent among children. To reach these targets, the roadmap prioritizes progressive scale-up of HIV, syphilis and hepatitis B testing in pregnancy, treatment coverage, timely hepatitis B birth dose, HepB3 coverage, exposed infant follow-up and case-based mother-baby pair tracking.

This roadmap positions Triple Elimination not merely as an expenditure, but as a high-return investment in the health and future human capital of Nepal. Total annual programme implementation costs are projected to scale from approximately NPR 944 million in 2026 to NPR 1.31 billion by 2030. Including research and assessments, the annual cost reaches 949 million in 2026 to 1.38 billion in 2030. Transitioning to a dual testing strategy is a major efficiency measure, estimated to yield annual savings exceeding NPR 159 million compared to isolated disease testing. While the government values support from development partners, there is a commitment to progressively increase domestic budget allocations to ensure long-term sustainability.

Success requires disciplined execution across all tiers of government. At the federal level, the Ministry of Health and Food Safety (MoHFS) will provide strategic oversight, policy guidance, data monitoring, financing, and coordination with donors and partners, while harmonizing regulations for private sector compliance and securing procurement pipelines. At the provincial level, Provincial Health Directorates are tasked with programmatic responsibilities, including the supervision and monitoring of program implementation, quality assurance, establishing training hubs, and managing supply chains to prevent stockouts. At the local level, local governments will utilize grants to lead micro-planning, execute service delivery, conduct case finding, and ensure every pregnant woman is identified and linked to institutional care.

Achieving Triple EMTCT by 2030 will require coordinated leadership, sustained financing, accountable implementation, private sector alignment and meaningful engagement of communities, civil society, professional associations and development partners.

CHAPTER-1

INTRODUCTION

1.1 Background

Vertical transmission of Human Immunodeficiency Virus (HIV), syphilis, and hepatitis B constitutes a significant public health challenge worldwide.[1,2] These infections contribute to preventable maternal and child morbidity and mortality.[3] The transmission of these three diseases from mother to child shares a common route and requires similar service delivery platforms, primarily antenatal care (ANC), Intrapartum care and Post natal care by skilled health professional/skilled birth attendance, and follow-up for both mother and child health.[3]

Globally, the WHO has established the goal of the Triple EMTCT to encourage countries to move beyond vertical programs and adopt person-centered, integrated service delivery. This approach aligns with the Sustainable Development Goals (SDGs) and the Global Health Sector Strategies on HIV, viral hepatitis, and sexually transmitted infections (STIs) for the period 2022-2030.[4–6]

In Nepal, significant progress has been made in the national HIV response[7], with the country classified as having a concentrated epidemic. However, the burden of viral hepatitis, as shown in a hospital-based retrospective study conducted in a tertiary care hospital in Nepal from 2012 to 2023, states that the incidence of hepatitis B virus was between 2.5-3.1%[8], and STIs[9] remains a concern. Hepatitis B requires specific attention due to the need for timely birth-dose vaccination, while syphilis poses risks for adverse birth outcomes.[10] This roadmap serves as the guiding framework to consolidate efforts, ensuring that no child in Nepal is born with HIV, syphilis, or hepatitis B.

1.2 Rationale for a National Roadmap

While Nepal has existing guidelines for HIV, Syphilis, Safe Motherhood, and Immunization, the services for these three diseases have historically functioned in parallel rather than in a fully integrated manner. A unified roadmap is required to synchronize testing algorithms, supply chain management, and data reporting systems.

Nepal's commitment to both global and national agendas further reinforces the need for an integrated national roadmap. Globally, this roadmap aligns with the SDGs, particularly SDG 3.3, which calls for ending the epidemics of AIDS and combating viral hepatitis and other communicable diseases, and SDG 3.7, which emphasizes universal access to sexual and reproductive health care services. It is also consistent with the WHO Global Health Sector Strategies on HIV, viral hepatitis, and sexually transmitted infections (2022-2030) and the WHO framework for triple elimination of mother to child transmission.

At the national level, this roadmap operationalized the commitments outlined in Nepal's National HIV Strategy and the National Strategy for viral hepatitis B and C (2023-2030), as well as the safe motherhood and newborn health roadmap. By consolidating these commitments into a unified implementation framework, the roadmap ensures coherence across disease-specific programs and accelerates progress toward achieving EMTCT validation targets.

Therefore, this roadmap is not merely a policy declaration but an operational necessity to bridge the gap between national commitments and frontline service delivery. It provides a unified framework for integrating HIV, syphilis and hepatitis B services within MNCH platform, strengthening laboratory and referral systems, improving commodity security, harmonizing data systems and ensuring validation readiness for triple EMTCT.

1.3 Roadmap Development Process

This roadmap was developed through a structured and consultative process led by the NCASC, in coordination with relevant divisions and centers of MoHFS. The process included a review of national policies, strategies, guidelines, routine programme data, global and regional EMTCT guidance, WHO validation criteria and relevant evidence on HIV, syphilis, hepatitis B, maternal and newborn health, immunization, laboratory systems, financing and health information systems.

Stakeholder consultations and qualitative interviews were conducted with representatives from federal, provincial, local, facility, partner, civil society, community and beneficiary groups to identify operational gaps, implementation opportunities and system level bottlenecks. Input from these consultations informed the situation analysis, strategic priorities, minimum package of care, governance arrangements, monitoring and evaluation framework, costing approach and implementation plan.

The draft roadmap was further refined through technical review and feedback from government entities, development partners and subject matter experts. This consultative process ensured that the roadmap is aligned with national priorities, WHO validation requirements, Nepal's federal health system and the practical realities of service delivery.

1.4 Objectives of Roadmap

The overall objective of this roadmap is to guide Nepal in eliminating mother to child transmission of HIV, syphilis and hepatitis B as a public health threat by 2030 in line with WHO validation criteria and national sector commitments.

The specific objectives are:

1. Achieve and sustain triple EMTCT impact and process targets by reducing mother to child transmission of HIV, congenital syphilis, and hepatitis B infection to levels that meet WHO validation criteria, while maintaining high coverage of antenatal care, testing, treatment, prophylaxis, vaccination and follow-up services.
2. Institutionalize an integrated triple EMTCT service package across the MNCH platform by ensuring that HIV, syphilis and hepatitis B screening, counselling, treatment initiation, infant prophylaxis, vaccination and follow-up are routinely delivered through antenatal, delivery postnatal, newborn, and child health services at all appropriate level of care.
3. Strengthen the health system components required for triple EMTCT implementation by improving laboratory and diagnostic capacity, referral system, commodity forecasting and supply chain management, health workforce competencies and quality assurance mechanisms across federal, provincial, local, public and private service delivery platforms.
4. Establish a robust monitoring, evaluation, surveillance and learning system capable of tracking the full mother-baby cascade for HIV, syphilis and hepatitis B, monitoring progress against national and WHO validation targets, identifying service gaps, and generating evidence for timely corrective action.
5. Strengthen governance, accountability and sustainable financing for triple

elimination by clarifying the roles and responsibilities of federal, provincial, and local governments, promoting coordinated partner support, ensuring private sector reporting and compliance and progressively securing domestic resources for essential EMTCT commodities and services.

6. Ensure equitable, right based and stigma free access to triple EMTCT services by prioritizing women and infants in undeserved, hard to reach and high-risk settings, including key populations, migrants communities, adolescents and vulnerable groups.

1.5 Scope and Implications

This document serves as the primary strategic guidance for the MoHFS, and its entities, Provincial Health Directorates (PHD), and Local Level Health Sections.

- **For the federal level:** It outlines the regulatory requirements, procurement strategies, and validation criteria.
- **For the provincial level:** It guides the allocation of health budgets, training of human resources, and management of supply chains.
- **For the local level:** It provides the operational standards for health posts and primary health care to deliver the "minimum service package" for antenatal and postnatal care.
- **For partners:** It aligns technical and financial assistance with national priorities to avoid duplication of efforts.

This roadmap covers the period 2026-2030 and applies to all public and private health facilities providing maternal and child health services in Nepal.

CHAPTER-2

SITUATION ANALYSIS

2.1 Global and Regional Overview

The Triple EMTCT of HIV, syphilis, and hepatitis B constitutes a priority within the global health agenda.[3] The WHO defines triple elimination as a public health achievement where the vertical transmission rates of three diseases are reduced to levels that no longer constitute a public health threat.[4]

Globally, progress remains uneven. HIV vertical transmission rates have declined significantly due to the scale-up of antiretroviral therapy (ART) in pregnancy.[11] Also, it is equally important to strengthen HIV prevention efforts for the key population, as shown in Figure 1. Congenital syphilis rates have seen a concerning resurgence in several regions.[12] Hepatitis B prevention relies heavily on birth dose vaccination, yet global coverage of the timely birth dose (administered within 24 hours) remains suboptimal.[13]

In the Southeast Asia Region (SEARO), member states have committed to the Regional Framework for Triple Elimination (Table 1).[6] Thailand and Sri Lanka have achieved validation for the elimination of mother to child transmission of HIV and syphilis, while the Maldives has achieved WHO validation for triple EMTCT of HIV, syphilis and hepatitis B.[14] This achievement positions the Maldives as a regional and global reference point for integrated EMTCT programming.The SEAR holds third place amongst WHO regions in terms of the number of people living with hepatitis B, with an estimated 39 million people affected (Figure 2).[15]

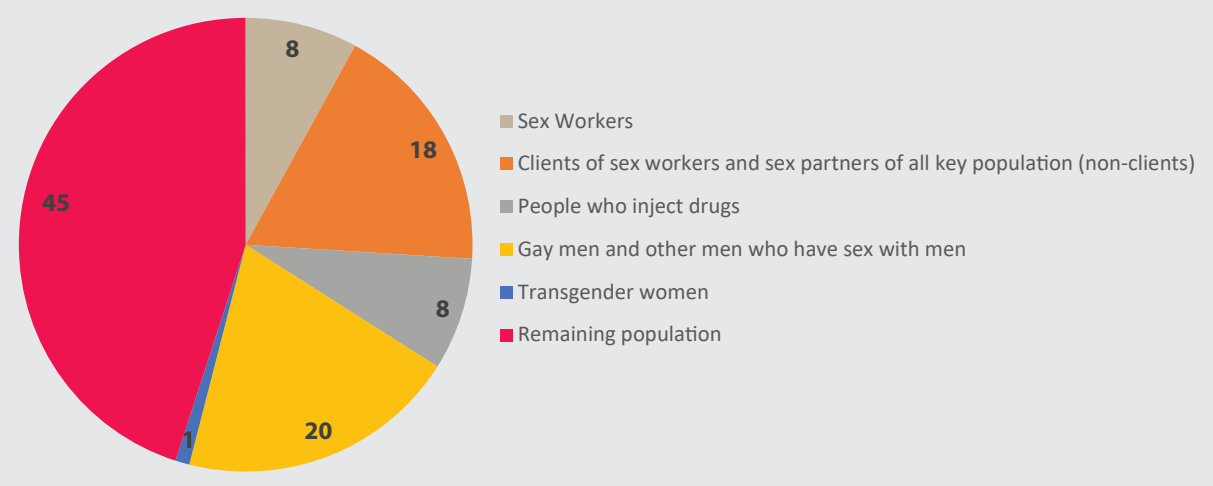
Nepal aims to join these nations by aligning its national metrics with SEARO targets, which emphasize high coverage of ANC, testing, and treatment.

Table 1: HIV/Syphilis/Hepatitis B policy adoption in Southeast Asia region member states

Policy	Nepal	Bangladesh	Bhutan	India	Indonesia	Maldives	Myanmar	Sri Lanka	Thailand	Timor Leste
EMTCT policy	Single	Dual	Stand alone	Dual	Triple	Triple	Dual	Dual	Triple	Triple

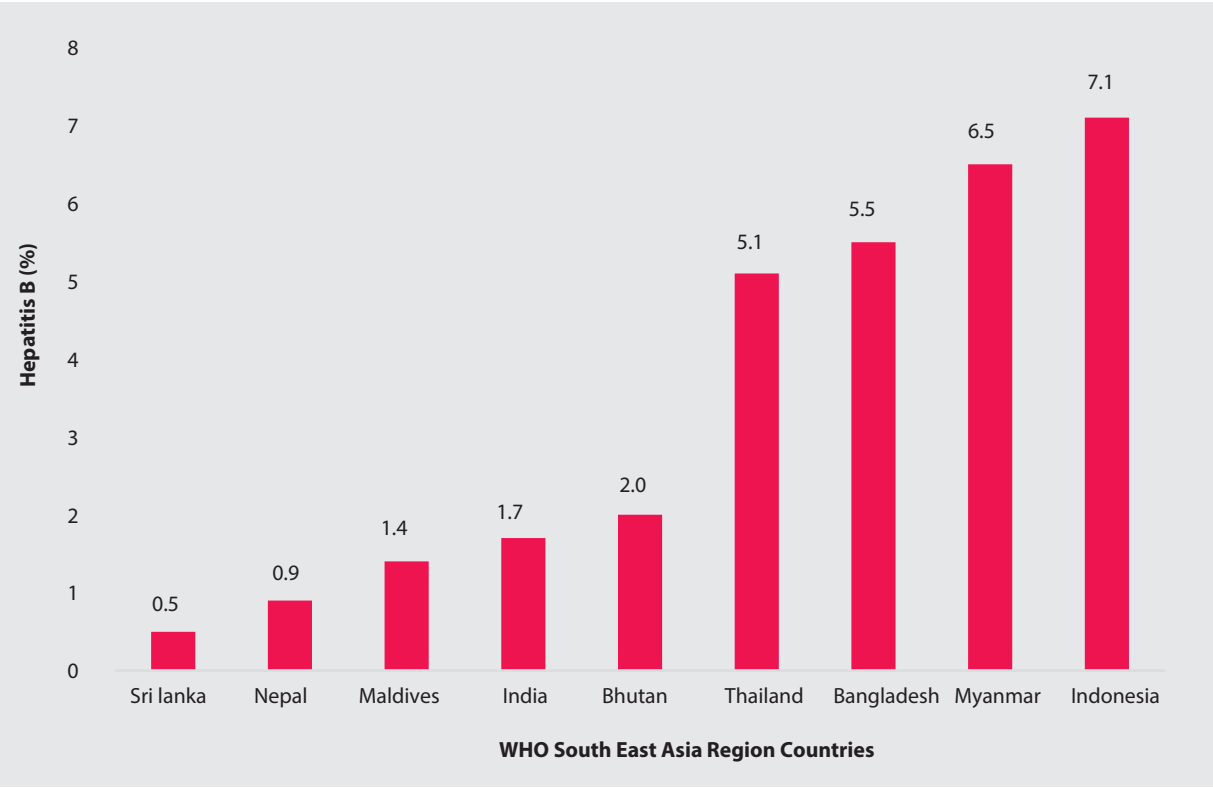
UNICEF, UNAIDS, WHO. Regional roadmap for the triple elimination of mother-to-child transmission of HIV, syphilis and hepatitis B in the Asia and Pacific Region for 2024–2030.[6]

Figure 1: Distribution of new HIV infections among key populations and their partners, global, 2022



Source: World Health Organization. Implementing the global health sector strategies on HIV, viral hepatitis, and sexually transmitted infections, 2022–2030: report on progress and gaps 2024, second edition. Geneva; 2024.[16]

Figure 2: Hepatitis B prevalence in the WHO Southeast Asia region Countries



Source: Ramasamy S, Raghavan B, Pavithran S, Misra S, Susindran B, Lahariya C. Eliminating Viral Hepatitis from India and Southeast Asia by 2030: Challenges and Ways Forward. Preventive Medicine: Research & Reviews. 2024 Apr;1(2):84[17]

2.2 National Context: Epidemiology and Disease Burden

Nepal is characterized by a concentrated HIV epidemic[18], a low prevalence of hepatitis B burden in the general population[19], and a fluctuating trend in syphilis prevalence is based on the desk review (Annex 3).[20–22]

2.2.1 HIV

Nepal has a concentrated HIV epidemic, with an estimated adult HIV prevalence of 0.13% among people aged 15 to 49 years. Although antenatal HIV testing is widely reported through routine programme systems, coverage estimates differ depending on the data source and indicator definition. As PMTCT coverage is a WHO validation indicator and is also reported globally, the roadmap will use a harmonized national data source for validation reporting, agreed by NCASC, FWD, Management division and relevant technical partners.

The priority for HIV within the triple EMTCT roadmap is therefore not only to sustain high antenatal testing coverage, but also to close gaps across the full prevention cascade, including early identification of pregnant women living with HIV, timely ART initiation and continuation, viral load monitoring, safe delivery practices, infant prophylaxis, early infant diagnosis, and final infant outcome documentation. These elements are essentials for achieving and validating elimination of mother to child transmission of HIV.

Given the need for validation ready reporting, detailed targets and indicators for HIV should be presented within the roadmap's monitoring, evaluation, and validation framework rather than in the epidemiological background section. The indicator set should prioritize WHO validation impact and process indicators, supported by clearly defined numerators, denominators, data sources, frequency of reporting and institutional responsibilities for annual monitoring.

The estimated prevalence of HIV among adults (15-49 years) in Nepal is 0.13%.[23] In the Nepali fiscal year 2081/082, the estimated number of pregnancies was 616,351, of which 602,175 (98%) had done PMTCT testing. Also, 132 HIV positive pregnant women received antiretroviral therapy to reduce the risk of mother-to-child transmission of HIV.[23]

However, the burden is significantly higher among key populations (KPs). This concentrated nature implies that vertical transmission risks are often higher among women from KP groups or partners of KP groups. The national estimated vertical transmission rate has declined, yet gaps remain in early infant diagnosis (EID) and retention of mothers on ART post delivery. Also, Table 2 shows national indicators for HIV, which include the baseline and target coverage.

Table 2: National Indicators for HIV

Interventions	Baseline		Target Coverage (%)				
	Coverage	Source	2026	2027	2028	2029	2030
ART coverage among pregnant and breastfeeding women living with HIV	66.8	SPECTRUM 2024 data	76.1	80.8	85.6	90.3	95.0
Viral load testing for HIV positive pregnant women	91.0	Estimated based on secondary literature[24]	92.3	93	93.7	94.3	95.0
EID of 4-6 weeks for HIV exposed newborns	51.0	Estimates[25]	65.7	73	80.3	87.7	95.0

Interventions	Baseline		Target Coverage (%)				
	Coverage	Source	2026	2027	2028	2029	2030
Antiviral prophylaxis for 6-16 weeks for HIV exposed newborn (per day)	75.0	Estimated based on secondary literature[24]	81.7	85.0	88.3	91.7	95.0
Co-trimoxazole prophylaxis after cessation of exposure (per month)	67.0	Estimated extrapolated based on secondary literature[26]	76.3	81.0	85.7	90.3	95.0
18-month antibody testing for HIV exposed infants	62.0	Extrapolated from a study in a similar setting[27]	73.0	78.5	84.0	89.5	95.0

2.2.2 Syphilis

Syphilis prevalence among pregnant women has shown variability in recent years. Sentinel surveillance and routine program data indicate a fluctuating prevalence across districts.[21,22] Unlike HIV, syphilis screening often faces commodity insecurities, leading to underdiagnosis.[28] Left untreated, maternal syphilis poses a high risk of stillbirth and neonatal mortality.

There are national indicators for syphilis for pregnant women testing during the ANC and other treatment indicators, which are listed in Table 3.

Table 3: National Indicators of Syphilis

Indicators	Baseline (%)	Source	Target (%)				
			2026	2027	2028	2029	2030
Percentage of pregnant women tested for syphilis during pregnancy	22.9	Integrated Health Information Management System (IHIMS) 2020/2081	46.9	58.9	71	83	95.5
Proportion of syphilis-seropositive pregnant women treated with at least one dose of penicillin in a timely manner	32.4	Based on Global Health Observatory data[29]	53.3	63.7	74.1	84.6	95.0
Penicillin treatment for syphilis-exposed infants	32.4	Assumption that the proportion of exposed infants treated is equivalent to % of exposed mothers treated	53.3	63.7	74.0	85.0	95.0
Testing for syphilis-exposed infants	32.4		53	63.7	74.0	84.6	95.0

2.2.3 Hepatitis B

National data suggest a hepatitis B surface antigen (HBsAg) ANC prevalence of roughly 0.9% in the general population (Table 4).[19] However, specific pockets in the mountain regions and among certain ethnic groups show higher prevalence. The primary prevention strategy in Nepal has been the pentavalent vaccine (given at 6, 10, and 14 weeks).[30] The absence of a universal birth-dose vaccination in the routine immunization schedule remains the single largest gap in the hepatitis B elimination strategy. Similarly, Table 5 shows national indicators for hepatitis B for testing and treatment.

Table 4: Prevalence of Hepatitis B in Nepal

Population	Percentage
General Population	0.9
Children Under Five	0.3
Pregnant Women	0.5

National Centre for AIDS and STD Control. NATIONAL STRATEGY FOR VIRAL HEPATITIS B AND C 2023-2030. Kathmandu; 2023[19]

Table 5: National Indicators of Hepatitis B

Indicators	Baseline (%)	Source	Target (%)				
			2026	2027	2028	2029	2030
HBV DNA (HBV viral load) test for HBsAg-positive pregnant women	20.0	Average based on secondary literature[31]	45.0	57.5	70.0	82.5	95.0
Hepatitis B e-antigen testing for HBsAg-positive pregnant women	15.0	Assumed to be slightly less than Hepatitis B virus DNA testing	41.67	55.0	68.33	81.67	95.0
Proportion of HBV-infected pregnant women receiving antiviral prophylaxis	<1.0	Estimated based on data from the Center for Disease Analysis (CDA) foundation[13], the number of expected pregnancies adjusted for abortion rate and miscarriage rate from the National Demographic Health Survey (NDHS) 2022 for estimating total births.	32.3	48.0	63.7	79.3	95.0
Hepatitis B birth-dose coverage	<1.0		NA	24.5	48.0	72.0	95.0
Hepatitis B Immunoglobulin (HBIG) for infants of HBsAg + pregnant women	<1.0		32.3	48.0	63.7	79.3	95.0
HepB3 (3-dose infant vaccine) coverage	97.0		97.0	97.0	97.0	97.0	97.0
Hepatitis B serological testing at 9-12 months for Hepatitis B-exposed infants	<1.0		32.3	48.0	63.7	79.3	95.0

2.3 Status of the National Response

Nepal integrates EMTCT interventions primarily within the Safe Motherhood and Reproductive Health Program. The "cascade of care" involves four steps:

(1) ANC attendance

(2) Testing for all three diseases

(3) Treatment for positive cases

(4) Prophylaxis/Vaccination for the exposed infant

2.3.1 Antenatal Care Coverage

The cornerstone of EMTCT is institutional delivery and ANC. While national data indicate that a 94% percentage of women receive at least one ANC visit.[32] The retention for the protocol-compliant four visits (ANC4) is 84%, which requires improvements to ensure adequate touchpoints for testing and treatment.[10]

2.3.2 Testing and Treatment Gaps

Programmatic data reveals a discordance between ANC enrollment and testing coverage. While HIV testing coverage in ANC has

improved.23 Simultaneous testing for syphilis and hepatitis B is inconsistent.

- **HIV:** Testing is widely available at birthing centers, but community-based testing for pregnant women who do not access formal care is limited.
- **Syphilis:** Dual HIV/Syphilis rapid tests are being scaled up[33], but supply chain interruptions frequently force facilities to prioritize HIV testing over syphilis screening. Antenatal screening for syphilis in Nepal remains low due to barriers like lack of knowledge and due to shame and fear of judgement.[34]
- **Hepatitis B:** Screening is largely limited to higher-level facilities (hospitals). Most peripheral health posts lack the rapid diagnostics for HBsAg, meaning many rural women are never screened.

2.4 Operational Realities and Systematic Bottlenecks

A recent assessment of the national program has identified critical structural barriers that hinder the full realization of triple elimination. These findings highlight the disconnect between policy intent and field-level implementation.

Data Comprehensiveness and the Private Sector

A significant limitation in the current surveillance architecture is the lack of reporting from private healthcare facilities. A substantial proportion of pregnant women seek ANC in private nursing homes and clinics due to perceived convenience or quality. These facilities often do not report into the national HMIS, resulting in an underestimation of the true testing and treatment coverage. Consequently, complicating the validation of elimination targets.

Workforce Capacity and Service Integration

While the policy mandate advocates for integrated care, frontline service delivery remains fragmented. Capacity assessments indicate that in-service training curricula have not been comprehensively updated to reflect the triple elimination framework since the previous vertical program updates. As a result, health workers at the peripheral level often prioritize obstetric parameters and routine immunization, lacking the updated technical skills to conduct integrated counseling and testing for all three diseases simultaneously.

Supply Chain Coordination

Operational efficiency is frequently compromised by coordination gaps between federal procurement and provincial distribution mechanisms. Peripheral facilities report intermittent stock-outs of essential commodities, particularly benzathine penicillin and tenofovir. These interruptions undermine the "test and treat" strategy, as timely treatment cannot be guaranteed even when screening occurs.

Nepal possesses a foundation health infrastructure to achieve triple elimination. However, the current situation is defined by high ANC coverage but lower effective coverage for comprehensive testing and treatment. The critical barriers are not merely epidemiological but operational: the lack of a universal birth dose for hepatitis B, the invisibility of private sector data, and the legacy of vertical programming. Addressing these systemic gaps is the prerequisite for moving from control to elimination.

CHAPTER-3

OPPORTUNITIES AND BOTTLENECKS

3.1 Opportunities

Despite the challenges in the current operating environment, Nepal is well-positioned to accelerate progress toward triple elimination. Several strategic opportunities exist within the current federal health structure that can be leveraged to optimize service delivery.

3.1.1 Decentralized Health Governance

The transition to a federal structure provides a unique opportunity for local ownership of health programs. Local governments now have the authority to allocate budgets specifically for maternal and child health interventions.

- **Strategic Advantage:** Provincial Health Logistic Management Center can procure test kits and manage the supply chain more responsively, provided they have technical guidance. This allows for micro-planning where resources are directed to specific wards with high home-delivery rates or low immunization coverage.

3.1.2 Integration into Existing MNCH Platforms

The physical infrastructure for triple elimination is largely in place. The high acceptance of childhood immunization offers a critical entry point for hepatitis B interventions. In addition, according to the 2030 roadmap for safe motherhood and newborn health in Nepal, HIV and syphilis screening should be routinely carried out together during ANC visits for pregnant women.[35]

- **Strategic Advantage:** As noted in operational assessments, the expanded programme on immunization, MNCH clinics, are well attended. Strengthening the link between the birth dose vaccination and the maternal post-natal check-up can close the coverage gap for hepatitis B prevention without requiring new infrastructure.

3.1.3 Maturity of the HIV Response

Nepal's HIV program has established a robust mechanism for community-led monitoring and differentiated service delivery.

- **Strategic Advantage:** The networks of people living with HIV (PLHIV) and key populations are highly organized. These networks can be expanded to support syphilis and hepatitis B case finding, ensuring that the Triple Elimination agenda benefits from the advocacy and peer-support models successfully used in the HIV sector.

3.1.4 Health Insurance Program as a platform for financial protection

Nepal's health insurance program provides an important opportunity to improve financial protection for pregnant women and their families. The benefits package covers a range of screening, diagnostic and treatment services relevant to HIV, hepatitis B and syphilis. Aligning triple EMTCT services with the health insurance program can help reduce out of pocket expenditure, improve timely access to diagnostic and treatment services, and support equitable service utilization across public and private health facilities.

3.2 Consolidated Challenges and Root Causes

Despite these opportunities, Nepal faces several interrelated health system challenges that must be addressed to achieve triple EMTCT validation. To avoid duplication, the key bottlenecks are consolidated below under thematic areas covering service delivery, workforce capacity, health information system, supply chain management, financing and governance.

To move from the current state to validation, Nepal must address a set of interconnected health system challenges. These challenges were identified through desk review and multi-stakeholder consultations and are consolidated below to highlight the root causes that require coordinated action across federal, provincial, local, public and private sectors.

3.2.1 Service Delivery and Private Sector Engagement

- **Bottlenecks:** A substantial proportion of pregnant women seek antenatal, delivery and postnatal services from private health facilities. Ensuring that services delivered through the private sector are consistently aligned with national EMTCT guidelines, including triple testing, treatment, referral and reporting protocols remains a key implementation challenge.
- **Root cause:** Public-private collaboration for triple EMTCT is not yet sufficiently institutionalized. While private facilities plays an important role in maternal and newborn health service delivery, mechanisms for routine orientation, supportive supervision, standardized reporting, referral linkage and access to nationally recommended commodities require further strengthening. Strengthening these mechanisms will help ensure that pregnant women receiving care in private facilities benefit from the same national standard of triple EMTCT services as those receiving care in public facilities.

3.2.2 Health Workforce Capacity

- **Bottlenecks:** Frontline health workers require clearer technical guidance and practical support to manage positive cases, particularly for hepatitis B and syphilis. For hepatitis B, national clinical management guidelines are not yet fully established and protocols for managing hepatitis B in pregnancy have not been widely disseminated. Referral pathways for confirmatory testing, viral load testing. Specialist assessment, antiviral prophylaxis and follow up of exposed infants also remain insufficiently defined.
- **Root Cause:** Technical training, guidance and referral systems have not kept pace with requirements of triple EMTCT implementation. Although disease specific training has been provided under different programs, updates have been uneven and have not consistently addressed integrated management of HIV, syphilis and hepatitis B in pregnancy. This contributes to variable provider confidence, unnecessary referrals, delays in case management and potential loss to follow-up. Residual stigma and limited providers confidence in counseling for HIV and STI may further affect the quality and continuity of care.

3.2.3 Health Information Systems (HIS)

- **Bottlenecks:** Data fragmentation prevents a real-time view of the triple elimination cascade. While HIV related reporting is supported through both case based and aggregated systems and STI related indicators have recently been updated and incorporated into HMIS in aggregated form, hepatitis B indicators are not yet fully integrated into HMIS. This limits the ability to track HBsAg screening, confirmatory testing, viral load testing where indicated, maternal antiviral prophylaxis and follow-up testing for hepatitis B exposed infants.

- **Root Cause:** The reporting systems for HIV (case-based and aggregate) and MNCH (aggregate, indicator-based) are not fully interoperable. Furthermore, the absence of a unique identifier for the mother-baby pair in MNCH program makes it difficult to track the long-term outcomes of exposed infants, a critical requirement for WHO validation. These gaps are critical because longitudinal tracking of the mother-baby pair is required for validation of elimination of mother to child transmission.

3.2.4 Supply Chain Management

- **Bottlenecks:** Peripheral facilities report intermittent stock-outs of test kits (HIV/Syphilis) and essential medicines, while hepatitis B commodities remain insufficiently institutionalized within the national supply chain. HBsAg test kits and antivirals for eligible pregnant women are not yet fully integrated into a standardized national procurement and supply system and procurement may occur sporadically at the level of individual hospitals. This creates risks of uneven availability, delayed testing and treatment and inequitable access across provinces and facility level.
- **Root Cause:** Forecasting at the provincial level is often misaligned with actual consumption at the facility level. The push-pull mechanism for commodities suffers from coordination delays between federal procurement and provincial distribution centers.

3.2.5 Financing and Sustainability

- **Bottlenecks:** Financing for triple EMTCT remains fragmented across disease specific programmes and levels of government. While HIV related commodities and activities continue to depend on external financing, syphilis and hepatitis B services also require predictable domestic funding for test kits, medicines, vaccines, laboratory services, training, supervision and monitoring. In the absence of a clearly risks of uneven services availability and delayed scale-up.
- **Root Cause:** Responsibilities for financing, procurement, implementation and accountability for triple EMTCT are not yet clearly defined across the federal, provincial and local levels. This creates uncertainty regarding which level of government is responsible for budgeting specific commodities, supporting service delivery, ensuring referral linkages, supervising private sector compliance and monitoring progress. Clarifying these responsibilities is essential for sustainable financing, coordinated implementation and equitable access to triple EMTCT services nationwide.

CHAPTER-4

STRATEGIC FRAMEWORK FOR TRIPLE EMTCT

4.1 Vision, Mission, Goal, Targets, and Objective

This strategic framework outlines the high-level direction for the National Roadmap. It connects the situational analysis with the operational plan.

Vision: Nepal free of new HIV, syphilis, and hepatitis B infections among children. The Government of Nepal envisions a future where every child is born free of preventable vertical transmission, and every mother has access to dignified, integrated, and comprehensive reproductive health services.

Mission: To eliminate the vertical transmission of HIV, syphilis, and hepatitis B as a public health threat by 2030 through the provision of universal, equitable, and high-quality integrated health services for all pregnant women and their infants.

Goals and Targets: In line with the existing strategies and guidelines for HIV, syphilis and hepatitis B of the NCASC and FWD, the WHO Triple Elimination Validation Targets are hereby adopted as the national performance indicators for the period 2026-2030. Details of each indicator's baseline, target and source are provided in annex 1.

Impact Targets (The gold tier commitment): The Government commits to achieving and maintaining the following impact indicators by 2030.

- **HIV:** Reduce new pediatric HIV infections to ≤50 per 1,00,000 live births; Reduce MTCT rate of HIV of <2% in non-breastfeeding populations OR <5% in breastfeeding populations.
- **Syphilis:** Reduce congenital syphilis cases to ≤50 per 1,00,000 live births.
- **Hepatitis B:** Reduce HBsAg prevalence in the ≤5-year-old cohort to <0.1%.36

Process Targets (Service coverage)

To achieve the above impact, the health system is mandated to reach the following coverage thresholds in every province:

- **Testing coverage:** ≥95% ANC coverage (at least one visit- ANC-1); ≥95% of pregnant women tested for HIV, syphilis, and HBsAg testing.
- **Treatment Coverage:** ≥95% of infected women receiving appropriate treatment (ART, Penicillin, Tenofovir)
- **Vaccination:** ≥90% of exposed infants receiving the Hepatitis B birth dose within 24 hours.[36]

Maternal Treatment

- ≥95% ART coverage of pregnant women living with HIV
- ≥95% adequate treatment of syphilis-seropositive pregnant women
- ≥90% coverage with antivirals for eligible HBsAg-positive pregnant women with high viral loads (plus coverage of HBV-exposed babies with hepatitis B immune globulin (HBIg), where available).

Infant HBV Vaccination

- ≥90% coverage with three doses of HBV infant vaccinations (HepB3)[a]

a. Generally for vaccination, a five-year period of sustainability is required to be able to measure impact via serosurveys

- ≥90% Hepatitis B timely birth dose coverage (with universal programme) or infants at-risk[b] (with targeted timely Hepatitis B birth dose).

Strategic Objectives

1. **Objective 1:** Scale up equitable access to high-quality, integrated testing, treatment, and prevention services for HIV, syphilis, and hepatitis B within MNCH platforms.
2. **Objective 2:** Strengthen health systems (laboratory, supply chain, and human resources) to support the uninterrupted delivery of Triple Elimination services.
3. **Objective 3:** Strengthen surveillance systems and enhance data quality to accurately track the cascade of care and document validation readiness.
4. **Objective 4:** Promote an enabling environment that protects human rights, ensures gender equality, and reduces barriers to access for KPs.

4.2 Guiding Principles

The implementation of this roadmap shall be governed by the following core principles:

- **Country ownership and government leadership:** This roadmap is a government-owned initiative. While partners provide technical support, planning, budgeting, implementation and execution are the primary responsibilities of the Federal, Provincial, and Local governments.
- **Integrated Service Delivery:** All services must be delivered through the integrated MNCH platform.
- **Equity and rights:** No woman shall be denied services based on age, ethnicity, geography, disability, marital status, HIV status, occupation and other social vulnerability. The MoHFS and its entities enforce a zero-tolerance policy for stigma and discrimination in health facilities.
- **Evidence-based decision making:** Strategies are driven by disaggregated data, WHO validation requirements, national programme evidence, implementation learning and best scientific practices.
- **Coordination and accountability:** Triple EMTCT implementation requires a clear coordination mechanisms and defined accountability across federal, provincial and local levels. Role, responsibilities, reporting and review mechanisms will be clarified to ensure that commitments translate into timely implementation, resource allocation, service delivery and corrective action.
- **Coordination and partnership:** Effective implementation relies on coordinated engagement with development partners, civil society, professional associations, private sector providers and communities. Collaboration between programme units responsible for HIV, STIs, hepatitis, immunization, maternal and newborn health, laboratory services, supply chain and health information systems will be harmonized across all levels.
- **Innovation and adaptability:** Strategies will be adapted based on new evidence, emerging technologies, implementation learning and changes in service delivery needs. Innovations such as integrated diagnostics, digital tracking of mother-baby pairs, electronic reporting and differentiated service delivery models will be considered where they improve access, quality, efficiency and validation readiness.
- **Sustainability:** Triple EMTCT will be embedded within routine health systems, domestic financing mechanisms, national procurement systems, health workforce development, HMIS and MNCH service delivery platforms. This will ensure that gains are maintained beyond the roadmap period and that service remain available, affordable and equitable.

b. At-risk infants are neonates of HBsAg-positive mothers.

4.3 Theory of Change

The theory of change for this roadmap describes how Nepal will move from the current fragmented delivery of HIV, syphilis and hepatitis B services toward validated elimination of mother to child transmission by 2030. It is organized around the four core EMTCT validation domains: programme, data laboratory and human rights, gender quality, community engagement and equity (HRGECE).

The roadmap assumes that if national policies, financing, commodities, laboratory systems, data systems, trained health workers, referral mechanisms and community engagement structures are strengthened in a coordinated manner, then pregnant women and their infants will receive timely, integrated and equitable triple EMTCT services across the continuum of care. This will lead to increased coverage of testing, treatment, prophylaxis, vaccination, follow-up and final outcome documentation, ultimately reducing vertical transmission of HIV, syphilis and hepatitis B to levels that meet WHO validation criteria.

The theory of change also recognizes that achieving elimination requires more than service availability. It requires a functioning monitoring and evaluation system, quality assured laboratory and diagnostic services, reliable commodity supply chains, clear referral pathways, private sector alignment with national protocols and meaningful community participation. Community engagement is therefore included not only as an output, but also as a defined set of activities, including demand generation, peer navigation, community-led monitoring, stigma reduction and follow-up support for mother-baby pairs. The roadmap is built upon a logical framework that links specific inputs to the desired health impact, as shown in Figure 3.

Figure 3: The Triple Elimination Theory of Change

Inputs	Activities	Outputs	Outcomes	Impact
▪ Government leadership and sustainable financing. ▪ Trained health workers across all levels and functions. ▪ MNCH platforms for integrated service delivery. ▪ Adequate commodities and supplies ▪ HMIS and case based surveillance systems. ▪ Community and civil networks	▪ Deliver integrated HIV, syphilis, and hepatitis B services. ▪ Provide adequate treatment for women. ▪ Strengthen the laboratory and supply chain. ▪ Establish a robust M&E system with integration of private sector data into HMIS and regular quality assurance. ▪ Engage community, frontline health workers and civil society networks	▪ Increased testing and treatment coverage. ▪ Data reporting from all the health facilities. ▪ Functional laboratory and supply system. ▪ Community engagement mechanisms. ▪ Essential commodities available with fewer stock-outs	▪ >95% of pregnant women tested for HIV, Syphilis, and Hepatitis B ▪ >95% of infected women receiving appropriate treatment. ▪ >95% of exposed infants receive the Hepatitis B birth dose within 24 hours. ▪ Improved data quality and surveillance ▪ Reduced stigma and inequities in service access. ▪ Improved public-private and community accountability	▪ ≤50 new pediatric infections per 100,000 live births. ▪ MTCT rate of <2 (in non-breastfeeding) and <5% (in breastfeeding) populations ▪ ≤50 cases of congenital syphilis per 100000 live births. ▪ ≤0.1% HBsAg prevalence among 5-year-old children.

4.4 Strategic Pillars

The roadmap for triple elimination of mother-to-child transmission of HIV, syphilis and hepatitis B is structured around WHO four pillar framework. These pillars provide the strategic foundation for preventing new infections, strengthening sexual and reproductive health linkages, ensuring essential maternal services and providing continued services for infants, children, partners and families.

Pillar 1: Primary Prevention of Infection and Vertical Transmission

This pillar aim to reduce the risk of HIV, syphilis and hepatitis B among women and girls of reproductive age, pregnant and breastfeeding women and their partners. It emphasizes prevention, health promotion, risk reduction, vaccination, early identification and linkage to appropriate services as core components of national triple elimination response.

Strategic Actions:

- Strengthen prevention education and counselling on HIV, syphilis and hepatitis B through reproductive health, antenatal care, immunization, HIV, STI, hepatitis and community based platforms.
- Promote safer sexual practices, partner testing, risk reduction counselling and timely linkage to prevention, testing, treatment and care services.
- Strengthen hepatitis B vaccination including timely hepatitis B birth dose vaccination within 24 hours of delivery.
- Ensure prevention interventions reach adolescents, women of reproductive age, pregnant and breastfeeding women, key populations, migrants and other vulnerable groups.

Pillar 2: SRH Linkage and Integration

This pillar aims to strengthen linkages between triple elimination services and sexual and reproductive health services. It promotes integrated, right based and people centered services that support informed reproductive choices, prevention of unintended pregnancies, diagnosis and treatment of STI and continuity of care for women and girls living with or at risk of HIV, syphilis and hepatitis B.

Strategic Actions:

- Integrate family planning, contraception, STI prevention, reproductive health counselling and triple elimination services within ANC, postnatal care, HIV, STI, hepatitis B and reproductive health platforms.
- Ensure that women diagnosed with HIV, syphilis and hepatitis B receive confidential and non-discriminatory counselling on pregnancy planning, birth spacing and reproductive choices.
- Strengthen referral linkages between ANC, SRH, HIV, STI, hepatitis, immunization, laboratory, treatment and child health services.
- Improve access to integrated SRH and triple elimination services for adolescents, women living with HIV, key populations and other undeserved groups.

Pillar 3: Essential Maternal EMTCT Services

This pillar aims to ensure that all pregnant women have timely access to standardized minimum package of services for the elimination of mother to child transmission of HIV, syphilis and hepatitis B. It prioritizes early antenatal attendance, universal screening, timely treatment, referral and follow-up through test and treat approach across all levels of the health system.

Strategic Actions:

- Ensure that every pregnant women is offered HIV, syphilis and hepatitis B screening during the first antenatal visit.
- Roll out dual HIV/syphilis rapid diagnostic

test and HBsAg screening in birthing centers and antenatal care service delivery sites.

- Ensure timely confirmatory testing, counselling, treatment initiation, referral and follow-up for pregnant women with reactive or confirmed results.
- Expand laboratory capacity for confirmation of reactive cases, HIV viral load monitoring, and hepatitis B viral load testing where indicated.
- Ensure uninterrupted availability of test kits, benzathine penicillin, antiretrovirals, hepatitis B vaccines and related commodities.
- Strengthen the capacity of nurses, midwives, laboratory personnel and other frontline health workers to deliver comprehensive triple elimination services.

Pillar 4: Infant, Child and Partner Services

This pillar aim to ensure continuity of prevention, testing, treatment, care and support for infants, children, partners, households contacts and families affected by HIV, syphilis and hepatitis B. It supports follow-up from maternal diagnosis through delivery, newborn care, infant testing, vaccination, treatment and final outcome measurement.

Strategic Actions:

- Institutionalize timely hepatitis B birth dose vaccination within 24 hours of delivery for all newborns.
- Ensure follow-up testing, prevention, treatment, care and support for infants exposed to HIV, syphilis or hepatitis B.
- Strengthen partner and household testing, counselling, treatment, vaccination where appropriate and linkage to care.
- Establish system for tracking mother-baby pairs from diagnosis through treatment, delivery, infant, follow-up and final outcome measurement.
- Strengthen continuity of care between maternal health, immunization, HIV, STI, hepatitis, pediatric and community based services.

4.5 Cross-cutting Implementation Considerations

The successful implementation of four strategic pillar requires coordinated action across health systems, information systems, governance structures, financing mechanisms, private sector services, communities and families. These cross cutting areas will support implementation across ll levels of health system and ensure sustainability of the triple elimination response.

Health System Strengthening

Health System Strengthening will ensure that service delivery platforms have the capacity, commodities, trained workforce, referral systems and quality assurance mechanisms required to deliver integrated triple elimination services.

Strategic Actions:

- Expand and strengthen the laboratory network for confirmatory testing, viral load monitoring and quality assurance.
- Integrate triple elimination commodities, including test kits, benzathine penicillin, antiretrovirals, hepatitis B vaccines and related supplies, into federal and provincial level.
- Update pre service and in service training curriculum for nurses, midwives, laboratory personnel and other frontline health workers to include triple elimination competencies.

Strategic Information and Surveillance

Strategic information and surveillance systems will be strengthened to support routine monitoring, accountability, data quality and

evidence based decision making for the triple elimination programme.

Strategic Actions:

- Mandate and operationalize reporting from private sector facilities into the national HMIS.
- Establish integrated case based surveillance for tracking mother-baby pairs from diagnosis through treatment, delivery, infant follow-up and final outcome measurement.
- Use the DHIS 2 tracker system used by NCASC for HIV as a best practice example for developing an integrated electronic case based recording and reporting system.
- Strengthen routine data quality review, feedback mechanisms and use of data for planning, budgeting, supervision and performance monitoring.

Governance, Financing and Sustainability

Governance financing and sustainability mechanisms will ensure national leadership, coordination, accountability and long term ownership of the triple elimination agenda.

Strategic Actions:

- Secure domestic financing for hepatitis B birth dose vaccine, syphilis commodities and HIV related commodities, laboratory services and implementation activities.
- Establish or strengthen multisectoral coordination committees at federal, provincial and local levels to guide implementation and monitor progress.
- Define clear roles and responsibilities across federal entities, provincial and local governments, private sector providers, professional bodies, community networks and implementing partners.
- Integrate triple elimination priorities into national and subnational health plans, budgets, guidelines and review mechanisms and accountability frameworks.

Private Sector Engagement

Private sector engagement will be strengthen to ensure that women, newborns, children and families receiving services outside the public sector have access to quality assured, standardized and reportable triple elimination services.

Strategic Actions:

- Establish regulatory mechanisms to ensure that private providers adhere to national testing algorithms, treatment protocols, referral pathways and reporting standards.
- Expand mechanisms for private facilities to report into national HMIS and surveillance systems.
- Explore public private partnership models to expand access to free or subsidized test kits, treatment commodities, hepatitis B birth dose vaccination and referral services in private sector.
- Strengthen orientation, supervision and quality assurance for private facilities providing ANC, delivery, laboratory, HIV, STI and hepatitis services.

Community Engagement

Communities engagement will be institutionalized to strengthen demand generation, accountability, service quality, linkage to care and reduction of stigma and discrimination.

Strategic Actions:

- Engage networks of women living with HIV, key populations, people living with HIV, affected families and community based organization in programme planning, implementation, monitoring and review.
- Use community led monitoring to assess service quality and identify barriers such as stigma, discrimination, informal fees,

confidentiality concerns and missed opportunities for testing or treatment.

- Establish feedback mechanisms so that community identified barriers are addressed through facility, local, provincial and national review processes.
- Strengthen community based awareness, treatment literacy, linkage to care and follow up support for women, infants, partners and families.

Male Partner Involvement

Strategies will be deployed to encourage male partner testing and involvement in ANC. This will reduce the risk of maternal re-infection, improve adherence to treatment, and promote shared decision-making for child health.

Strategic Actions:

- Encourage male partner testing for HIV, syphilis and hepatitis B through ANC, community outreach, index testing, couple counselling and referral mechanisms.
- Promote male partner participation in ANC counselling, treatment adherence support, birth preparedness, infant follow-up and child health decision making.
- Strengthen partner notification, counselling, treatment and linkage to care particularly for syphilis and HIV.
- Address social gender related and safety concerns that may limit women's ability to disclose results, access treatment or involve partners.

CHAPTER-5

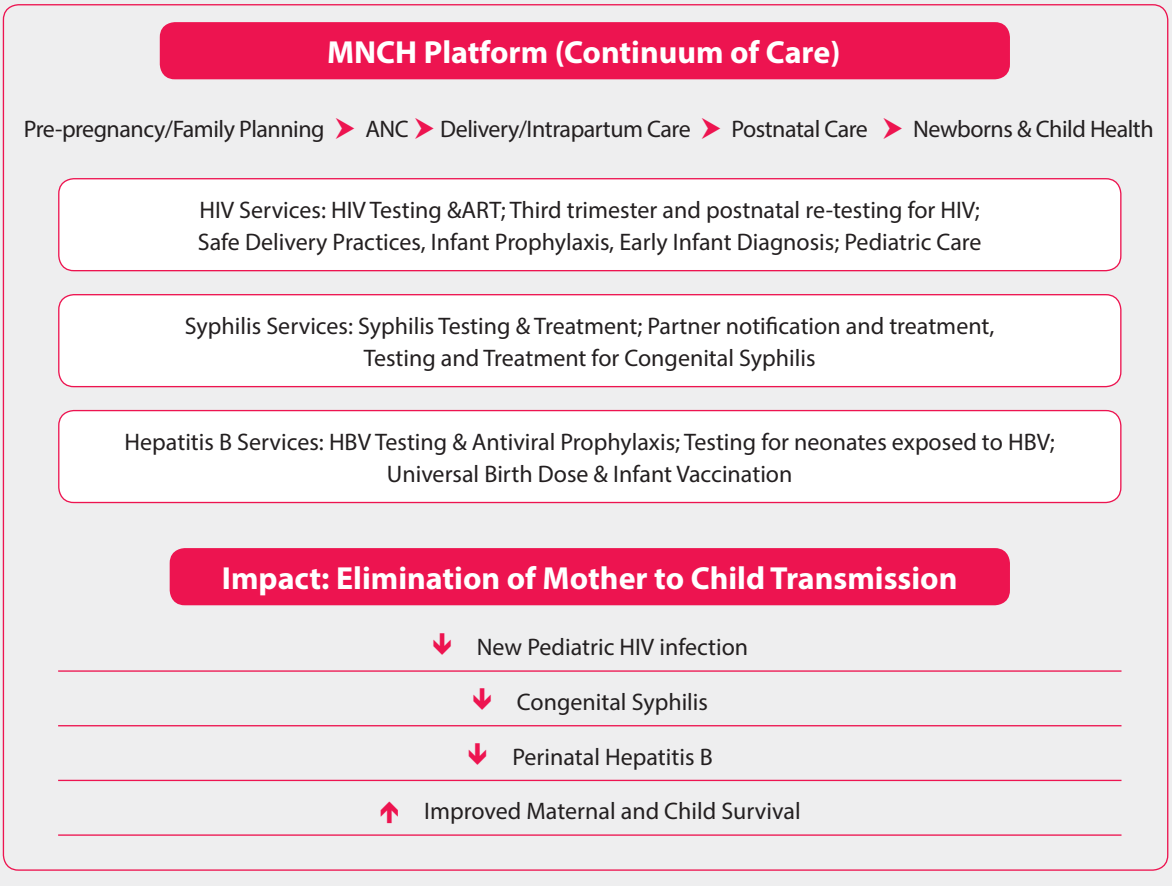
THE INTEGRATED SERVICE DELIVERY MODEL AND MINIMUM PACKAGE

5.1 The One-Stop Shop Mandate

To resolve the fragmentation of services identified in the situation analysis, a "One-Stop Shop" model for triple elimination will be adopted in all health facilities.

To operationalize this commitment to integrated care, the NCASC and FWD mandate the transition from siloed, disease-specific interventions to a unified service delivery model. As illustrated in Figure 4, the integration framework structurally embeds HIV, syphilis and hepatitis B services directly within the broader MNCH platform. This model ensures that triple elimination is not treated as a parallel program but as a core non-negotiable component of routine maternal care.

Figure 4: Integration framework



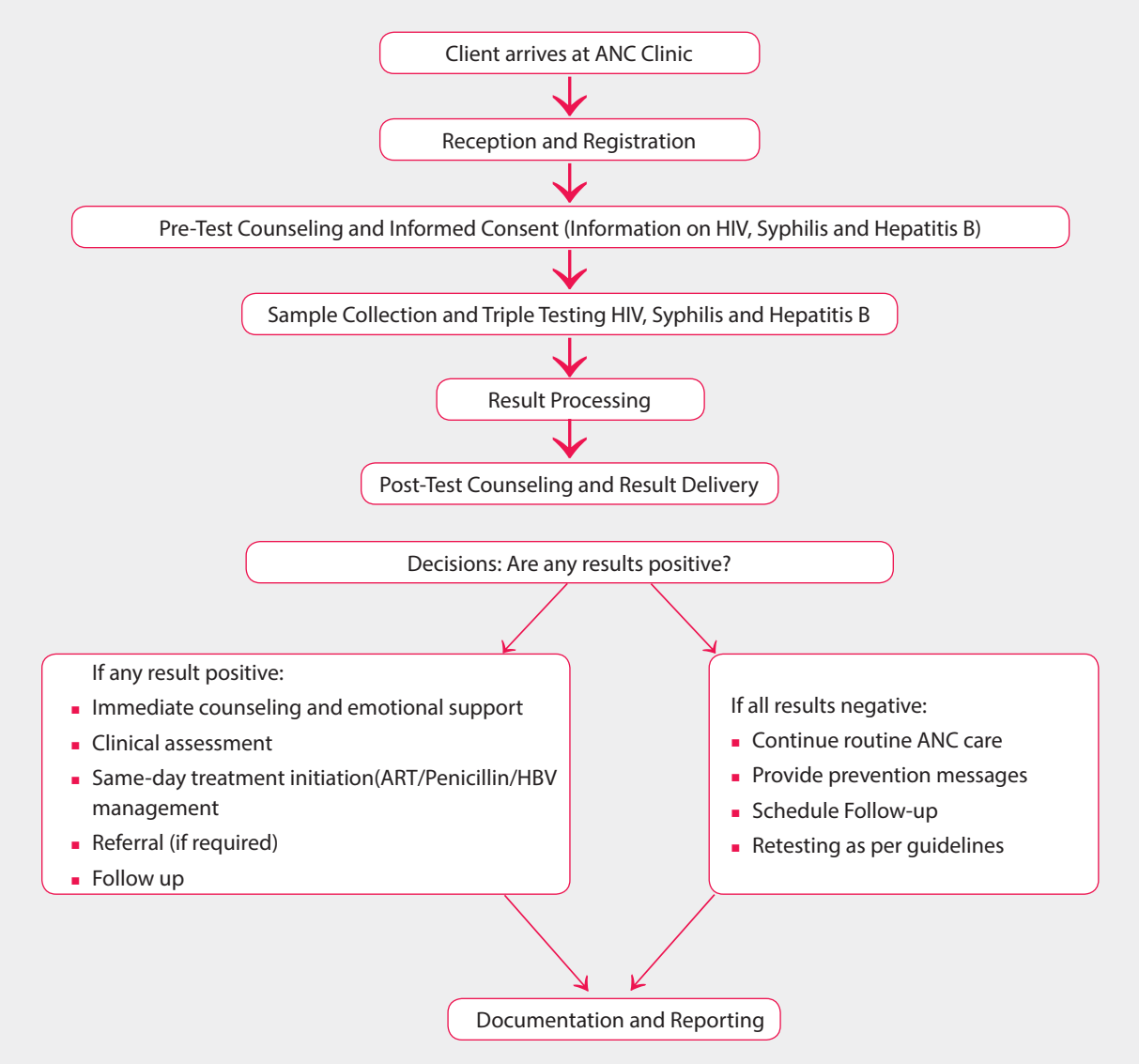
Definition of Standard Care

These services must be provided to ensure standard care for triple elimination:

- At the same location: Within the ANC clinic/health facilities (not referred to separate labs)
- At the same time: During the first ANC visit, repeat testing in third trimester or at delivery and during postpartum if high-risk settings.
- By the same provider: Authorized health worker to perform the testing and provide post-test counselling.

The successful execution of the "One-Stop Shop" model requires a streamlined patient journey. As detailed in Figure 5, the integrated client flow eliminates the need for cross-departmental referrals, ensuring that counselling, testing, and initial treatment are provided during a single ANC consultation.

Figure 5: Client flow for integrated ANC and triple elimination testing



5.2 Minimum Package by Platform and Level of Care

To achieve elimination targets, a standardized "Triple Elimination Service Package" is defined. This package must be available at every service delivery point, integrated into routine MNCH platforms.

The service delivery model follows a decentralized approach, ensuring that screening occurs at the most peripheral level possible, while complex case management is handled at the referral centers.

5.2.1 Community Level (Ward and Outreach)

The primary focus at the community level is demand generation and tracking. Female Community Health Volunteers (FCHVs) are responsible for identifying pregnant women and linking them to institutional care.

Core Activities:

- Identification of pregnant women and registration in the reproductive health tracking system.
- Referral for ANC registration before the 12th week of gestation.
- Follow-up of mothers and infants who miss scheduled appointments (defaulter tracing).

5.2.2 Primary Level (Basic Health Service Centre, Urban Health Service Centre, Health Post and Primary Health Centre)

This level serves as the primary entry point for the "Test and Treat" strategy.

- Antenatal Care:
  - Provider-initiated counselling and testing (PICT) for HIV, Syphilis, and Hepatitis B (using dual HIV/Syphilis RDT and HBsAg RDT) during the first ANC visit.
  - Immediate treatment initiation for Syphilis (Benzathine Penicillin) for positive cases.
  - Referral of HIV and Hepatitis B positive cases to higher centers for confirmation and viral load testing, while maintaining ANC continuity at the local level.
- Delivery and Postnatal Care:
  - Administration of Hepatitis B birth dose vaccination within 24 hours of birth.
  - Administration of prophylactic antiretrovirals to the newborns if the mother is living with HIV.

5.2.3 Secondary and Tertiary Level (Provincial and Federal Hospitals)

These facilities function as a "Center of Excellence" for the management of complex cases.

Core Activities:

- Confirmation of diagnosis for indeterminate results
- Management of pregnant women with high viral loads or co-infections.
- Provision of cesarean sections when obstetrically or virally indicated to reduce transmission risk.
- EID sample collection and logistic management.

5.2.4 Private Sector Compliance

Recognizing that a significant portion of ANC services are delivered by the private sector, the GoN issues the following regulatory requirements:

- Private hospitals and nursing homes must adopt the national medical standard37 for Triple Elimination.
- Private facilities are required to report monthly screening and positivity data to the respective municipal health section. Failure to report will be considered a violation of the public health service regulations.

- Private facilities that comply with reporting norms shall be eligible to receive government-procured vaccines and test kits free of cost to ensure no financial burden to the patients.

Table 6 delineates the specific screening, treatment, and follow-up responsibilities required at each level of care, encompassing the community, primary, secondary, tertiary, and private sectors.

Table 6: The Triple Elimination Minimum Service Package by level of Care

Service Level	Screening	Treatment	Preventive Interventions	Follow up
Community Level (Ward and outreach)	■ Identify and register pregnant women. ■ Promote early ANC (before 12 weeks). ■ Community awareness on EMTCT.	■ No clinical treatment is provided at this level. But there is promotional activities through health mother group meeting, home visit for continuum of care, danger sign and referral, compliance for recommended care, condom promotion/ distribution, stigma and discrimination etc	■ Community engagement and advocacy to combat stigma and increase access to and uptake of screening/testing and care ■ Condom promotion and risk reduction counseling for primary prevention ■ Encourage male partner HIV/ syphilis testing and involvement	■ Track pregnant women with missed ANC visit. ■ Refer pregnant women for ANC and triple testing ■ Follow-up of mothers and infants.
Primary Level (Basic Health Service Centre, Urban Health Service Centre, Health Post and Primary Health Care, Basic Hospitals, Birthing Centers)	■ PICT for HIV, syphilis, and hepatitis B at first ANC visit. ■ Screening test-HIV, Syphilis, Hep B ■ Third trimester and postnatal re-testing for HIV, where indicated ■ Use dual HIV/ Syphilis RDT and HBsAg RDT. ■ Basic clinical assessment at birth to screen newborns for congenital syphilis/ lab confirmation (where feasible)	■ Immediate treatment for Syphilis (Benzathine Penicillin).	■ Condom promotion and risk reduction counseling for primary prevention ■ Male partner testing and involvement in ANC, counseling and treatment ■ Administer the hepatitis B birth dose within 24 hours. ■ HBV Vaccination to infant ■ Provide prophylactic ARV to the HIV-exposed newborns	■ Refer HIV and hepatitis B-positive mothers for confirmation, viral load testing and prophylaxis or treatment. ■ Referral of syphilis positive mothers to secondary (if complicated or treatment failure) ■ Ensure mother and infant follow-up.

Service Level	Screening	Treatment	Preventive Interventions	Follow up
Secondary and Tertiary Level (Provincial and Federal Hospitals, including Maternity Hospitals)	Services provided by Primary Level plus ■ Confirmation of diagnosis for indeterminate results ■ Viral load testing, EID sample collection ■ Screening newborns for congenital syphilis	Services provided by Primary Level plus ■ Management of co-infections. ■ Provision of ART. ■ Maternal antiviral treatment for women with chronic HBV ■ Provision of cesarean sections when obstetrically or virally indicated ■ Management of infants with positive HIV or congenital syphilis	Services provided by Primary Level, plus ■ Antiviral prophylaxis for pregnant women (for preventing MTCT) ■ Administration of Hep-B Immunoglobulin (HBIG) within 12-24 hours of birth to high-risk infants for prophylaxis	■ Referral feedback to the primary level. ■ Infant follow-up at 6–12 months for HBsAg testing to determine infection status and assess the effectiveness of prophylaxis ■ Monitor high-risk cases. ■ Link to appropriate prevention, care and other clinical and support services
Private Sector Facilities	■ Adhere to NMS ■ Integrated ANC screening for HIV, syphilis, and hepatitis B. ■ Confirmation of diagnosis (where available)	■ Provide treatment according to national guidelines.	■ Maternal antiviral prophylaxis for women with high HBV viral load (for preventing MTCT) ■ Administration of Hep-B Immunoglobulin within 12-24 hours of birth for neonatal prophylaxis	■ Refer HIV positive mothers to ART centers ■ Monthly reporting to municipality health office. ■ Ensure data submission to HMIS.

5.3 Differentiated Approaches of Key Populations and Hard-to-Reach Areas

Standard facility-based models may not reach the most vulnerable subgroups. Systematic reviews and stakeholder interviews indicate that rigid service delivery models fail to capture women from KPs and those utilizing the private sector.

Reaching KPs women who inject drugs, female sex workers, and partners of migrant workers face structural barriers while accessing formal ANC.

- **Strategy:** Implement Peer-Navigated Care where community workers from KP networks accompany pregnant women from these groups to health facilities. This ensures they navigate the system without fear of discrimination.
- **Strategy:** Offer community-based testing or community-led testing for HIV and Syphilis through mobile outreach clinics in high-burden urban pockets.

Addressing the private sector gap, as highlighted in beneficiary interviews, a significant proportion of women seek care in private nursing homes to maintain privacy or due to perceived quality differences. These private facilities often bypass the national reporting system.

- **Strategy:** The government will supply private birthing centers with national

standard recording and reporting tools. Private practitioners will receive orientation on the Triple Elimination protocol, ensuring that women who pay for care still receive the public health standard of screening.

5.4 Quality of Care and Client Experience

Achieving coverage targets is insufficient if the quality of care remains poor. The roadmap prioritizes a human-rights-based approach to service delivery.

Stigma-free services

Service provider interviews reveal that technical skills for testing exist. Stigmatizing attitudes towards HIV remain a barrier. Doctors and nurses will undergo values clarification training to ensure that no pregnant woman faces coercion or judgment.

- **Operational Standard:** All ANC clinics must display the Patient's Charter outlining the right to non-discriminatory care.

Comprehensive support beyond clinical care

Detailed information from the qualitative interviews is in Annex 2. Qualitative findings from service providers emphasize that clinical treatment alone may be insufficient to achieve optimal outcomes. Socio-economic vulnerabilities including food insecurity and maternal malnutrition, stigma and discrimination in family community can negatively affect treatment adherence, care seeking behaviour, and the overall health of the mother-infant pair.

- **Operational Standard:** Linkage to social protection schemes and nutritional support. EMTCT will strengthen linkage between health services and existing social protection mechanisms. The program will coordinate with municipal budgets to strengthen EMTCT program such as support for CoC, awareness on S&D, life skill support for income generation nutritional supplementation for vulnerable mothers and infants identified during the EMTCT cascade.

CHAPTER-6

GOVERNANCE, COORDINATION, AND ACCOUNTABILITY

6.1 Governance and Management Structure

Achieving Triple Elimination requires a robust governance framework that operates vertically across the three tiers of government and horizontally across relevant divisions. The governance structure is designed to ensure political commitment, technical excellence, and operational accountability.

6.1.1 National EMTCT Steering Committee (NESC)

The MoHFS will establish a high-level National EMTCT Steering Committee to provide strategic oversight.

Chair: Secretary, MoHFS

- **Member Secretary:** Director, NCASC
- **Composition:** Director General of the Department of Health Services (DoHS), Director of NCASC Director of the FWD, Director of the NPHL, Management division, NHTC and a representative from UNICEF, WHO and Key Population networks.
- **Mandate:** The NESC is the highest decision-making body responsible for endorsing the National Validation Report, approving annual elimination targets, and ensuring financial sustainability. It meets bi-annually to review progress against the Gold Tier"indicators.
- **Meeting Protocol:** The Committee shall meet biannually (twice per fiscal year).

6.1.2 National Technical Working Group (NTWG)

A standing technical body will support the Steering Committee, focusing on clinical and programmatic standards.

- **Co-chairs:** Director of FWD and Director of NCASC.
- **Composition:** Senior consultant obstetricians, Pediatricians, Hepatologists, Epidemiologists, Public Health Experts, Health Education Experts, Statisticians and Technical Lead from development partners (UNICEF, WHO and others).
- **Mandate:** The NTWG is responsible for updating the NMS, resolving complex clinical cases referred from provinces, and conducting the technical overview of validation data.

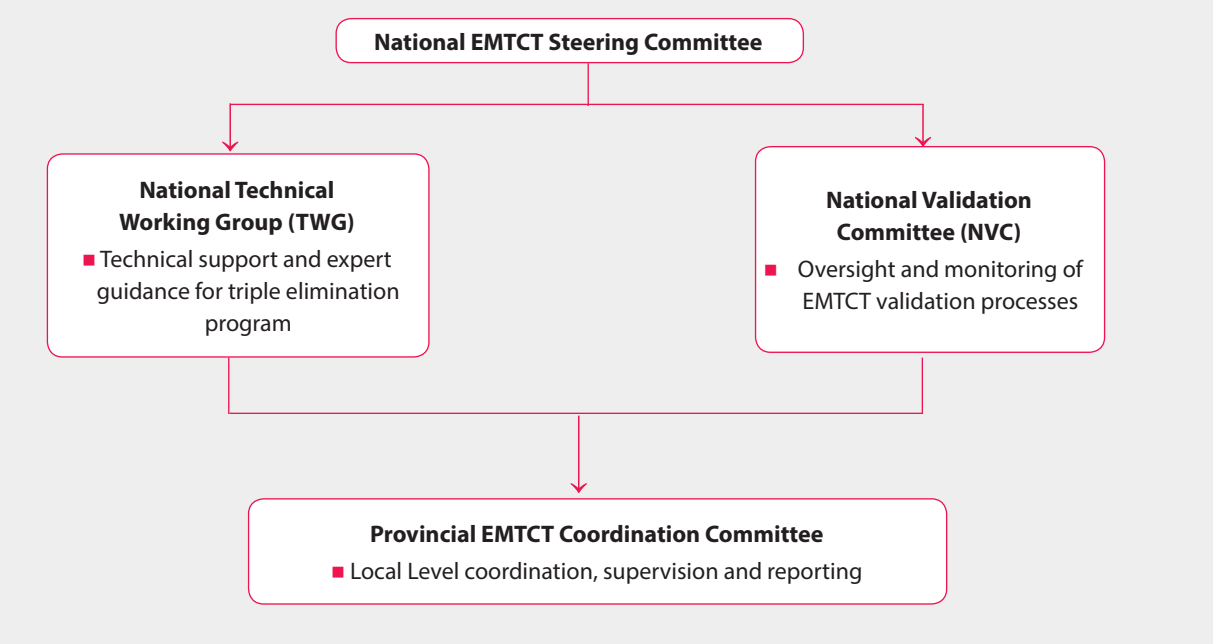
6.1.3 National Validation Committee (NVC)

To ensure the integrity of the elimination certification, an independent NVC will be formed. This body remains distinct from the program implementation team to avoid conflicts of interest.

- **Composition:** Independent experts in public health, epidemiology, human rights, and statistics who are not directly employed by the national program.
- **Mandate:** Conduct independent national assessment for validation, conduct site verification visits, collect evidence and compile the National Validation Dossier for submission to the WHO Regional Validation Team (RVT).

Figure 6 illustrates the official organogram of the National Triple Elimination Governance Structure, detailing the reporting lines from the federal steering committees down to the local execution level.

Figure 6: Organogram of National Triple Elimination Governance Structure



6.2 Roles and Responsibilities in a Federalized Context

The transition to federalism presents both a challenge and an opportunity for EMTCT. Informed by extensive multi-level consultations (spanning federal, provincial, local, health facility and client assessments), this roadmap explicitly defines the roles and responsibilities across all tiers of government.

6.2.1 Federal Level: Policy, Procurement, Standards and Cross Programme Coordination

At the federal level, the MoHFS will provide overall stewardship for triple EMTCT and ensure coordinated implementation across HIV, syphilis, hepatitis B, immunization, MNCH, laboratory, procurement, training and health information systems.

Policy and protocol harmonization: NCASC and FWD, in coordination with CSD, NPHL, the National Immunization Programme and relevant professional bodies, will lead the harmonization of clinical and operational protocols for HIV, syphilis and hepatitis B in pregnancy and infancy. This will include guidance on triple testing, treatment, referral, hepatitis B prophylaxis, hepatitis B birth dose, HBIG where available, exposed infant follow-up, and final outcome documentation.

Training and capacity building: The National Health Training Center, with technical support from NCASC, FWD, NPHL,CSD and the National Immunization Programme will lead the development of an integrated triple EMTCT training package and master training of trainers. The package will cover clinical care, laboratory algorithms, counselling, stigma reduction, referral pathways, commodity management, recording and reporting and quality assurance.

Procurement and commodity security: Management Division, in coordination with NCASC, FWD, NPHL and the National Immunization Programme will lead coordinated forecasting, procurement, quality

assurance, and supply planning for dual HIV/syphilis RDTs, HBsAg test kits, benzathine penicilin, ARVs, hepatitis B antivirals, hepatitis B birth dose vaccine, HBIG where available and laboratory supplies.

Laboratory and diagnostic systems: NPHL will lead the development of laboratory algorithms, quality assurance systems, specimen referral mechanisms, and result reporting pathways for confirmatory testing, viral load testing, and other diagnostic services required for triple EMTCT.

Strategic information and validation evidence: Management Division/IHMIS, NCASC, FWD and NPHL will jointly update HMIS tools, integrate hepatitis B indicators, strengthen case-based surveillance and establish mother-baby pair tracking. FWD and NPHL, with support from NCASC and technical partners will coordinate hepatitis B sero surveys and other validation related studies.

Coordination and accountability: The EMTCT steering committee and NTWG will review progress on protocol harmonization, training, commodity availability, laboratory readiness, private sector reporting, data quality and validation milestones.

6.2.2 Provincial Level: Implementation Support, Supply Chain and Quality Assurance

Provincial Health Directorates will serve as the operational bridge between federal policy and local implementation. They will coordinate provincial implementation planning, monitor progress and ensure that triple EMTCT activities are integrated into provincial health systems.

Provincial coordination: Provincial health directorates will convene regular coordination meetings with provincial hospitals, health offices, laboratories, training centers, logistics management centers, local governments and partners to review implementation progress and address bottlenecks.

Supply chain management: Provincial Health Logistics Management Centers will manage provincial distribution, buffer stocks and stock monitoring for triple EMTCT commodities including test kits, medicines, vaccines, hepatitis B antivirals and related laboratory supplies. Distribution should be based on facility caseload, consumption and stock status.

Training and mentoring: Provincial Health Training Centres will roll out the integrated triple EMTCT training package developed at federal level and provide follow up mentoring to service providers, laboratory personnel and programme managers.

6.2.3 Local Level: Service Delivery, Case Findings, Reporting and Follow-up

Local government are responsible for frontline implementation of the triple EMTCT minimum service package through public health facilities, birthing centres, outreach services and coordination with private providers.

Micro-planning and case finding: Municipal health sections will estimate the number of expected pregnancies, map hard-to-reach populations, identify women missing ANC and mobilize FCHVs and community networks for early registration and referral.

Integrated service delivery: Local health facilities will provide triple testing during ANC, initiate or link clients to treatment, ensure timely referral, administer hepatitis B birth dose where services are available support exposed infant follow-up and document final outcomes.

Referral and follow-up: Local health facilities will maintain referral linkage with ART centres, hospital, laboratories, immunization services and specialist services for hepatitis B and syphilis case management. They will track mother-baby pairs until completion of required follow-up.

Commodity monitoring: Facility in-charge will monitor stocks level of test-kits, medicine, vaccines and related supplies, report consumption regularly and request timely resupply through the municipal and provincial system.

Private sector reporting and alignment: Municipal health sections will orient private facilities on national triple EMTCT protocols, collect monthly reports, support linkage to HMIS reporting and ensure that private providers follow national testing, treatment, referral and reporting requirements.

Community engagement and accountability: Local governments will work with FCHVs, civil society, PLHIV networks, key population groups, women's groups and community based organizations to support demand generation, stigma reduction, peer navigation, defaulter tracing and community led monitoring. The successful execution of this roadmap requires coordinated action across all spheres of government. Table 7 outlines the institutional mandates, delineating the specific policy, financial, and operational functions assigned to l, provincial, and local levels.

Table 7: Lead Responsibilities for critical Triple EMTCT Functions

Function	Federal Lead	Provincial role	Local role
Protocol Harmonization	NCASC, FWD, CSD, NPHL, National Immunization Programme	Adapt and disseminate	Implement protocol
Integrated training	NHTC	Provincial training canters roll out training	Ensure provider participation and onside application
Procurement and supply planning	Management Division with NCAS, FWD, NPHL, National Immunization Programme	Manage buffer stocks and distribution	Monitor stock and report consumption.
Laboratory System	NPHL	Provincial laboratories support referral and QA	Collect specimens and ensure referral.
Laboratory system	NPHL	Provide laboratories support referral and QA	Collect specimen and ensure referral.
Hepatitis B sero-surveys	FWD and NPHL	Support field implementation.	Support community and coordination Collect, record, and report facility-level data
HMIS and surveillance	Management division/ IHMIS, NCASC, FWD	Review data quality and completeness	Record, report and track mother-baby pairs
Private sector alignment	MoHFS, Management division, NCASC, FWD	Monitor reporting and compliance	Orient, collect reports and enforce local reporting
Community Engagement	NCASC, FWD, NHEICC	Coordinate provincial awareness campaigns	Mobilize FCHVs and community networks

6.3 Inter-Sectoral Coordination

Elimination cannot be achieved by the health sector alone.

- **Ministry of Women, Children, and Senior Citizens:** Coordinate to provide social protection grants and shelter services for mothers facing domestic violence or abandonment due to their status.
- **Ministry of Education, Science and Technology:** Integrate comprehensive sexuality education covering HIV and hepatitis B prevention into secondary school curricula to reduce transmission among adolescents.
- **Ministry of Finance:** Ensure a dedicated budget line item for Communicable Disease Elimination to transition funding from donor reliance to domestic sustainability.

6.4 Engagement and Regulation of the Private Sector

Given that a significant proportion of urban ANC occurs in the private sector, leaving this sector unregulated undermines national data.

- **Regulatory Mandate:** The MoHFS will issue a directive integrating Triple Elimination Reporting into the minimum standards for health facility operation.
- **Public-Private Mix Model:** While the government currently provides free commodities to private facilities for specific individual diseases or programs, expanding and standardizing this approach across all three infections is crucial. The government will explore providing free commodities (test kits) to private facilities in exchange for zero-cost testing for clients and mandatory data reporting. This commodity-for-data exchange ensures that women in the private sector do not pay out-of-pocket for essential screening.

6.5 Accountability and Community-Led Monitoring

Accountability mechanisms move the roadmap from guidance to compliance. The federal government will enforce accountability through rigorous data auditing, regular performance reviews and strict regulatory oversight of both public and private health facilities, as detailed in the accountability loop (Figure 7).

6.5.1 Legal and Human Rights Accountability

- **Zero tolerance for discrimination:** Any verified report of a health facility denying care to a pregnant woman based on her HIV or Hepatitis status will trigger immediate investigation and disciplinary action under the Public Health Service Act.
- **Grievance Redressal:** A confidential and accessible complaint mechanism will be strengthened to allow beneficiaries to report coercion, unauthorized disclosure of status, or denial of services, discrimination or other rights violations. To ensure feasibility and sustainability, the roadmap will prioritize adapting existing government grievance redressal and client feedback systems. Dedicated EMTCT specific tools, such as hot line or digital platforms may be considered in a phased manner, subject to resource availability, private safeguards and long-term maintenance capacity.

6.5.2. Community-Led Monitoring (CLM)

- Networks of women living with HIV, PLHIV, and KPs will be engaged through a hybrid community-led monitoring approach, combining targeted funding for high-priority facilities with integration into existing health programmes, municipal review mechanisms and voluntary or incentive based community network participation where feasible.
- Standardized scorecards will be used to assess respectful care, confidentiality, waiting time, stock availability, referral linkage and access barriers
- Findings from CLM will be reviewed through local, provincial and national coordination mechanisms to support corrective action, while reducing long-term dependence on external funding.

Figure 7: The Accountability Loop

CHAPTER-7

STRATEGIC INFORMATION, MONITORING, EVALUATION, AND LEARNING

7.1 Purpose and Principles

The transition from control to elimination requires a fundamental shift in Strategic Information (SI) systems. While control programs rely on aggregate coverage data, elimination requires granular, case-based surveillance to prove that every vertical transmission event has been identified and investigated. The national HIV program has already successfully pioneered case-based surveillance using the DHIS2 Tracker, providing a robust foundational model that will now be scaled up for all three diseases. Table 8 outlines the progressive impact and process targets required to achieve the Bronze, Silver and ultimately the Gold tier of elimination, serving as the official benchmark for all provincial and local health system performance.

The SI framework for this roadmap is built upon three core principles:

1. Unified Surveillance: Moving away from disease-specific silos (eg, separate HIV and Immunization reports) towards a unified "Triple Elimination" reporting architecture within the HMIS, integrating key indicators across HIV, ANC, syphilis cascade for EMTCT.
2. Longitudinal Tracking: Shifting from cross-sectional reporting (monthly totals) to longitudinal tracking of the mother-baby pair to ensure retention from the first antenatal visit through to the final infant diagnosis.
3. Data for Action: Ensuring that data is not merely reported upward for compliance but is used at the municipal level for immediate public health action, such as defaulter tracing.[38]

7.1.1 Impact Indicators (The must haves)

These indicators measure the actual reduction in disease transmission.

- HIV: Less than 50 new pediatric HIV infections per 100,000 live births.
- Syphilis: Less than 50 cases of congenital syphilis per 100,000 live births.
- Hepatitis B: Less than 0.1% HBsAg prevalence among children aged 5 years.

7.1.2 Process Indicators (The Drivers)

These indicators measure the coverage of interventions required to achieve impact and meet WHO validation requirements. Nepal will use the following WHO-aligned process target as national validation benchmarks, while annual progress will be assessed against Nepal's baseline data and routine monitoring systems.

Maternal and newborn service coverage

- ANC Coverage: >95% of pregnant women attend at least one antenatal care visit.
- Skilled birth attendance: ≥95% of births are attended by skilled health personnel.

HIV

- HIV Testing Coverage: ≥95% of pregnant women are tested for HIV during pregnancy.
- ART Coverage: ≥95% of pregnant and breastfeeding women living with HIV receive antiretroviral therapy.

Syphilis

- Syphilis testing coverage: ≥95% of pregnant women are tested for syphilis during pregnancy.
- Syphilis treatment coverage: ≥95% of syphilis-seropositive pregnant women receive adequate treatment with benzathine penicillin.

Hepatitis B

- Hepatitis B coverage: ≥90% of infants receive three doses of hepatitis B containing vaccine.
- Timely hepatitis B birth dose coverage: ≥90% of infants receive hepatitis B birth dose within 24 hours of birth, either through universal birth dose programme or among infants at risk, depending on Nepal's national implementation approach.

Table 8: EMTCT Targets by Tier and Alignment with WHO Validation Indicators

Indicator Category	Bronze Tier	Silver Tier	Gold Tier	
Impact Indicators (HIV)	**Targets**			
Mother to child transmission rate	< 10% (breastfeeding population)	<5% (breastfeeding population)	<5% (breastfeeding population)	<2% (non-breastfeeding)
New pediatric HIV infections due to MTCT	≤75 per 100,000 live births	≤50 per 100,000 live births	≤50 per 100,000 live births	≤50 per 100,000 live births
Impact Indicator (Syphilis)	**Targets**			
Congenital syphilis rate	≤250 per 100,000	≤100 per 100,000	≤50 per 100,000	≤50 per 100,000
Impact Indicator (Hepatitis B)	**Targets**			
HBsAg prevalence among children	<0.5%	<0.3%	<0.1%	<0.1%
At least one ANC visit	≥90%	≥90%	≥90%	≥90% sustained for >5 years
Skilled birth attendance	≥90%	≥95%	≥95%	≥95%
Process Indicators (HIV, syphilis and Hepatitis B)	**Targets**			
HIV testing coverage in pregnant women	≥90%	≥95%	≥95%	≥95%
ART coverage among HIV positive pregnant women	≥90%	≥95%	≥95%	≥95%
Syphilis testing coverage in ANC	≥90%	≥95%	≥95%	≥95%
Adequate treatment coverage among syphilis-seropositive pregnant women	≥90%	≥95%	≥95%	≥95%
3-dose Hepatitis B vaccine coverage among infants, Hep B3	≥90%	≥95%	≥95%	≥95%
Timely hepatitis B birth dose coverage within 24 hours of birth	≥90%	≥90%	≥90%	≥90%
Note: Gold tier reflects WHO elimination validation criteria. Bronze and Silver represent progressive achievement toward elimination Impact Target must be sustained for at least 2 consecutive years				

Source: WHO SEARO EMTCT Framework. World Health Organization. Global guidance on criteria and processes for validation- elimination of mother-to-child transmission of HIV, syphilis, and hepatitis B virus [2021] 36

7.2 Data Architecture and Flow

The complexity of tracking three diseases across federal, provincial, and local levels requires a streamlined data flow. The roadmap mandates the interoperability of the HIV information system and the national HMIS of Management Division.

7.2.1 Data Sources and Tools

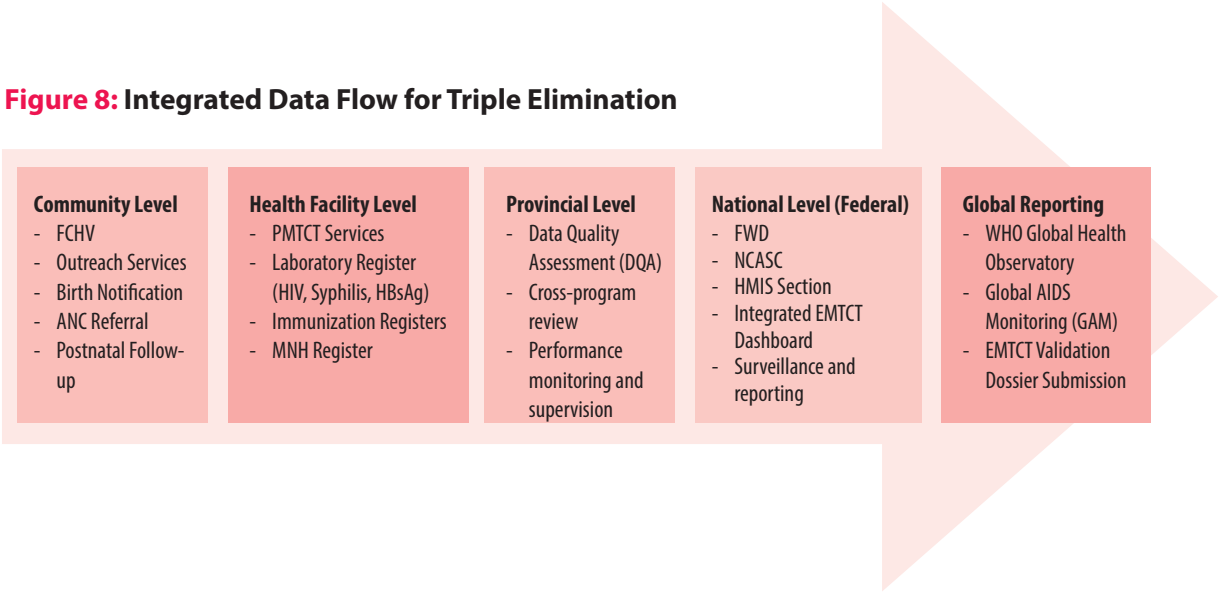
- MNH Service Register: The primary source document at the health facilities and birthing centers. It will be updated columns for HBsAg screening, syphilis treatment date, and Hep B birth dose time.
- Electronic Medical Reports (EMR): High-volume sites and provincial hospitals will transition to EMRs to reduce transcription errors.
- Private Sector Reporting: Building upon the fact that several private hospitals already report data for at least one of the target infections, the government mandates full surveillance integration for the entire triple elimination package. The federal government will provide private facilities with official login credentials to the national HMIS. This requires private practitioners to directly enter all screening and positive case data for HIV, syphilis and hepatitis B into the central national database.

7.2.2 Flow of information

- Service Delivery Point: Staff record service data in the Integrated Maternal and Child Health (MCH) Register. Service delivery point required to upload their aggregate data into DHIS2 by the 7th of each month.
- Local level (Palika): Health coordinators review the submitted data by the second week of the month.
- Province level: The health office reviews data for completeness and outliers.
- Federal level: The FWD and NCASC triangulate HMIS data with supply chain data to verify accuracy.

The successful monitoring of the triple elimination program requires seamless and uninterrupted transmission of strategic information. Figure 8 outlines the integrated data flow, demonstrating the mandated pathway for reporting both case-based and aggregate data from public and private service delivery points up to the federal surveillance network.

Figure 8: Integrated Data Flow for Triple Elimination



7.3 Surveillance and Case Tracking

Routine HMIS data provides aggregate numbers but cannot track individuals. Two specific surveillance mechanisms will be strengthened to close this gap.

7.3.1 Case-Based Surveillance for Positive Cases

While the DHIS2 Tracker currently facilitates robust case-based surveillance for HIV, the MoHFS responsible entities will prioritize the development and integration of expanded modules to include syphilis and hepatitis B. Under this unified digital framework, providers must complete a confidential case investigation form for every pregnant woman diagnosed with any of the three infections. Entering this data into the DHIS2 Tracker triggers the creation of a unique identifier for the mother-baby pair, enabling continuous tracking until a final infant diagnosis is confirmed.

- Purpose: To track the dyad across different facilities (eg, diagnosed in a health post, delivered in a hospital)
- Responsibilities: The diagnosing facility initiates the record; the ART center or treating hospital maintains the longitudinal follow-up.

7.3.2 Sentinel Surveillance

To validate routine data, the responsible entity of MoHFS will conduct periodic bio-behavioural surveys and sero-surveys.

- Hepatitis B Serosurvey: A nationally representative hepatitis B sero survey among children will be prioritized as a key validation readiness activity to assess progress toward the HBsAg prevalence target of less than 0.1%. Recognizing that such a survey has not been conducted in Nepal for more than a decade, the roadmap emphasizes the need for dedicated programme financing, strong federal leadership and clear institutional accountability. The responsible MoHFS entities, particularly FWD and NPHL, in coordination with NCASC, Management division, provincial governments and technical partners will define the implementation approach, resource requirements, timeline and mechanisms for protocol development, laboratory testing, data analysis and dissemination of findings.

7.4 Addressing Data Gaps and Quality

Stakeholder interviews highlighted significant gaps, particularly regarding the private sector and data quality.

Strategy for Private Sector Data

The invisible data from private nursing homes is a major barrier to validation.

- Mandate: The government will enforce the legal requirement for private facilities to report Triple Elimination data.
- Incentive: Private facilities that consistently report quality data will be recognized in public quality scorecards, serving as a marketing tool for them.

Data Quality Assurance (DQA)

- Routine Data Quality Assurance (RDQA): Provincial teams will conduct RDQAs every six months at high-volume sites.
- Discordance Analysis: Automated flags in DHIS2 will identify facilities with discordant data.

7.5 Evaluation and Learning

The learning component ensures that the health system is based on failures.

Root Cause Analysis (RCA)

Every case of vertical transmission is considered a sentinel event. Upon confirmation of an infant infection, the provincial health directorate must immediately convene a clinical audit committee

to conduct a comprehensive root cause analysis. This investigation will trace the mother-baby pair's trajectory through the health system to identify the exact point of failure, whether it was a missed screening, a commodity stock-out, or a lapse in clinical follow-up. Following the analysis, facility managers must implement targeted corrective actions to prevent any recurrence.

- **Protocol:** When an infant is diagnosed with HIV, congenital syphilis, or Hepatitis B, a multidisciplinary team must conduct a non-punitive RCA within 30 days.
- **Objective:** To determine if the failure was due to missed testing, treatment failure, supply stockout, or patient loss to follow-up.

Qualitative Research

To address the human side of data, the program will commission periodic qualitative studies to understand the barriers facing women who drop out of the cascade. This ensures the voices of beneficiaries (as captured in the roadmap development interviews) continue to inform program adaptation.

7.6 Validation Logic and Timeline

Nepal will follow a phased validation readiness pathway to achieve the elimination of mother-to-child transmission of HIV, syphilis, and hepatitis B as a public health threat by 2030. The milestone targets established for the Bronze (2027), Silver (2028), and Gold (2030) tiers are specifically calibrated to the national context of Nepal. While these timelines differ from standard global benchmarks, they represent realistic yet ambitious country-specific milestones formulated based on current baseline achievements, institutional capacity, and the incremental scale-up of integrated service delivery.

The pathway begins with system strengthening and the initiation of coverage scale-up in 2026. This phase includes the harmonization of indicators and data sources, revision of HMIS and recording tools, integration of hepatitis B indicators into routine reporting, definition of laboratory and referral pathways, and clarification of institutional responsibilities. Efforts will focus on strengthening case-based tracking for pregnant women testing positive and their exposed infants. As indicated in Table 9, 2026 serves as the launch year for integrated testing, with targets set at 89.6 percent for HIV, 46.9 percent for syphilis, and 38 percent for maternal hepatitis B testing. This phase also establishes the foundation for validation evidence, including planning for hepatitis B serosurveys, data quality assurance, and the documentation of human rights, gender equality, and community engagement safeguards.

During 2027 to 2028, Nepal will focus on accelerated implementation and validation readiness. This period marks a significant programmatic shift, aiming for the Bronze Tier in 2027 and the Silver Tier in 2028. To meet these milestones, syphilis testing coverage is projected to reach 71 percent and maternal hepatitis B testing 67 percent by 2028. This acceleration will be supported by the expansion of integrated triple EMTCT services, improved private sector reporting, routine data quality assessments, and supply chain monitoring.

During 2029, the program will consolidate evidence through pre-validation reviews and the execution of hepatitis B serosurveys. Coverage targets for all three diseases will exceed 80 percent, ensuring the systems are prepared for the final push toward elimination. By 2030, the National Validation Committee will review the completeness and credibility of evidence compiled from HMIS, case-based surveillance, laboratory systems, serosurveys, and community feedback mechanisms. Nepal will then prepare and submit the national validation dossier through the established WHO validation process, demonstrating that the required impact and process targets (including the 95 percent coverage threshold for all three infections) have been achieved and sustained in line with WHO criteria.

CHAPTER-8

FINANCING THE PLAN AND COSTING APPROACH

8.1 Overview

This chapter outlines the cost and resource needs for the implementation of EMTCT of HIV, Syphilis, and Hepatitis B. It shows the cost of implementing the plan and the resources needed for the roadmap. The purpose of the financing plan is to guide planning and resource mobilization, ensure efficient allocation of funds, and support long-term sustainability of EMTCT services. By showing the total investment needs and identifying potential funding, the overview provides a foundation for advocacy with government and development partners to secure the resources necessary to achieve national EMTCT targets.

8.2 Costing Methodology

Costing has been done from a health system perspective. The costing process followed a systematic, stepwise approach, which is shown in Figure 9.

Step 1: Classify Interventions

Interventions were classified into existing interventions currently implemented through the government system or new interventions for the costing purpose.

Step 2: Identify Cost Data

For existing interventions, procurement records and previously documented/estimated service delivery costs were reviewed, while for new interventions, appropriate cost information was identified from relevant secondary sources. Relevant secondary sources included estimates of vaccine procurement and delivery costs from the Global Alliance for Vaccines and Immunization (GAVI), WHO, and prior scientific publications from Nepal. In instances where country-specific estimates or evidence were unavailable, data were drawn from secondary scientific publications in contextually comparable settings, with further expansion to regional or global sources where necessary.

Step 3: Determine the Population in Need

The target population and the population in need of each specific service were determined based on estimates of disease prevalence and disease burden. Where available, data on the target population were obtained from the previous NCASC publications and the Integrated Health Information Management Section (IHIMS) and supplemented with data from international and national sources, including the WHO global health observatory[29], Spectrum[39], CDA Foundation[13], UNICEF[25], the Global Burden of Disease Study 2023[40], and other secondary scientific literature.[24,26,27,31,41,42]

Step 4: Determine Service Duration

The duration of service delivery was defined in line with national protocols, including both the rollout period of the intervention and the required duration of treatment or service provision.

Step 5: Identify Inputs and Estimates Unit Costs

Key inputs were identified, and unit costs were estimated, incorporating service delivery (cost of vaccine, reagents, medicines, and equipment) costs as well as health system and health facility level overhead costs. For services where only the cost of procuring medicines and supplies were available, the health system level and health facility level overhead costs were estimated at approximately 27% and 17%, respectively, based on previous literature and the methodology employed in the Disease Control Priorities project.[41,43] For services in which the total cost from the health system perspective was available, overhead costs were not added separately.

Steps 6: Calculate Total Costs

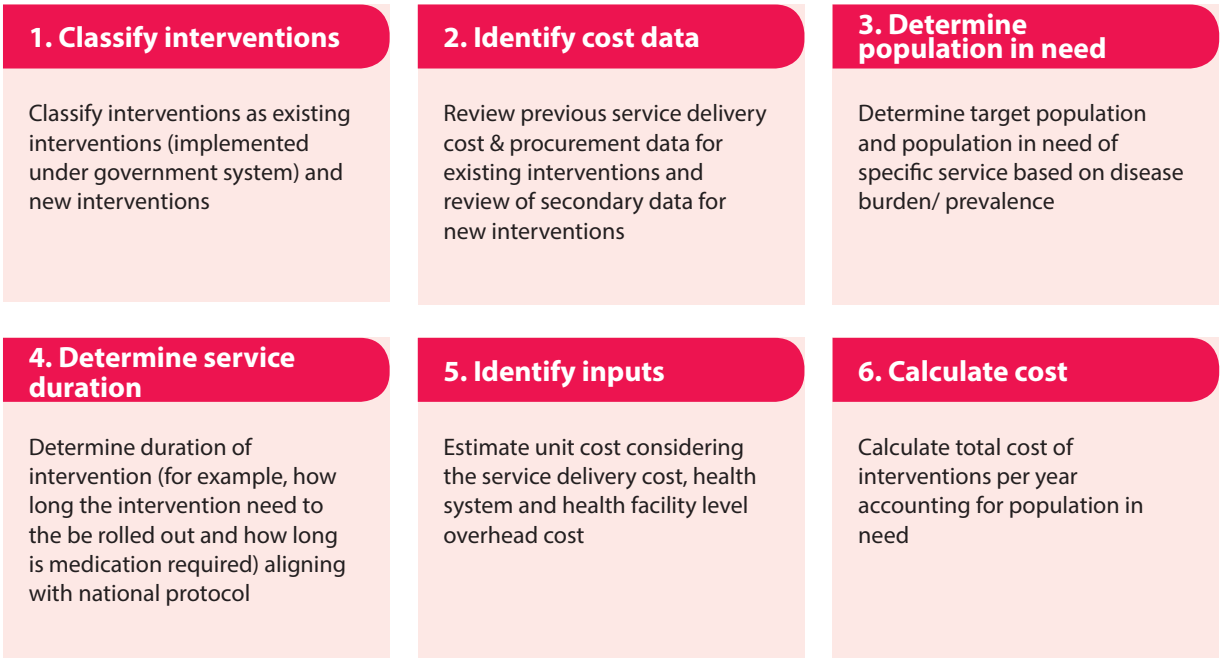
Finally, total costs were calculated on an annual basis by combining unit costs with the estimated population in need, yielding annual cost estimates for each intervention.

8.3 Assumptions and Basics of Costing

Recognizing the complexities of costing public health interventions, particularly regarding service delivery arrangements, multi-year implementation horizons, diverse input requirements, and evolving financial conditions such as general and health-sector specific inflation, as well as market availability of equipment and health workforce, we established a set of assumptions and principles to guide this costing process, as outlined below:

- **Perspective and Scope:** The analysis utilizes a supply-side (provider) perspective. It excludes opportunity costs and other demand-side or utilization-related costs. Cost estimations are directly driven by the provider-level inputs and the implementation targets specified in this roadmap.

Figure 9: Process of costing EMTCT interventions



- **Human Resources and Overhead:** Assuming that salaried government health workers deliver these integrated services across multiple areas, the analysis does not cost government salaries separately. Routine capacity development activities, program management and monitoring related costs are incorporated within the health system overhead (approximately 27% of the total cost) and the health facility–level overhead (approximately 17% of the total cost).[43]
- **Existing Capital:** The estimation excludes the capital cost of per-existing infrastructures and equipment.
- **New Interventions and Training:** The introduction of new services requires additional budgeted investment for capacity development. To maximize financial and operational efficiency, the analysis calculates the new capacity development cost based on the delivery of integrated training sessions across multiple services.
- **Pricing and Inflation:** The financial model identifies the required quantities and unit costs of all relevant inputs, disaggregated by implementation year. All costs were estimated at constant prices to reflect current price scenarios. Historical cost data was adjusted for inflation, applying and assumed inflation rate of 12%.
- **Wastage and Administration:** The calculations incorporated a 10% commodity wastage rate for vaccines, medicines, and reagents, alongside an additional 12% of adjustment for administrative requirements such as taxes and insurance.
- **Service Architecture:** The costing model assumes no structural reorganization of health facilities or service delivery arrangements across different tiers of care.
- **Protocol Adherence:** Costs estimation dictate that all services adhere strictly to current national clinical and service delivery protocol. Any future modifications to these national standards will necessitate a revision of these overall cost estimates.
- **Currency and Exchange Rate:** All costs are expressed in Nepalese currency (NPR). The analysis converted any international cost data reported in US dollars to NPR using the official exchange rate of NPR 140 per USD, as published by Nepal Rastra Bank on 8 August 2025).

8.4 Target Level and Population in Need

Projections have been carried out assuming a linear trend from current coverage levels to derive annual targets up to 2030 and calculating the corresponding population in need (PIN) for each year. Although coverage may plateau at higher levels, this linear projection provides a clear, interpretable estimate for robust short-term planning. We calculated the PIN by analyzing estimated pregnancies, expected births, disease prevalence and the proportion of the population requiring specific interventions or services. These PIN estimates directly inform the annual activity budgets. The year-wise targets and corresponding PIN are presented in Table 9.

Table 9: Year-wise target and population in need

SN	Interventions	Baseline			Target coverage				
		Coverage	PIN	Source	2026	2027	2028	2029	2030
1	**ANC testing**				%	%	%	%	%
1.1	ANC1 coverage	94.0	738138	NDHS 2022 & IHIMS 2080/81	95.0	95.0	95.0	95.0	95.0
1.2	Percentage of pregnant women tested for HIV during pregnancy (screening test at least once)	88.0	693850	HMIS 2080/81	89.6	91.0	92.3	93.8	95.0
1.3	HBsAg testing for pregnant women during ANC	10.0	693850	Assumption that it should be around half of the syphilis testing	38.0	53.0	67.0	80.83	95.0
1.4	Percentage of pregnant women tested for syphilis during pregnancy	22.9	637555	IHIMS 2080/81	46.9	58.9	71.0	83.0	95.0
2	**HIV positive pregnant women**								
2.1	ART coverage among pregnant and breastfeeding women living with HIV	66.8	226	SPECTRUM 2024 data	76.1	80.8	85.6	90.3	95.0
2.2	Viral load testing for HIV positive pregnant women	91.0	226	Estimated based on secondary literature[24]	92.3	93.0	93.7	94.3	95.0
3	**EID and treatment**								
3.1	EID of 4-6 weeks for HIV exposed newborns	51.0	226	Estimates based on UNICEF25	65.7	73.0	80.3	87.7	95.0
3.2	Antiviral prophylaxis for 6-16 weeks for HIV exposed to newborn (per day)	75.0	226	Estimated based on secondary literature [24]	81.7	85.0	88.3	91.7	95.0
3.3	Co-trimoxazole prophylaxis after cessation of exposure (per month)	67.0	226	Estimated extrapolated based on secondary literature[26]	76.3	81.0	85.7	90.3	95.0
3.4	18-month antibody testing for HIV exposed infants	62.0	226	Extrapolated from a study in a similar setting.[27]	73.0	78.5	84.0	89.5	95.0
4	**HBV positive pregnant women[29]**								
4.1	HBV DNA (HBV viral load) test for HBsAg positive pregnant women	20.0	6245	Estimated based on secondary literature.[31]	45.0	57.5	70.0	82.5	95.0
4.2	HBeAg testing for HBsAg positive pregnant women	15.0	6245	Assumed to be slightly less than HBV DNA testing	41.67	55.0	68.33	81.67	95.0

SN	Interventions	Baseline			Target coverage				
		Coverage	PIN	Source	2026	2027	2028	2029	2030
4.3	Proportion of HBV-infected pregnant women receiving antiviral prophylaxis	<1.0	1873	Estimated based on data from CDA foundation13, number of expected pregnancies adjusted for abortion rate and miscarriage rate from NDHS 2022 for estimating total births	32.3	48.0	63.7	79.3	95.0
4.4	Hepatitis B birth-dose coverage	<1.0	597892		NA	24.5	48.0	72.0	95.0
4.5	HBIG for infants of HBsAg + pregnant women	<1.0	1082		32.3	48.0	63.7	79.3	95.0
4.6	HepB3 (3-dose infant vaccine) coverage	97.0	597892		97.0	97.0	97.0	97.0	97.0
4.7	Hepatitis B serological testing at 9-12 months for HBV-exposed infants	<1.0	6245		32.3	48.0	63.7	79.3	95.0
5	**Syphilis-infected pregnant women**[39]								
5.1	Proportion of syphilis-seropositive pregnant women treated with at least one dose of penicillin in a timely manner	32.4	6938	Based on Global Health Observatory data[29]	53.3	63.7	74.1	84.6	95.0
5.2	Penicillin treatment for syphilis-exposed infants	32.4	5620	Assumption that the proportion of exposed infants treated is equivalent to % of exposed mothers treated	53.3	63.7	74.0	85.0	95.0
5.3	Testing for syphilis-exposed infants	32.4	5620		53.0	63.7	74.0	84.6	95.0
6	**Dual testing**								
6.1	Costing of the dual test kit	<1.0	693850	Estimated based on expert consultation	32.3	48.0	63.7	79.3	95.0

8.5 Estimated Programme Implementation Cost

The projected programme costs demonstrate a steady scale-up of EMTCT interventions in Nepal over the period 2026–2030, in line with national targets for expanding coverage and strengthening service delivery. Total annual implementation costs are estimated to increase from approximately NPR 943.8 million in 2026 to NPR 1.31 billion by 2030, reflecting progressive expansion in EMTCT services including testing, treatment, follow-up, and capacity development activities.

Routine ANC testing constitutes a substantial and growing share of total programme cost, increasing from NPR 467.2 million in 2026 to NPR 717.8 million by 2030. Costs associated with the management of HIV-positive pregnant women, and EID and treatment also show a gradual increase over the projection period. Cost for HIV-positive pregnant women is estimated to increase from approximately NPR 4 million to NPR 6.7 million, while costs for EID and treatment will increase from NPR 0.9 million in 2026 to NPR 1.7 million in 2030, consistent with improved case detection and higher service utilization resulting from expanded testing coverage.

Cost related to HBV-positive pregnant women remain a major component throughout the projection period, increasing from NPR 468.1

million in 2026 to NPR 581.6 million in 2030. Investments in the detection and treatment of syphilis-infected pregnant women, while comparatively smaller, also increase steadily from NPR 1.2 million in 2026 to NPR 2.0 million in 2030, contributing to more comprehensive and integrated EMTCT services.

Annual allocations for capacity development are maintained at NPR 2.48 million across all years, supporting sustained system strengthening and service quality improvements. Summary of cost under broad categories is presented in Table 10, and detail breakdown of cost is presented in Table 11.

Table 10: Year-wise breakdown of programme implementation cost

SN	Intervention sub-domain	2026	2027	2028	2029	2030
1	Antenatal care (ANC) testing	467162971	533346654	595263809	655987440	717808599
2	HIV positive pregnant women	3960978	4579042	5255359	5965855	6701322
3	Early infant diagnosis and treatment	872285	1054294	1257108	1479226	1713506
4	HBV-positive pregnant women	468145885	497783770	525631849	554165153	581554529
5	Syphilis-infected pregnant women	1158108	1381044	1602992	1826107	2046068
6	Capacity development	2480000	2480000	2480000	2480000	2480000
Total programme cost		**943780227**	**1040624804**	**1121491117**	**1221903781**	**1312303948**

Table 11: Detailed breakdown of the cost of implementing EMTCT interventions

SN	Interventions	Population in need (PIN)					Unit cost	Total cost per year					
		2026	2027	2028	2029	2030		2026	2027	2028	2029	2030	
1	**Antenatal care (ANC) testing**												
1.1	ANC1 coverage	698170	696639	695108	693578	692047	100	69817020	69663880	69510835	69357790	69204745	Linear projection of annual pregnancy and projected coverage level
1.2	Percentage of pregnant women tested for HIV during pregnancy (screening at least once)	625560	633941	641585	650576	657445	330	201739606	206434965	209200632	211723052	214690103	Cost data from secondary study42, cost assumed to be similar to cost of HBsAg and Syphilis testing
1.3	HBsAg testing for pregnant women during ANC	265305	369219	465723	560411	657445	330	87550543	121842126	153688456	184935611	216956876	Test price of NPHL adjusted for service delivery platform (scaled down to primary facilities) and lower cost during mass procurement
1.4	Percentage of pregnant women tested for syphilis during pregnancy	327442	410320	493527	575670	657445	330	108055802	135405684	162863886	189970987	216956876	
	ANC testing sub-total							**467162971**	**533346654**	**595263809**	**655987440**	**717808599**	
2	**HIV positive pregnant women**												
2.1	ART coverage among pregnant and breastfeeding women living with HIV	218	256	298	342	389	13072	2855016	3348210	3893992	4473722	5079126	Linear projection of population in need using data from 2019 to 2024 and cost data obtained from procurement records of 2080/81 adjusted for overhead cost
2.2	Viral load testing for HIV positive pregnant women	265	295	326	357	389	4175	1105962	1230832	1361367	1492132	1622196	
	Total cost for HIV positive pregnant women							**3960978**	**4579042**	**5255359**	**5965855**	**6701322**	

SN	Interventions	Population in need (PIN)					Unit cost	Total cost per year					
		2026	2027	2028	2029	2030		2026	2027	2028	2029	2030	
3	Early infant diagnosis and treatment												
3.1	Early infant diagnosis (EID) of 4-6 weeks for HIV exposed newborns	189	231	279	332	389	3400	641101	786794	950110	1130102	1321070	Price of test from NPHL adjusted for delivery platform and mass procurement
3.2	Antiviral prophylaxis for 6-16 weeks for HIV exposed newborn (per day)	234	269	307	348	389	750	175859	202088	230463	260657	291413	Linear projection of PIN, cost data obtained from procurement records of 2080/81 adjusted for overhead cost.
3.3	Co-trimoxazole prophylaxis after cessation of exposure (per month)	219	257	298	342	389	90	19708	23109	26841	30801	34970	
3.4	18-month antibody testing for HIV exposed infants	210	249	292	339	389	170	35617	42304	49694	57665	66054	
	Total cost for Early Infant Diagnosis and Treatment							**872285**	**1054294**	**1257108**	**1479226**	**1713506**	
4	**HBV positive pregnant women**												
4.1	HBV DNA (HBV viral load) test for HBsAg positive pregnant women	2976	3795	4610	5421	6228	3400	10119793	12902484	15672864	18430920	21176652	Test price of NPHL adjusted for service delivery platform (scaled down to primary facilities) and lower cost during mass procurement
4.2	HBeAg testing for HBsAg positive pregnant women	2752	3630	4500	5366	6228	170	467759	617075	764948	912275	1058833	
4.3	Proportion of HBV-infected pregnant women receiving antiviral prophylaxis	641	950	1258	1563	1869	5242	3359704	4981798	6596736	8194182	9794824	Estimated with assumption that around 30% of HBsAg-positive pregnant women need antiretroviral

SN	Interventions	Population in need (PIN)					Unit cost	Total cost per year					
		2026	2027	2028	2029	2030		2026	2027	2028	2029	2030	
4.4	Hepatitis B birth-dose coverage		147321	284482	425784	560558	174		25633815	49499909	74086385	97537168	Cost estimates from GAVI used
4.5	HBIG for infants of HBsAg + pregnant women	2136	3168	4195	5211	6228	331	707149	1048566	1388477	1724707	2061609	Estimated in consultation with experts
4.6	HepB3 (3-dose infant vaccine) coverage	577424	576157	574891	573625	572360	785	453277840	452283245	451289435	450295625	449302600	Estimates for 3 doses based using data from the birth dose from GAVI
4.7	Hepatitis B serological testing at 9-12 months for HBV exposed infants	2136	3168	4195	5211	6228	100	213640	316787	419480	521060	622843	Estimated using the HBsAg quick and ELISA test rate from NPHL
	Total cost for HBV positive pregnant women							**468145885**	**497783770**	**525631849**	**554165153**	**581554529**	
5	**Syphilis infected pregnant women**												
5.1	Proportion of syphilis-seropositive pregnant women treated with at least one dose of penicillin in a timely manner	2493	2973	3451	3931	4405	100	249324	297318	345100	393134	440488	Cost data obtained from procurement records of 2080/81 adjusted for overhead cost
5.2	Penicillin treatment for syphilis exposed infants	2020	2408	2795	3184	3568	100	201952	240828	279531	318438	356795	
5.3	Testing for syphilis exposed infants	2020	2408	2795	3184	3568	350	706832	842898	978360	1114534	1248784	Estimates considering the prevalence of 0.67%42 , and adjusted NPHL rates for the test
	Total cost for Syphilis infected pregnant women							**1158108**	**1381044**	**1602992**	**1826107**	**2046068**	

SN	Interventions	Population in need (PIN)					Unit cost	Total cost per year					
		2026	2027	2028	2029	2030		2026	2027	2028	2029	2030	
6	Capacity development (training for introduction of new services)							2480000	2480000	2480000	2480000	2480000	Estimated cost for 10 participants and 3 facilitators, with one training in each of seven province and additional one at Federal level
	Total programme implementation cost							**943780227**	**1040624804**	**113149111**	**1221903781**	**1312304023**	
7	**Combination of test strategy**												
7.1	Costing of Dual test kit	698170	696639	695108	693578	692047	430	300213186	299554684	298896591	298238497	297580404	Estimates from a secondary literature adjusted to account for overhead costs42, are not considered in total cost because of duplication
8	**Research and studies**												
8.1	Validation workshop for New pediatric infection due to MTCT and MTCT rate							5000000			5000000		For each study, the cost is calculated using an estimated sample size of around 3,000, selected to ensure representation across diverse settings
8.2	Estimation of congenital syphilis case rate								35000000			35000000	
8.3	HBsAg prevalence in children (birth cohort ≤5 years) -new study									35000000		35000000	
	Grand total (Programme implementation cost + research cost)							948780228	1075624804	1166491117	1226903781	1382304023	

8.6 Efficiency Measures and Integration Gains

The integration of health services is a core mandate of this roadmap, offering critical efficiency gains. Currently, separate HIV and syphilis testing costs NPR 660 per person. Switching to a dual HIV/syphilis testing strategy would reduce the cost by NPR 230 per person, from NPR 660 to 430. Integrating HIV and syphilis testing is estimated to yield annual savings of over NPR 159 million. Refer to Annex 4 and 5 for more details.

CHAPTER-9

IMPLEMENTATION PLAN AND PHASED ROLLOUT

9.1 Overview of the implementation strategy

To ensure a structured, accountable and measurable rollout of the triple elimination mandate, the implementation of this roadmap is divided into three distinct phases over the five-year period (2026-2030). This phased approach allows the MoHFS to address immediate supply chain and capacity gaps (phase 1) before attempting full-scale validation (Phase 3). The implementation logic follows a "quality-then-scale" principle; first ensure the minimum service package is functioning correctly in high-volume sites, then expand to reach the "last mile". Figure 10 provides a visual overview of this chronological progression, moving from initial system strengthening to final WHO certification. Table 12 details the specific timeframes, priority focus areas and mandatory targets that must be achieved during each implementation phase.

9.2 Phase 1: Preparation and System Strengthening (Year 1: 2026)

The primary objective of phase 1 is to establish the enabling environment for Triple Elimination. This phase focuses heavily on governance, procurement alignment, and closing the immediate training gap identified by partners.

Figure 10: Summary of implementation phases

Table 12: Summary of implementation phases and targets

Phases	Timeframe	Priority Focus	Key Targets
Phase 1: Preparation and System Strengthening	2026 (Year 1)	Governance activation, site performance categorization, baseline readiness assessment, integrated commodity planning and workforce capacity building	• National EMTCT Steering Committee established and operational • Triple Elimination Directives issued to all 753 municipalities • Baseline and readiness assessment completed • Provinces and prority sites categorized as high, medium, or low performing to guide tailored support • Integrated testing commodity quantification and procurement planning completed • 3-month hepatitis B birth dose buffer stock establishment at the provincial level • 100% provinces have trained master trainers • Roadmap and SOPs physically distribution to all birthing centers
Phase 2: Accelerated Scale-up	2027-2028 (Years 2-3)	Service expansion, private sector integration, and surveillance strengthening	• ≥ 90% coverage of Bronze and Silver tier process indicators • One- Stop Shop model implementation in all public hospitals and health posts • Mandatory reporting enforced in private facilities • Mother baby pair tracking module deployed in high-volume sites • Commodity access scheme • First national data quality audit
Phase 3: Consolidation and Validation	2029-2030 (Years 4-5)	Impact verification, pre-validation assessment, and WHO certification	• Hepatitis B prevalence among 5 years old verified at <0.1 % • Complete WHO elimination readiness assessment • Finalize national elimination dossier • Dossier submission to the WHO regional validation team • Achievement of gold-tier EMTCT status

Key Milestones

1. Governance Activation

- Establish the national EMTCT Steering Committee and hold the first multi-sectoral meeting.
- Issue the "Triple Elimination Directives" to all 753 municipalities, clarifying their role in allocating budget for EMTCT interventions, including capacity building, point of care testing support, referral linkage, community follow-up, supervision and other implementation costs .

2. Supply Chain Correction

- Complete the quantification and procurement planning for integrated testing commodities, including transition planning for triple HIV/Syphilis/hepatitis B testing where approved, quality assured, affordable and feasible for national implementation.
- Resolve the hepatitis B birth dose stockout risks by establishing a 3-month buffer stock at provincial medical stores.

3. Workforce Capacity

- Update the NMS and in-service training curriculum to fully integrate hepatitis B protocols.
- Conduct the master training of trainers for seven PHD.

Critical Qualitative Insight: Stakeholders' feedback indicates that previous guidelines failed due to a lack of dissemination. Phase 1 prioritizes the physical distribution of the new roadmap and standard operating procedures (SOPs) to every birthing center, not just digital circulation.

9.3 Phase 2: Accelerated Scale-Up (Years 2-3: 2027-2028)

Phase 2 focuses on accelerated service expansion, improved data capture and valisation readiness strengthening across all provinces, with emphasis on increasing coverage of integrated testing treatment, birth dose vaccination, reporting and follow-up services.

Key Milestones

1. **Service delivery expansion**

- Roll out the "One-Stop Shop" model (testing, treatment, and vaccination in a single ANC visit) to all primary hospitals, health centres, and health posts.
- Launch community-led testing pilots in urban centers to reach key populations (FSW/PWID) who avoid formal health facilities.

2. **Private Sector Integration**

- Enforce the mandatory reporting mandate for private nursing homes.
- Launch the commodity access scheme, where the government provides free vaccines and test kits to private facilities that comply with reporting standards.

3. **Surveillance Strengthening**

- Deploy the mother-baby pair tracking module in the EMR at high-volume sites.
- Conduct the first data quality audit focused on syphilis testing discordance.

9.4 Phase 3: Consolidation and Validation (Year 4-5: 2029-2030)

Phase 3 is dedicated to closing the remaining gaps, the last 5%, and preparing the rigorous evidence dossier for WHO certification.

Key Milestones

1. **Impact Measurement**

- Conduct the hepatitis B serosurvey among 5-year-old children to verify prevalence <0.1%.
- Execute the elimination readiness assessment using the WHO validation tool.

2. **Pre-Validation**

- The NVC conducts mock site visits to identifying weakness in data quality.
- Drafting of the "National Elimination Dossier."

3. **Certification**

- Formal submission of the dossier to the WHO regional validation team.
- Achievement of gold tier status.

While the phased approach defines our progressive targets, the successful execution of this roadmap requires continuous, overlapping efforts across multiple health system building blocks. Figure 11 provides the implementation Gantt Chart. It shows the sequencing of major activities from governance activation and system strengthening in 2026 through service scale up, prevalidation assessment, gap correction and national validation dossier preparation by 2030. The prevalidation assessment will be conducting using WHO tools from late 2028 to early 2029 allowing the country to identify and address gaps in progarmme, data laboratory and HRGECE domains before initiating the national validation process.

9.5 District and Local Level Micro-Planning

Recognizing that national targets fail without local ownership, the roadmap requires every health office to develop an annual EMTCT micro-plan.

Figure 11: Implementation Gantt Chart for triple EMTCT roadmap

Task /Date	2026	2027	2028	2029	2030
Governance activation and coordination					
Baseline readiness assessment and performance categorization					
Protocol harmonization and MNCH minimum package alignment					
Integrate commodity planning and supply chain strengthening					
Training and capacity building					
One-Stop Shop model rollout and service delivery scale-up					
Private sector engagement and reporting					
HMIS tool update and mother-baby pair tracking					
Laboratory referral and quality assurance systems					
Community engagement and stigma reduction					
Routine data quality assessment and validation readiness review					
Pre-validation assessment using WHO tools					
Gap correction based on pre validation findings					
Hepatitis B serosurvey and validation related studies					
National validation dossier preperation and submission					

The micro-planning process

1. **Denominator Estimation:** Calculate the expected number of pregnancies in the municipality.
2. **Gap Analysis:** Compare current testing rates against the estimated pregnancies to identify missing mothers.
3. **Resource Allocation:** Budget for specific search and treat camps in wards with low ANC attendance.

9.6 Role of Development Partners in Implementation

Development partners, donors, civil society organizations, professional associations, academic institutions and community networks will play an important role in supporting implementation of this roadmap under the leadership of the Government of Nepal. Their support will be aligned with national priorities, existing mandates, comparative advantages and available resources.

Partner support may include technical assistance, capacity building, evidence generation, validation readiness, community engagement, commodity and service delivery support, health information systems strengthening, laboratory quality improvement, stigma reduction, equity focused interventions and support for monitoring, evaluation and learning. Coordination mechanisms at federal and provincial levels will be used to align partner contributions, avoid duplication, promote complementary and ensure that external strengthens national systems rather than creating parallel implementation arrangements.

CHAPTER-10

RECOMMENDATIONS FOR ACTION

10.1 Overview

Achieving the triple EMTCT of HIV, syphilis and hepatitis B requires coordinated action across all levels of Nepal's federal health system. Nepal already has important platforms for maternal, newborn and child health, HIV, STI, hepatitis, immunization, laboratory services, community engagement and health information systems. The priority of this roadmap is to harmonize these platforms so that pregnant women, mothers, newborns and exposed infants receive a complete and integrated minimum package of care.

This chapter translate the roadmap's strategic pillars and the One-Stop Shop service delivery model into priority actions for federal, provincial, local, partner and community stakeholders. The recommendations are organized to support the roadmap's strategic pillars while also ensuring readiness across the four WHO EMTCT validation components: programme, data, laboratory and HRGECE.

The ANC and PNC continuum of care guidelines already recommend triple screening for HIV, syphilis and hepatitis B at the first ANC visit. Therefore, the focus of this roadmap is not to create a parallel directive, but to ensure that the triple EMTCT minimum package of care is fully integrated within the MNCH framework including ANC, delivery, postnatal care, immunization, referral, follow-up, recording and reporting systems.

The One-Stop Shop model described in chapter 5 will serve as the primary service delivery approach for operationalize the triple EMTCT minimum package within MNCH services. Under this model, counselling, triple testing, treatment initiation or referral, birth dose vaccination, infant prophylaxis, follow-up and documentation should be organized as part of a single coordinated care pathway for pregnant women, mothers, newborns and exposed infants.

The current MNH register already captures several core maternal and newborn health data elements. Therefore, the roadmap recommends targeted updated to existing recording and reporting tools rather than introducing new registers of discontinuing existing programme tools. The limited miner of additional triple EMTCT data elements should be incorporated into relevant tools, including HMIS 3.5 MNH Card, HMIS 3.6 MNH Register, HMIS 2.2 Immunization Service Register for hepatitis B birth dose and HMIS 9.3 to 9.5 reporting formats. This approach will support monitoring of the triple EMTCT cascade while minimizing additional burden on service providers.

10.2 Strategic Recommendations for Federal Level

At the federal level, the priority is to provide policy direction, harmonize national standards, secure financing, strengthen procurement and supply planning, update recording and reporting tools, strengthen laboratory systems, develop integrated training packages and ensure validation readiness. Federal recommendations are organized below according to the four EMTCT validation components (Table 13).

Table 13: Federal level recommendations by EMTCT validation components

EMTCT validation component	Strategic recommendation	Key federal actions	Responsible entity
Programme	Integrate the Triple EMTCT minimum package of care within the MNCH framework and operationalize it through the One-Stop Shop model	Review and align ANC, delivery, PNC, newborn, HIV, STI, hepatitis B, immunization, laboratory, and referral guidance with the Triple EMTCT minimum package of care and the One-Stop Shop model. Ensure that counselling, triple testing, treatment initiation or referral, birth dose vaccination, infant prophylaxis, follow-up, and documentation are delivered through a coordinated MNCH care pathway.	FWD, NCASC, CSD, National Immunization Programme
	Harmonize clinical and operational protocols across HIV, syphilis, and hepatitis B	Update protocols for counselling, testing algorithms, ART linkage, syphilis treatment, hepatitis B clinical management in pregnancy, antiviral prophylaxis, hepatitis B birth dose, HBIG where available, exposed infant follow-up, referral, and final outcome documentation.	NCASC, FWD, CSD, NPHL
	Strengthen financing and commodity security for Triple EMTCT	Ensure national forecasting, procurement, and budget provisions for dual HIV/syphilis RDTs, HBsAg test kits, benzathine penicillin, ARVs, hepatitis B antivirals, hepatitis B birth dose vaccine, HBIG where available, and laboratory commodities.	Management Division, NCASC, FWD, National Immunization Programme
	Develop integrated capacity-building systems	Develop and roll out an integrated Triple EMTCT training package for MNCH, HIV, STI, hepatitis B, immunization, laboratory, health information, and supply chain staff.	NHTC, NCASC, FWD, CSD, NPHL, Management Division
Data	Update existing recording and reporting tools by adding selected Triple EMTCT data elements	Add selected Triple EMTCT data elements to relevant existing tools, including HMIS 3.5 MNH Card, HMIS 3.6 MNH Register, HMIS 2.2 Immunization Service Register for hepatitis B birth dose, and HMIS 9.3 to 9.5 reporting formats. Ensure that updates are limited, practical, and aligned with routine service delivery requirements.	Management Division/IHIMS, FWD, NCASC, NPHL
	Establish a validation-ready monitoring, evaluation, and surveillance system	Define core indicators, data sources, reporting frequency, responsible institutions, mother-baby pair tracking requirements, private sector reporting mechanisms, and data quality assurance processes.	Management Division/IHIMS, NCASC, FWD, NPHL
	Strengthen data quality, use, and private sector reporting	Institutionalize routine data quality assessments, triangulate HMIS, laboratory, commodity, immunization, and case-based surveillance data, and strengthen reporting from private facilities providing ANC, delivery, newborn, immunization, and laboratory services.	Management Division/IHIMS, NCASC, FWD, provincial and local governments
Laboratory	Strengthen laboratory systems for Triple EMTCT	Define testing algorithms, confirmatory testing pathways, HBV viral load referral mechanisms, EID referral pathways, syphilis testing pathways, specimen transport, result return, and laboratory quality assurance systems.	NPHL, NCASC, FWD, CSD

EMTCT validation component	Strategic recommendation	Key federal actions	Responsible entity
	Generate validation evidence for hepatitis B	Plan and implement hepatitis B serosurveys among children and ensure laboratory readiness for HBsAg testing, quality assurance, data reporting, and linkage with clinical and surveillance systems.	FWD, NPHL, NCASC, Management Division
HRGECE	Institutionalize rights-based, gender-responsive, and equitable Triple EMTCT services	Integrate informed consent, confidentiality, respectful maternity care, stigma reduction, gender sensitivity, adolescent-friendly services, and non-discrimination into protocols, training, supervision, and quality assurance tools.	NCASC, FWD, NHTC, NHEICC
	Strengthen community engagement and accountability	Engage women living with HIV, PLHIV networks, key population networks, FCHVs, women's groups, civil society, and community organizations in demand generation, peer navigation, follow-up support, grievance redressal, and community-led monitoring.	NCASC, FWD, NHEICC, local governments, civil society networks
Cross-cutting	Ensure national coordination and validation readiness	Use the NESC, NTWG, and NVC to oversee implementation, monitor milestones, coordinate partner support, review validation evidence, and support preparation of the national validation dossier.	MoHFS, NESC, NTWG, NVC

10.3 Operational Recommendations for Provincial Level

Provincial governments will translate national standards into operational implementation. Their role is to support rollout of the One-Stop Shop model, ensure commodity distribution, strengthen provincial training and mentoring, support laboratory referral networks, review data quality and address equity gaps across districts and municipalities (Table 14).

Table 14: Provincial level recommendations by EMTCT validation component

EMTCT validation component	Strategic recommendation	Key provincial actions	Responsible entity
Programme	Develop provincial Triple EMTCT implementation plans	Align provincial annual work plans with the national roadmap, with clear targets for integrated ANC testing, treatment linkage, birth dose vaccination, referral, infant follow-up, private sector reporting, and validation readiness.	Provincial Health Directorate
	Support rollout of the One-Stop Shop model within MNCH services	Ensure that provincial hospitals, primary hospitals, health posts, birthing centres, and relevant private facilities implement the Triple EMTCT minimum package through a coordinated ANC, delivery, PNC, newborn, immunization, laboratory, and referral pathway.	Provincial Health Directorate, Health Offices, Provincial Hospitals
	Strengthen commodity distribution and stock monitoring	Maintain provincial buffer stocks and distribute commodities based on ANC caseload, facility consumption, and stock status. Monitor availability of dual HIV/syphilis RDTs, HBsAg test kits, benzathine penicillin, ARVs, hepatitis B antivirals, hepatitis B birth dose vaccine, HBIG where available, and laboratory supplies.	Provincial Health Logistics Management Centre

EMTCT validation component	Strategic recommendation	Key provincial actions	Responsible entity
	Roll out integrated training and mentoring	Implement the federal integrated training package and provide mentoring for MNCH providers, laboratory staff, ART centre staff, immunization staff, health office teams, and private sector providers where relevant.	Provincial Health Training Centre, Provincial Health Directorate
Data	Strengthen provincial data review and data quality	Review HMIS, case-based surveillance, laboratory, immunization, private sector, and supply chain data during provincial review meetings. Use the findings to guide corrective action.	Provincial Health Directorate, Health Offices
	Support implementation of updated HMIS tools	Ensure use of updated HMIS 3.5, HMIS 3.6, HMIS 2.2, and HMIS 9.3 to 9.5 once endorsed nationally. Provide orientation and follow-up support to facilities and municipalities.	Provincial Health Directorate, Health Offices
Laboratory	Strengthen provincial diagnostic and referral networks	Designate laboratories for confirmatory testing, HBV viral load referral, EID sample referral, syphilis testing where required, specimen transport, quality assurance, and result return.	Provincial laboratories, NPHL, Provincial Health Directorate
	Monitor laboratory quality and service linkages	Conduct periodic review of laboratory turnaround time, result reporting, referral completion, and linkage to clinical management.	Provincial laboratories, Health Offices
HRGECE	Improve equitable access in undeserved areas	Use provincial data to identify low-coverage areas, remote municipalities, border areas, migrant corridors, and undeserved populations requiring targeted support.	Provincial Health Directorate, Health Offices
	Support community engagement and accountability	Engage community networks, FCHVs, PLHIV networks, key population networks, women's groups, and civil society in demand generation, stigma reduction, follow-up support, and service monitoring.	Provincial Health Directorate, local governments, civil society

10.4 Operational Recommendations for Local Level

Local governments and health facilities are responsible for frontline implementation of the triple EMTCT minimum package through the One-Stop Shop model. Their role includes service delivery, micro-planning, community mobilization, referral and follow-up, facility level commodity monitoring, private sector coordination, recording, reporting and accountability (Table 15).

Table 15: Local level recommendations by EMTCT validation component

EMTCT validation component	Strategic recommendation	Key local actions	Responsible entity
Programme	Implement the Triple EMTCT minimum package through the One-Stop Shop model within MNCH services	Provide counselling and triple testing during ANC, initiate syphilis treatment where indicated, link women living with HIV to ART services, refer HBsAg-positive pregnant women for confirmatory testing and case management, ensure timely hepatitis B birth dose vaccination, support infant prophylaxis and follow-up, and document services through updated HMIS tools.	Health facilities, birthing centres, municipal health sections
	Conduct local micro-planning	Estimate expected pregnancies, identify missed ANC clients, map hard-to-reach settlements and vulnerable groups, and plan outreach, referral support, and follow-up.	Municipal health sections, ward health teams
	Strengthen referral and counter-referral systems	Maintain linkages with ART centres, hospitals, laboratories, immunization clinics, and specialist services for HIV, syphilis, and hepatitis B case management.	Health facilities, municipal health sections
	Monitor facility-level commodity availability	Track stock status, consumption, expiry, and resupply needs for test kits, medicines, vaccines, and related commodities.	Facility in-charges, municipal health sections
Data	Ensure complete and timely recording and reporting	Use updated HMIS tools, including HMIS 3.5, HMIS 3.6, HMIS 2.2, and HMIS 9.3 to 9.5, to record and report Triple EMTCT services.	Health facilities, municipal health sections
	Track mother-baby pairs through the full cascade	Follow positive pregnant women and exposed infants from diagnosis through treatment, prophylaxis, vaccination, infant testing, and final outcome documentation.	Health facilities, ART centres, municipal health sections
	Strengthen private sector reporting at local level	Orient private facilities on national reporting requirements, collect monthly reports, and support linkage with municipal and HMIS reporting systems.	Municipal health sections, private facilities
Laboratory	Ensure sample referral and result follow-up	Refer specimens for confirmatory testing, HBV viral load testing, EID, and other required laboratory services, and ensure timely return and use of results.	Health facilities, laboratories, referral hospitals
HRGECE	Strengthen community-based identification and follow-up	Mobilize FCHVs and community networks for early pregnancy identification, ANC referral, follow-up of missed visits, and linkage of vulnerable women to services.	FCHVs, municipal health sections, community networks
	Promote stigma-free and rights-based care	Ensure confidentiality, informed consent, respectful maternity care, non-discrimination, and appropriate counselling in all service delivery points.	Health facilities, municipal health sections
	Engage private providers locally	Orient private hospitals, nursing homes, and clinics on national Triple EMTCT testing, treatment, referral, and reporting requirements.	Municipal health sections, private facilities

10.5 Recommendations for Development Partners and Donors

Development partners, donors, civil society organizations, academic institutions and professional associations will play an important role in supporting implementation under the leadership of the government of Nepal. Their support should remain flexible and aligned with national priorities, existing mandates, comparative advantages and available resources. Partners support should strengthen national systems and avoids parallel implementation arrangements (Table 16).

Table 16: Recommendations for development partners and donors by EMTCT validation

EMTCT validation component	Recommended area of support	Examples of support
Programme	Support implementation of the integrated minimum package of care and One-Stop Shop model	Technical assistance, service delivery strengthening, referral systems, quality improvement, integrated training, and targeted implementation support in underserved areas.
	Support sustainable financing and resource mobilization	Support costing, investment cases, budget advocacy, transition planning, and alignment of resources with national and provincial plans.
Data	Strengthen monitoring, evaluation, and surveillance systems	Support targeted updates to existing HMIS tools, data quality assurance, mother-baby pair tracking, private sector reporting, dashboards, validation-readiness reviews, and use of data for corrective action.
Laboratory	Strengthen diagnostic and laboratory quality systems	Support laboratory algorithms, quality assurance, specimen transport systems, HBV viral load referral pathways, EID systems, syphilis testing systems, and hepatitis B serosurvey implementation.
HRGECE	Support rights-based and equity-focused programming	Support stigma reduction, community engagement, peer navigation, community-led monitoring, adolescent-friendly services, migrant-focused interventions, and key population-friendly services.
Cross-cutting	Align support with national systems	Coordinate through federal and provincial mechanisms, avoid duplication, and ensure that external support strengthens government-led implementation and validation readiness.

10.6 Recommendations for Civil Society and Communities

Civil society, community networks, women's group, PLHIV networks, FCHVs and community based organizations are essentials for demand generation, right protection, service acceptability, follow-up support, and accountability. Their role should integrate into implementation and validation readiness (Table 17).

Table 17: Recommendations for civil society and communities by EMTCT validation

EMTCT validation component	Strategic recommendation	Key community actions
Programme	Support early service uptake and retention	Promote early ANC registration, triple testing, institutional delivery, hepatitis B birth dose vaccination, infant follow-up, and treatment adherence.
	Support implementation of the One-Stop Shop approach at community level	Inform women and families that HIV, syphilis, and hepatitis B services should be accessed as part of routine MNCH care, and support linkage to facilities offering the integrated minimum package.
Data	Contribute to community feedback and service monitoring	Provide feedback on access barriers, stigma, informal costs, waiting time, stock-outs, referral gaps, missed follow-up, and service quality.
Laboratory	Support referral completion and result follow-up	Help clients understand the need for confirmatory testing, viral load testing, infant testing, and timely follow-up visits.
HRGECE	Reduce stigma and promote rights-based care	Support peer counselling, disclosure support, confidentiality, gender-sensitive care, non-discrimination, and respectful treatment of women and infants.
	Reach underserved and vulnerable groups	Support outreach to women living with HIV, adolescents, migrants and spouses of migrants, key populations, remote communities, and women facing social or economic barriers.
Cross-cutting	Participate in accountability mechanisms	Engage in community-led monitoring, municipal reviews, grievance redressal processes, and validation-related documentation where feasible.

Table 18 summarizes the key implementation barriers, system implementations, corrective actions and responsible entities for integrating triple EMTCT within the MNCH framework.

Table 18: Implementation Matrix for Integrated Triple Elimination Services

Barrier identified	System-level implication	Actionable recommendation	Responsible entity
Triple EMTCT minimum package of care not yet fully operationalized through the One-Stop Shop model within MNCH services	Pregnant women and infants may experience fragmented counselling, testing, treatment, referral, vaccination, follow-up, and documentation across multiple service points	Integrate the Triple EMTCT minimum package of care within the MNCH framework and operationalize it through the One-Stop Shop model across ANC, delivery, PNC, newborn, immunization, laboratory, and referral services	Federal: FWD, NCASC, CSD, NPHL, National Immunization Programme. Provincial: Provincial Health Directorate. Local: Municipal health sections and facilities
Existing recording and reporting tools do not yet capture all data elements required for Triple EMTCT monitoring	Incomplete monitoring of selected cascade elements, including hepatitis B birth dose, exposed infant follow-up, and final outcome documentation	Add selected Triple EMTCT data elements to relevant existing tools, including HMIS 3.5 MNH Card, HMIS 3.6 MNH Register, HMIS 2.2 Immunization Service Register for hepatitis B birth dose, and HMIS 9.3 to 9.5 reporting formats. Harmonize reporting requirements across MNCH, HIV, STI, hepatitis B, immunization, and laboratory systems to avoid duplication and reduce reporting burden	Federal: Management Division/IHIMS, FWD, NCASC, NPHL. Provincial: Provincial Health Directorate and Health Offices. Local: Health facilities

Barrier identified	System-level implication	Actionable recommendation	Responsible entity
Fragmented testing and referral pathways across HIV, syphilis, hepatitis B, MNCH, immunization, and laboratory services	Missed opportunities for early detection, treatment, birth dose vaccination, and exposed infant follow-up	Align the minimum package of care with ANC, delivery, PNC, newborn, immunization, laboratory, and referral services so that testing, treatment, referral, prophylaxis, vaccination, and follow-up are delivered as part of routine MNCH care	Federal: FWD, NCASC, CSD, NPHL. Provincial: Provincial Health Directorate. Local: Health facilities
Hepatitis B indicators not yet fully integrated into HMIS	Limited ability to monitor HBsAg screening, linkage to HBV viral load testing, maternal antiviral prophylaxis, birth dose vaccination, HBIG where available, and infant follow-up	Integrate selected hepatitis B indicators into updated HMIS tools and link immunization, laboratory, MNCH, and case-based reporting systems where feasible	Federal: Management Division/IHIMS, FWD, NPHL, NCASC. Provincial: Health Offices. Local: Facilities and immunization clinics
Lack of unique mother-baby pair tracking across services	Difficulty documenting the full cascade from maternal diagnosis to infant final outcome	Establish or strengthen case-based mother-baby pair tracking for women diagnosed with HIV, syphilis, or hepatitis B and their exposed infants	Federal: NCASC, FWD, Management Division/ IHIMS. Provincial: Provincial Health Directorate. Local: Health facilities and ART centres
Stock-outs or uneven availability of test kits, medicines, vaccines, and hepatitis B commodities	Interrupted testing, delayed treatment, missed birth dose vaccination, and inequitable access	Strengthen forecasting, procurement planning, buffer stock monitoring, and distribution of dual HIV/syphilis RDTs, HBsAg test kits, benzathine penicillin, ARVs, hepatitis B antivirals, hepatitis B birth dose vaccine, HBIG where available, and laboratory supplies	Federal: Management Division, NCASC, FWD, National Immunization Programme. Provincial: Provincial Health Logistics Management Centre. Local: Facility in-charges
Limited provider capacity on integrated Triple EMTCT services	Variable implementation quality and low confidence in multi-disease management	Develop and roll out integrated Triple EMTCT training covering the minimum package of care, clinical protocols, laboratory algorithms, referral, counselling, stigma reduction, recording and reporting, and quality assurance	Federal: NHTC, NCASC, FWD, CSD, NPHL, Management Division. Provincial: Provincial Health Training Centre. Local: Health facilities
Weak laboratory referral and quality assurance systems	Delayed confirmatory testing, viral load testing, result return, and clinical decision-making	Define laboratory algorithms, specimen referral pathways, HBV viral load referral mechanisms, EID referral, syphilis testing pathways, result return, and laboratory quality assurance systems	Federal: NPHL, NCASC, FWD, CSD. Provincial: Provincial laboratories. Local: Health facilities and referral sites
Private sector reporting and alignment with national protocols remains inconsistent	Incomplete national data and variable implementation of the minimum package of care	Strengthen orientation, reporting, referral linkage, and supervision of private facilities providing ANC, delivery, newborn, laboratory, and immunization services	Federal: MoHFS, Management Division, NCASC, FWD. Provincial: Provincial Health Directorate. Local: Municipal health sections

Barrier identified	System-level implication	Actionable recommendation	Responsible entity
Geographic and social inequities in access to ANC, testing, treatment, delivery, vaccination, and follow-up	Lower service coverage among remote, migrant, adolescent, key population, and marginalized groups	Use micro-planning, outreach, referral support, peer navigation, FCHV mobilization, and community engagement to reach underserved populations	Provincial and local governments, FWD, NCASC, FCHVs, civil society networks
Stigma, confidentiality concerns, and discrimination	Reduced uptake, disclosure, retention, and trust in services	Integrate stigma reduction, informed consent, confidentiality, respectful maternity care, gender sensitivity, and non-discrimination into training, supervision, quality assurance, and community monitoring	Federal: NCASC, FWD, NHTC, NHEICC. Provincial: Provincial Health Directorate. Local: Health facilities and community networks
Limited male partner involvement	Missed opportunities for partner testing, treatment, prevention, and family support	Promote couple counselling, partner testing, treatment linkage, and family-centred communication through ANC and community platforms	Local: Health facilities, FCHVs, municipal health sections. Federal and provincial: FWD, NCASC
Weak coordination under the federal structure	Inconsistent implementation and unclear accountability across levels	Strengthen NESC, NTWG, provincial coordination mechanisms, and municipal review platforms to oversee implementation, resolve bottlenecks, and monitor validation readiness	Federal: MoHFS, NESC, NTWG. Provincial: Provincial Health Directorate. Local: Municipal health sections
Limited validation evidence for hepatitis B, including absence of recent serosurvey data	Difficulty demonstrating progress toward hepatitis B EMTCT validation	Prioritize a nationally representative hepatitis B serosurvey among children, with dedicated financing, clear institutional leadership, laboratory quality assurance, and dissemination of findings	Federal: FWD, NPHL, NCASC, Management Division. Provincial and local governments. Technical partners

CHAPTER-11

SUSTAINABILITY AND HUMAN RIGHTS, GENDER AND EQUITY SAFEGUARDS

11.1 Sustainability Strategy

Sustainability in the context of triple elimination is defined as the ability of the health system to maintain high coverage of testing and treatment after external donor support declines. The roadmap outlines a three-pronged approach to sustainability: Financial, Programmatic, and Political.

11.1.1 Financial Sustainability

Currently, the HIV prevention component of the response is heavily reliant on external financing (Global Fund, PEPFAR, U.S. Department of State) while hepatitis B vaccination is largely state-funded. To ensure long-term viability:

- **Domestic Resource Mobilization:** The MoHFS commits to progressively increasing the share of the National Budget (Red Book) allocated for Triple Elimination commodities. By 2028, 100% syphilis test kits and hepatitis B birth dose vaccines will be domestically funded.
- **Health Insurance Integration:** The Triple Elimination Service Package (screening and treatment) will be included in the reimbursement list of the health insurance board. This ensures that private facilities can claim reimbursement for these services, reducing out-of-pocket expenditure for clients.

11.1.2 Programmatic Sustainability

Integration: Shifting from project mode to routine systems. By embedding Triple Elimination into the basic duties of the frontline health workers such as Auxiliary Nurse Midwife, the program becomes immune to the end of specific donor projects.

Supply Chain Resilience: Integrating HIV and STI commodities into the electronic LMIS or PAMS ensures that stock management is institutionalized, not ad-hoc.

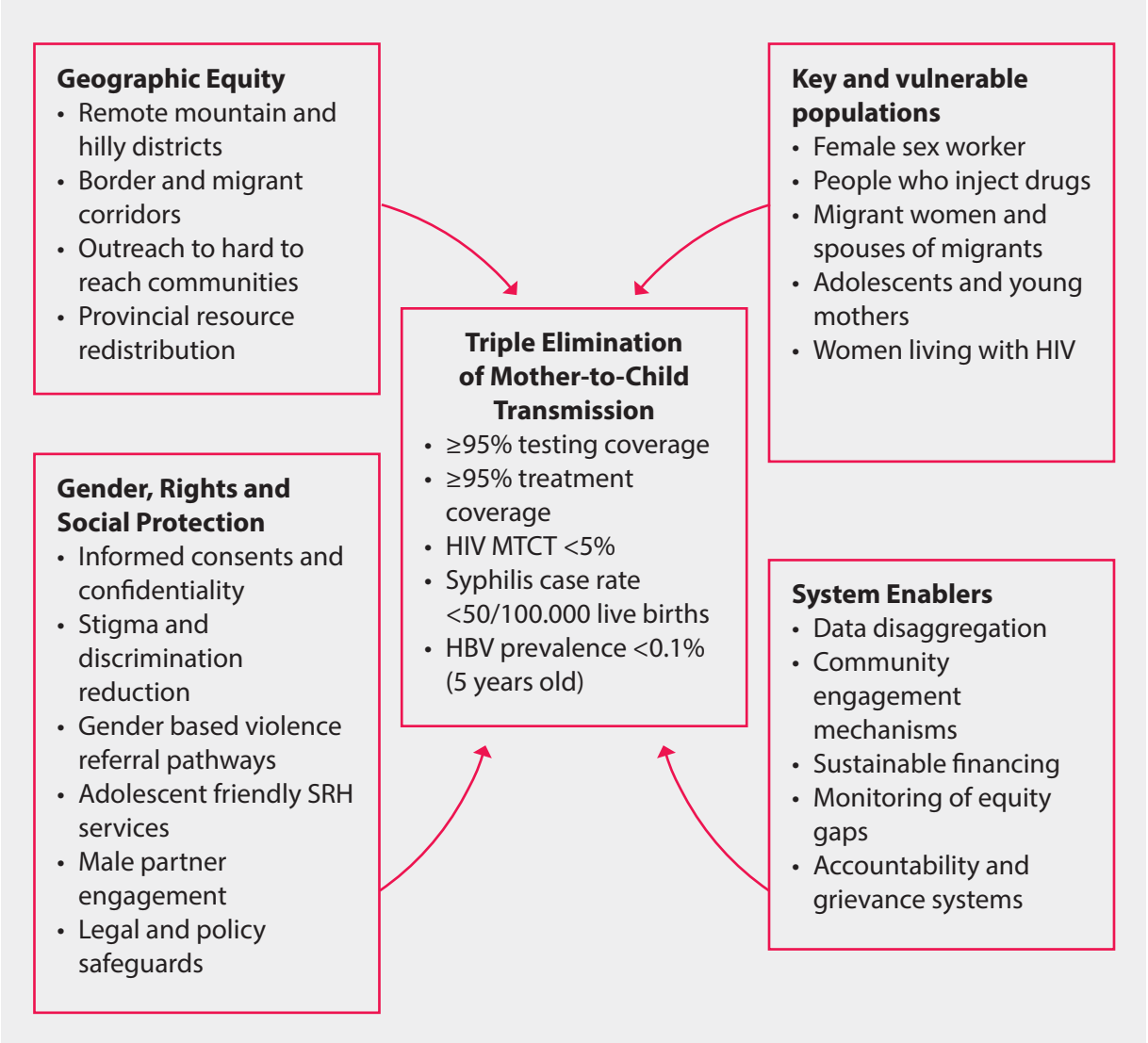
11.1.3 Political Stewardship

Local Ownership: As highlighted in district level consultation, sustainability depends on local leadership. The health facility operation and management committees at the ward level will be empowered to audit ANC data, ensuring that elimination remains a priority even if federal leadership changes.

11.2 Human Rights, Gender, and Equity

Reaching the gold tier of elimination is impossible if marginalized women are left behind. This section outlines the safeguards to protect human rights and promote equity. Achieving national elimination targets requires a deliberate mandate to reach the most marginalized and vulnerable populations. Figure 12 illustrates the Equity Framework for triple elimination, which serves as the strategic foundation for ensuring universal access to care. This framework maps the critical social, geographic, and systemic interventions required to dismantle barriers such as stigma, poverty and isolation, ensuring that no mother or infant is left behind in the national scale-up.

Figure 12: The equity framework for Triple Elimination



11.2.1. Leaving No One Behind

Geographic Equity: Qualitative interviews with beneficiaries revealed a lack of awareness and access. To address this, mobile ANC clinics will be deployed to underserved municipalities in the seven provinces.

Key Populations: Women who inject drugs and female sex workers often avoid government hospitals due to fear of legal repercussions or judgment. The roadmap materials for friendly service delivery, where peer navigators from KP networks accompany these women on ANC, ensuring they receive care without discrimination.

11.2.2 Gender-Transformative Approach

Male Engagement: EMTCT is often viewed solely as a women's issue. This roadmap introduces a couple of counselling as the standard of care. Male partners will be encouraged to test for HIV and syphilis, framing it as a way to protect their unborn child.

Adolescent Girls and Young Women: Recognizing the high vulnerability of young women, specific youth-friendly hours will be established at ANC clinics. As suggested by youth networks stakeholders, digital platforms (social media, apps) will be used to disseminate information on vertical transmission prevention.

11.2.3 Human Rights Safeguards

Informed Consent: Testing must never be coercive. All providers will be trained on the 3 Cs: Counseling, Confidentiality, and Consent. Opt-out screening is the policy, but the woman's right to decline must be respected.

Zero Tolerance for Stigma: A grievance redressal mechanism will be operationalized. Any report of a health worker disclosing a client's status or denying care will trigger an immediate investigation by the health office.

Protection from Criminalization: The program ensures that the vertical transmission of HIV is treated as a public health issue. Mothers will be supported, not blamed, if transmission occurs despite their best efforts.

The success of this roadmap will not be measured solely by the number of tests conducted, but by the dignity with which they are delivered. By embedding these safeguards, Nepal ensures that the elimination of vertical transmission contributes to the broader goal of a just and equitable health system.

CHAPTER-12

CONCLUSION AND WAY FORWARD

12.1 Conclusion

The National Roadmap for the Triple EMTCT of HIV, Syphilis, and Hepatitis B represents more than a technical strategy; it is a declaration of Nepal's commitment to the fundamental right of every child to be born free from preventable infection.

This roadmap acknowledges that while Nepal has made commendable strides in HIV control and immunization coverage, the vertical approach of the past is insufficient for the elimination era. The epidemiological analysis and stakeholder consultations underscore that business as usual will leave thousands of women and infants behind, particularly those in the private sector, marginalized communities, and geographically remote areas.

The path to Gold Tier validation by 2030 is rigorous but achievable. It requires a decisive shift toward:

Integration: Treating the mother-baby pair holistically, where a single visit to an antenatal clinic provides comprehensive protection against all three diseases.

Equity: Ensuring that the quality of care in a remote health post in Karnali or Sudurpaschim is on par with a central hospital in Bagmati.

Accountability: Moving from passive reporting to active surveillance, where every vertical transmission is treated as a system failure requiring immediate correction.

By fully implementing this roadmap, Nepal does not just aim to meet a WHO target; it aims to strengthen the entire maternal and child health platform, leaving a legacy of resilient health systems that will benefit generations to come.

12.2 The Way Forward

The implementation of this roadmap begins immediately. This roadmap calls upon all stakeholders to align their efforts with the following immediate priorities:

- Dissemination and Ownership: Provincial and local governments must take ownership of this roadmap, integrating targets into their annual work plans and budget cycles starting from the upcoming fiscal year.
- Harmonization of Resources: Development partners are urged to transition from disease-specific funding to system-strengthening support, aiding the government in procuring dual test kits and digitizing data systems.
- Community Leadership: Civil society and community networks must continue to hold the health system accountable, ensuring that services remain stigma-free and accessible to the most vulnerable.

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ANNEXES

Annex 1: Triple EMTCT impact and process indicators and targets by 2030

Impact Indicators	Means of verification	Baseline	Source	Target by 2030
Case rate of new paediatric HIV infections due to MTCT of HIV	Numerator: Annual number of new HIV infections due to vertical transmission	6.3	Regional progress towards the triple EMTCT goal[6] Spectrum modelling	≤50 new pediatric infections per 100,000 live births
	Denominator: Annual births to women living with HIV	17.5%	AIDSinfo.UNAIDS[7]	<5% in breastfeeding populations
				<2% in non-breastfeeding populations
HBsAg prevalence among children	Numerator: Number of survey participants with HBsAg-positive test Denominator: Number in survey with HBsAg result	0.3%	National strategy for viral hepatitis B and C 2023-2030[19]	≤0.1% HBsAg prevalence among children
Case rate of congenital syphilis infections	Numerator: Number of reported congenital syphilis cases (live births and stillbirths) in the past 12 months Denominator: Number of live births in the past 12 months as reported by the country.	0.29 (2016)	Based on Global Health Observatory data[29]	≤50 cases of congenital syphilis
Process Indicators				
Percentage of pregnant women attending ANC at least once (ANC1)	Numerator: Total number of pregnant women who received at least one ANC visit within a given time period Denominator: Total number of pregnant women in the population during that same period	94%	NDHS 2022 & IHIMS 2080/81	≥95%
Coverage of HIV testing among pregnant women	Numerator: Number of pregnant women tested for HIV Denominator: Total estimated number of pregnant women in the population	97.7%	HMIS 2081/8082 National HIV Fact Sheet 2025[23]	≥95%

Impact Indicators	Means of verification	Baseline	Source	Target by 2030
Coverage of syphilis testing among pregnant women in ANC	Numerator: Number of women attending ANC services who were tested for syphilis Denominator: Number of women attending ANC services	22.9%	IHIMS 2080/81	≥95%
ART coverage of pregnant women living with HIV	Numerator: Number of HIV-positive pregnant women who received the most effective antiretroviral regimens as recommended by the World Health Organization (i.e., excluding single-dose nevirapine) during the past 12 months to reduce mother-to-child transmission Denominator: Estimated number of HIV-positive pregnant women within the past 12 months.	58%	HMIS 2081/8082 National HIV Fact Sheet 2025[23]	≥95%
Treatment coverage of syphilis-seropositive pregnant women	Numerator: Number of women attending ANC services with a positive syphilis test who received at least one dose of benzathine penicillin 2.4 million units intramuscularly Denominator: Number of women attending ANC services who tested positive for syphilis.	32.4%	Based on Global Health Observatory data[29]	≥95%
Coverage of Hepatitis B3 vaccination	Numerator: Number of infants who received the third dose of the HepB-containing vaccine Denominator: Total number of infants	97%	Estimated based on data from CDA foundation13, the number of expected pregnancies adjusted for abortion rate and miscarriage rate from NDHS 2022 for estimating total births	≥90%

Annex 2: EMTCT Roadmap Qualitative Interviews Details

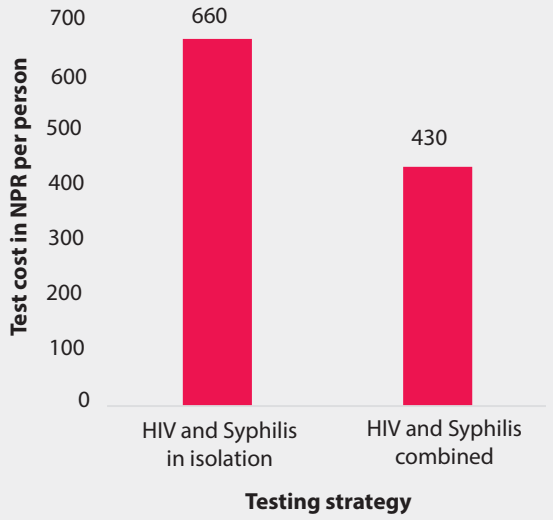
Administrative level and organization	Location	Key stakehold-ers	Position	Total data collect-ed	Method
Federal Level	Kathmandu	Curative Service Division (CSD)	Senior Medical Super-intendent	6	KII
		National Centre for AIDS and STD Control (NCASC)	Director		KII
		Nepal Public Health Laboratory (NPHL)	Co-Chief Microbiolo-gist		KII
		Family Welfare Division (FWD)	Maternal Newborn Section/Section Chief		KII
		Management divi-sion	Section Chief		KII
		National Health Education, Infor-mation and Com-munication Center (NHEICC)	Health Education Ad-ministrator		KII
Provincial level	Dhanusha District-Janakpur	Provincial Health Directorate	HIV Focal Person	2	KII
		Provincial Health Logistic Management Center	Director		KII
District Level	Parsa District-Birgunj	District Public Health Office	Public Health Officer	2	KII
	Dhanusha District-Janakpur		Public Health Administrator		
Local Level	Makwanpur District-Thaha Municipality (Palung)	Department of Health Section	Health Section Chief	2	KII
			Auxiliary Nurse Midwife		KII
Health Facilities	Parsa District -Birgunj-Naryani Hos-pital	Immunization ward	Auxiliary Nurse Mid-wife	8	KII
		Laboratory Staff	Lab Assistant		KII
		Gynaecology Ward	Nursing Officer		KII
	Dhanusha District-Janakpur Hospital	Immunization ward	Senior, Auxiliary Nurse Midwife		KII
		Laboratory Staff	Lab technician in-spector		KII
		Family Planning ward/ Maternal and Child Health clinic	Nursing Officer		KII
	Makwanpur District-Chitlang Health Post	Health in charge	Senior Auxiliary Health Worker		KII
			Senior Auxiliary Nurse Midwife		KII

Administrative level and organization	Location	Key stakeholders	Position	Total data collected	Method
ART Centers	Parsa District-Birgunj-Naryani Hospital	ART Center	ART In-Charge	4	KII
			ART Counselor		KII
	Dhanusha District-Janakpur Hospital		Program Coordinator		KII
			ART Counselor		KII
Beneficiaries	Parsa District-Birgunj-Naryani Hospital	Pregnant women	Pregnant women attending ANC	6	IDI
			Women living with HIV on ART (4)		IDI
	Makwanpur District -Chitlang Health Post		Pregnant women attending ANC		IDI
Networks	Kathmandu	United Nations Programme on HIV/AIDS (UNAIDS	Strategic Information Consultant	5	KII
		FHI 360	Senior Team Leader, Strategic Information/ Monitoring and Evaluation Specialist		KII
		AIDS Healthcare Foundation Nepal (AHF)	Country Program Manager		KII
		World Health Organization(WHO)	National Professional Officer/ Public Health Monitoring and Evaluation Officer		KII
		United Nations Children's Fund (UNICEF)	Health Specialist		KII
Partners		National Association of People Living with HIV/AIDS in Nepal (NAPN)	President	2	KII
		National Federation of Women Living with HIV and AIDS (NFWLHA)	Program Manager		KII
Total				**37**	

Annex 3: Overview of the Desk review

Component	Description
Purpose	To review existing national polices, guidelines, reports, and data related to EMTCT of HIV, syphilis, and hepatitis B, as well as global WHO targets and South Asia and other country reports.
Documents reviewed	National policies, strategic plans, guidelines, roadmap reports, HMIS data, and WHO validation targets
Time period	July 2025- October 2025
Key areas reviewed	ANC services, EMTCT testing and treatment coverage, EID, and costing part

Annex 4: Efficiency gain from the combination of the testing strategy



Annex 5: Estimated cost savings from switching to dual and triple testing

Year	Cost saving from dual test
2026	160579146
2027	160226924
2028	159874921
2029	159522917
2030	159170914

Annex 6: Contributors

S.N	Name
1.	Dr. Anuj Bhattachan, Acting Director General, Department of Health Services (DoHS), Ministry of Health and Food Safety
2.	Dr. Sarbesh Sharma, Director, National Centre for AIDS and STD Control (NCASC)
3.	Dr. Sudha Devkota, Director, Curative Service Division, DoHS
4.	Yasodha Aryal, Director, National Health Training Center (NHTC)
5.	Dr. Runa Jha, Director, National Public Health Laboratory (NPHL)
6.	Dr. Anup Bastola, Director, Sukraraj Tropical and Infectious Disease Hospital
7.	Dr. Man Bahadur KC, Senior Medical Superintendent, NCASC
8.	Asmita Ojha, Public Health Administrator, NCASC
9.	Lok Raj Pandey, Senior Health Education Officer, NCASC
10.	Umesh Gautam, Senior Public Health Officer, NCASC
11.	Nand Raj Awasthi, Senior Public Health Officer, NCASC
12.	Saraswoti Adhikari, Senior Chief Nursing Officer, NCASC
13.	Saroj Bhandari, Strategic Information Specialist, NCASC
14.	Roshan Konda, Strategic Information Specialist, NCASC
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S.N	Name
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30.	Achyut Lamichhane, Senior Health Policy and Implementation Advisor, Public Health and Environment Research Centre (PERC), Nepal
31.	Rachana Shrestha, PERC Team Lead/Consultant, UNICEF, Nepal
32.	Prasansha Poudel, Researcher, PERC, Nepal
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NOTE

NOTE

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National Centre for AIDS and STD Control
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