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MINISTRY OF HEALTH

National Strategic Plan for Prevention of Mother-to-Child Transmission of HIV, Syphilis and Hepatitis B 2016 – 2020

2nd edition
May 2017

TABLE OF CONTENTS

ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Ante-natal Care
ART	Anti-Retroviral Therapy
ARV	Anti-Retroviral
AZT	Azydothymidine
B-IACM	Boosted Integrated Active Case Management (B-IACM)
CDHS	Cambodia Demographic and Health Survey
eMTCT	Elimination of Mother-to-Child Transmission
GARPR	Global Aids Response Progress Report
GFATM	Global Fund to fight AIDS, TB, and Malaria
HC	Health Center
HEI	HIV-Exposed Infant
HIS	Health Information System
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HSS	HIV Sentinel Surveillance
IACM	Integrated Active Case Management
IYCF	Infant and Young Child Feeding
L&D	Labor and Delivery
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
MoH	Ministry of Health
MTCT	Mother to Child Transmission
NCHADS	National Centre for HIV/AIDS, Dermatology and STD
NGOs	Non-Governmental Organizations
NMCH	National Maternal Child Health
NMCHC	National Maternal and Child Health Centre
NVP	Neverapine
OD	Operational District
OI	Opportunistic Infection
PHD	Provincial Health Department
PITC	Provider-initiated Testing and Counseling
PLHIV	People Living with HIV
PMTCT	Prevention of Mother to Child Transmission
PW	Pregnant Woman (en)

RH	Referral Hospital
RPR	Rapid Plasma Reagin
RHAC	Reproductive Health Association Cambodia
SOP	Standard Operating Procedures
STI/STDs	Sexually Transmitted Infection/diseases
ToR	Terms of Reference
TWG	Technical Working Group
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
US CDC	United States Center for Disease Control and Prevention
VCCT	Voluntary and Confidential Counseling and Testing
VHSG	Village Health Support Group
WHO	World Health Organization

FOREWORD

It is my great pleasure to present the 2016-2020 National Strategy for Prevention Mother-to-Child Transmission (PMTCT) of HIV, Syphilis and Hepatitis B.

This Strategy marks a watershed moment in Cambodia's two-decade long efforts in PMTCT as, for the first time, the goal of eliminating mother-to-child transmission of HIV is in sight. In addition, for the first time, and in keeping with WHO recommendations, our PMTCT focus expands to include some first steps towards elimination of MTCT of hepatitis B, which is very prevalent in Cambodia.

Under the first PMTCT strategy, impressive progress was made through the partnership between NMCHC and NCHADs. HIV testing was fully integrated into ANC services in all locations and more than 80% of women got tested in 2015, a very big change compared to 2007 with around 10% of ANC facilities offered HIV screening and only about 15% of pregnant women were tested. Whereas, the transmission rate from mother to child has been declined from 37% in 2007 to 6.2% in 2015.

Although progress has been optimized, the new target to achieve the elimination of HIV transmission from mother to child require the implementation of HIV testing during pregnancy and infant infection at all public health facilities with services are consistently available and all of the time. Moreover, the reporting and surveillance systems will have to be strengthened with regard to congenital syphilis and to include the elimination of hepatitis B from mother to child as well.

I strongly believe that NMCHC, NCHADs, health providers in HCs, RHs, ART sites, and all relevant partners continue their collaboration in order to achieve our target set.

Phnom Penh 09 June 2007

Prof. ENG HUOT
SECRETARY OF STATE

ACKNOWLEDGEMENTS

The development of this strategy was supported by technical assistance from the World Health Organization and funding from the Global Fund for AIDs, TB, and Malaria (GFATM).

The managers and staff of the National Maternal Child Health Center (NMCHC) and National Center for HIV/AIDs, Dermatology and STDs (NCHADS) jointly helped guide strategy development at each stage.

Staff and advisors of the following organizations provided valuable technical input: FHI360, the KHANA, PEPFAR, the Reproductive Health Association of Cambodia (RHAC), UNAIDs, UNICEF, the U.S. Centers for Disease Control (US-CDC), and the World Health Organization (WHO) Cambodia country office.

1. BACKGROUND

1.1 HIV, Syphilis and Hepatitis B in Cambodia

1.1.1. Overview of HIV Epidemic

HIV was first detected in Cambodia in 1991, and the first AIDS patient was diagnosed in 1993. Transmission was primarily through commercial sex workers to their clients; the HIV prevalence among direct sex workers peaked at 42.6% in 1998 and then declined in the wake of an aggressive 100% condom use policy and a decrease in the prevalence of high risk behaviors. The most recent survey found an HIV prevalence of 14.0% in female entertainment workers (FEW) in 2011[1].The prevalence of HIV in the general adult population aged 15-49 years peaked in 2002 at 2.1%, probably the highest at that time in Asia,[2] and declined thereafter. The lag between decline in prevalence among commercial sex workers and the general population reflects in part a secondary wave of infection from male clients to their wives; new infections among men declined well before new infections in women did, with the results that the male: female ratio among newly infected persons decreased from 4:1 in the early 1990's to 1:1.2 by 2006. ART was introduced in Cambodia in 2003(CoC pilot in MRs, BTB) and scaled up by 2006. As of the end of 2015, an estimated 75.4% of Cambodian persons living with HIV (PLHIV) were on antiretroviral therapy (ART).[3]

A decline in new infections (due to successful prevention efforts and ART treatment for PLHIV, rendering them less infective or non-infective), together with high initial mortality among infected persons before the introduction of ART, has led to a substantial decrease in overall HIV prevalence in the general population. It is now estimated to be only 0.6% of adults aged 15-49 years,[4] with most cases being long-standing infections in persons stabilized on ART. There were an estimated 727 new infections in 2015.[5]

Given these successes, the Royal Government of Cambodia has now committed to the ambitious goal of virtually eliminating new HIV infections by 2020, defined as less than 300 new infections annually. Cambodia has also committed to the globally defined target for elimination of mother-to-child transmission (MTCT) of HIV, which is a MTCT transmission rate of <5% and a case rate of less than 50 cases per 100,000 live births, and of syphilis, defined as fewer than 50 cases of congenital syphilis per 100,000 live births.

1.1.2 HIV in Pregnant Women and their Infants

As noted above, the HIV epidemic in Cambodia is primarily driven through sexual transmission, from commercial sex workers to their clients. Male clients in turn often subsequently infect their wives. The crude HIV prevalence rate among pregnant women attending government ANC sites was 3.2% in 1997, the first year it was surveyed nationwide. It remained in the range of 2.5 – 3.0% through 2001 after which it steadily declined, to 1.6% in

[1] STI Sentinel Surveillance Survey 2011, NCHADS. The term "entertainment worker" replaced the terms "brothel/non-brother-based sex worker " and "direct/indirect sex worker" in 2005 as the changing nature of employment venues made these distinctions progressively harder to make. The 14% refers to FEW with more than 7 clients a week.

[2] HIV Sentinel Surveillance 2002. NCHADS

[3] 2015 Global Aids Response Progress Report for Cambodia. NCHADS.

[4] Ibid

[5] Ibid. Spectrum estimate.

2003, 1.1% in 2006, and 0.4% in 2010[6]. The most recent sentinel surveillance of ANC clients, conducted in 2014, found prevalence to be only 0.28%[7], and – consistent with the overall decline in new HIV infections by 2015 an estimated 45% of HIV in pregnancy was among women known to be HIV- positive prior to pregnancy and already on ART.[8]

The modeled rate of transmission of HIV from infected mothers to their infants was 6.2% in 2015, a substantial decline from an estimated 37.0% in 2007[9].

1.2 Congenital Syphilis in Cambodia

There is currently no information on the incidence of congenital syphilis in Cambodia, but syphilis sero-prevalence among ANC clients, as detected by Rapid Plasma Reagin (RPR) test and confirmed by treponemal assay was 4.0% in 1996, decreasing to 1.3% by 2001.[10] There has been no surveillance study of syphilis among ANC clients since then, but health facility data show that only 0.05% of pregnant women screened by rapid test in 2015 were reactive, and among reactive cases who received confirmatory tests only 57% were RPR positive[11], which would suggest an overall current sero-prevalence among ANC clients of .03%.

The current Health Management Information System (HMIS) does not include congenital syphilis as a diagnostic category, and to date there has been no study done to estimate its prevalence. The HMIS records stillbirths, but not the syphilis sero status of the mother. According to the 2014 CDHS the incidence of stillbirths in Cambodia (all causes) was about 5.8/1,000 pregnancies in the five-year period 2010-2014;[12] according to the MoH Health Management Information System (HMIS), the incidence was 4.2/1,000 live births in 2015[13]. Spontaneous abortions are recorded in the HMIS if the woman is treated in a health facility, but not by weeks of gestation, and not correlated to syphilis test results.

1.3 Hepatitis B in Cambodia

A 2007 nationwide sero-prevalence study in Cambodia found the prevalence of Hepatitis B surface antigen among five-year-old children to be 3.5% (95% confidence interval = 2.4–4.8%). A prior survey, limited to one rural province, had found a prevalence of 11.8% among adults aged 20-35 years.[14] A 2013 survey limited to 3 provinces – the first to be conducted after introduction of a birth dose of Hepatitis B in 2008 - found prevalence in children aged under 5 years to range of 0.33% in Phnom Penh (urban capital city), 1.41% in Kratie (rural province) and 3.45% in Ratanakiri (unusually remote rural province). These disparate rates were closely

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6 HIV Sentinel Surveillance Surveys 2002, 2003, 2006 and 2010. NCHADS.

7 HIV Sentinel Surveillance 2014. NCHADS.

8 Numerator from PMTCT database and denominator from Spectrum estimate of 954 total HIV+ pregnant women in 2015.

9 DeCocket al. Prevention of Mother-to-Child Transmission in Resource Poor Countries: Translating Research into Policy and Practice. JAMA 2000:283:1175-1182.

10 NCHADS 2001 STI Sentinel Surveillance survey.

11 NMCHC PMTCT database 2015

12 2014 Cambodia Demographic and Health Survey dataset

13 MoH HMIS 2015.

14 Soeung et al. *Results from Nationwide Hepatitis B Serosurvey in Cambodia using Simple and Rapid Laboratory Test: Implications for National Immunization Program.* Am. J. Trop. Med. Hygiene, 81(2), 2009, pp. 252–257.

correlated to equally disparate levels of immunization coverage[15]. A clinical trial now underway through the Pasteur Institute will obtain data on the prevalence of HBe antigen among pregnant women.

2. Country Response to Prevention of Mother-to-Child Transmission (PMTCT)

2.1 Approaches taken for PMTCT of HIV and Syphilis

In 1999 the Ministry of Health (MoH) established a PMTCT Technical Working Group, co-chaired by the National Maternal and Child Health Center (NMCHC) and the National Center for HIV/AIDS, Dermatology, and STDs (NCHADS) which led to development of a PMTCT policy in 2000 and establishment of a pilot PMTCT service at the NMCH Hospital in Phnom Penh. This offered Voluntary and Confidential Counseling and Testing (VCCT) for HIV to pregnant women and their partners, and single dose neverapine to HIV-positive mothers during labor and to their infants after delivery. The pilot project was then scaled up to hospitals nationwide. As most ANC is provided in Health Centers (HC) rather than hospitals, a "Linked Response" strategy was introduced in 2007 in which HC ANC providers counseled women on the benefits of screening for HIV, drew the blood sample and transported it to a VCCT site for actual testing. This increased the percentage of ANC clients tested from under 10% to 31.5% by 2010.[16] From 2008 onward, the testing also included syphilis. In 2012, the response was further strengthened by introduction of a rapid finger prick test for both HIV and syphilis directly performed by HC midwives. Testing done onsite at HCs led to a further increase in coverage, and also virtually eliminated what had been a small gap between number of women tested and the number tested and received results. In 2015, it was estimated that 83% of all pregnant women knew their HIV status.[17] Syphilis coverage was lower, at 43.4%, due to a stock out of test kits that same year, as the country was preparing to switch over to a dual HIV/syphilis test[18].

In September 2005, the ARV prophylaxis guidelines for pregnant women were revised in line with WHO recommendations from single dose neverapine to an ARV drug combination, and infant prophylaxis expanded to a 1-4 week regimen of AZT and neverapine. The infant regimen subsequently expanded to a 6 week course of neverapine in 2011. In 2013 Cambodia adopted the WHO- recommended Option B+, placing all HIV+ pregnant women, regardless of CD4 count, on lifelong combined anti-retroviral therapy (ART). In 2016, the protocol for infants was refined to provide high-risk infants (mother on ART for less than 4 weeks before delivery or with a high viral load or newly identified HIV-positive at ANC 4weeks before delivery or at delivery setting) with 6 weeks AZT and 12 weeks neverapine, with low risk infants continuing to receive 6 weeks of neverapine alone.

In 2014, a system of Integrated Active Case Management (IACM) was introduced in 14 Operational Districts (ODs) to help ensure that PLHIV – including pregnant women and their infants – receive the full cascade of services. Under this system, an OD-level Case Management

[15] Bunsoth, Mao et al. "Prevalence of chronic hepatitis B virus infection after implementation of a hepatitis B vaccination program among children in three provinces in Cambodia" *Vaccine* 31.40 (2013): 4459–4464. *PMC*. Web. 1 May 2017.

[16] Cambodia Demographic and Health Surveys 2005 and 2010.

[17] NMCHC PMTCT database, reported in the 2015 Global Aids Response Progress Report for Cambodia.

[18] NMCHC PMTCT database

Coordinator (CMC) pro-actively tracks all HIV+ pregnant women and coordinates with relevant service providers to ensure they receive ART and that their infants receive ARV, virologic testing, and OI prophylaxis. The CMC also ensures testing of partners and treatment of them as appropriate (ART or, if negative, positive prevention). Similar activities are undertaken in the event of a positive syphilis test in pregnancy. In 2015, management arrangements for IACM were streamlined to replace multiple technical working groups with a single coordinating body at OD level. This "boosted" IACM (B-IACM) is now in the process of roll-out, starting first in areas of highest prevalence.

The PMTCT program for HIV and syphilis is jointly implemented by NCHADS and NMCHC. NCHADS sets ARV/ART protocols, provides ART to confirmed HIV+ cases (women and children), and performs confirmatory tests on women and virologic tests on infants. NMCHC midwives counsel and screen pregnant women during ANC and, if necessary, at the point of labor and delivery, referring reactive cases for confirmatory testing at the nearest VCCT or ART site, and confirmed cases to NCHADS for ART. Midwives also ensure that ARV is provided to HIV-exposed infants (HEI) immediately after delivery and that the mother takes home a supply sufficient for the full course, as experience found that few post-partum women were willing/able to travel to a Pediatric AIDs Care (PAC) site immediately after delivery. Additional services, including follow-up virologic testing and cotrimoxazole prophylaxis, are provided to HEI by PAC sites until HIV infection is either ruled out or confirmed; if the infant is infected then lifelong ART is provided by the PAC site. Testing at birth (PCR1) using a dried blood sample (DBS) obtained in the maternity ward has recently been approved and is being phased in. A second DNA-PCR (PCR2) is to be done at PAC sites at 6 weeks of age. Non-breastfeeding infants are considered uninfected if the test is negative, while breast-fed infants receive a third DNA-PCR 6 weeks after cessation of breast-feeding; if breast-feeding is prolonged an antibody test is also performed at age 18 months (HTS guideline stated that infant less than 18months need confirm by DNA PCR test due to the mothers 'immune still remain in the baby).

2.2 Approaches Taken for PMTCT of Hepatitis B

Cambodia introduced Hepatitis B immunization as part of the child immunization schedule in 2001, and added a birth dose in 2007. The 20016 – 2020 National Immunization Program Strategic Plan includes, for the first time in Cambodia, a goal of reducing chronic Hepatitis B prevalence in children and ensuring "timely" (i.e. within 24 hours) administration of the birth dosage. Coverage for the birth dose (within 24 hours) in 2014 was 82.6%.[19] The clinical trial now underway through the Pasteur Institute will test the feasibility, impact and cost-effectiveness of Hepatitis B antigen screening in ANC coupled with administration of Tenofovir to women who are positive for the HBe antigen during the last trimester of pregnancy and for 6 weeks post-partum. This trial is scheduled to finish in May 2019.

PMTCT of Hepatitis B is a joint effort of the NMCHC and the National Immunization Program (NIP), with NIP in the lead role and NMCHC supporting it through promotion of administration of Hepatitis B vaccine to all infants within 24 hours of birth as part of its Safe Motherhood protocol. In this new PMTCT strategy, NMCHC also commits to working with NIP and other relevant agencies in development of a Roadmap for Elimination of Hepatitis B, which depending on the results of the current study and cost-benefit analysis of various options, may

[19] Cambodia Demographic and health Survey 2010- report and dataset

or may not include additional interventions during pregnancy.

2.3 Review of Progress Under the 1st National PMTCT Strategy

In response to recommendations from a 2007 Joint Review of national PMTCT efforts, the first national PMTCT strategy was formulated for the period 2008 – 2015. The Strategy focused on PMTCT of HIV through expanding the availability of PMTCT services and improving their uptake, and set the following performance targets for 2015:

- 51% of Antenatal Care (ANC) facilities provide HIV testing
- 100% of ODs have at least 1 PMTCT site (defined as HIV testing, counseling and referral to ART site)
- 95% of ANC clients at PMTCT sites tested for HIV and received results
- 75% of estimated Pregnant Women (PW) tested for HIV and received results
- 40% partners of PW tested for HIV and received results
- 75% HIV+ PW received ARV prophylaxis or ART
- 70% of HIV-exposed infants (HEI) started cotrimoxazole (CTX) prophylaxis within 2 months of birth
- 70% of HEI received an HIV test within 12 months of birth
- 100% of HEI practicing exclusive feeding at 6 months (BF or formula)
- 16.3% of estimated HEI become infected with HIV (MTCT)

The first PMTCT strategy did not set any targets related to syphilis or Hepatitis B.

A review of progress against the above indicators shows substantial achievements with regard to testing and treatment of pregnant women: 89.6% of ANC facilities now conduct HIV testing[20], with most of the remainder being newly created HCs or HCs recently upgraded from Health Post status. 83% of estimated pregnant women in 2015 knew their HIV status, as did at least 87.4% of all ANC clients in government facilities.[21] 75.4% of estimated HIV+ pregnant women (PW) received ART during pregnancy and an additional 4% were started on it during or immediately after delivery.[22] However, achievements with regard to HEI fell short of target: only 41.3% of HEI started on CTX before the age of 2 months, and only 67.9% of HEI received an HIV test within one year of birth[23].

It is not possible to assess progress against 2 indicators under the previous PMTCT strategy:

[20] PMTCT database, based on any reported testing done in 2015.

[21] Source: PMTCT database. This may be an underestimation due to likely inflation in the number of ANC1; Hospitals record as women coming for the first time to their facility as ANC1, but many of will have been to a HC at least once prior.

[22] Numerator from PMTCT database, denominator from Spectrum projections. For women starting ART at labor/delivery, only those subsequently confirmed as positive are included in the numerator.

[23] Numerator from NCHADS Exposed Infant database 2015. Denominator from Spectrum projection and adjusted for perinatal deaths based on the documented rate (1.9%) among HEI delivered in government facilities in 2015, assuming the same rate applies to all HEI.

- % HEI exclusively fed: there is no data on actual breastfeeding practices among HIV+ mothers. The PMTCT database captures only counseling given and the feeding preference stated by the mother at the time of counseling. Interestingly, while the national policy is to promote exclusive breast-feeding (BF) for 6 months, during counseling, about two-thirds (68.7%) of HIV+ mothers express a preference for formula feeding. How that translates into practice, given the high cost of formula, is unknown.

- % of partners tested for HIV: the PMTCT database captures only partners who are tested at the ANC site, which most partners do not attend. The HIV program no longer advocates testing for all partners but rather only the partners of women who test HIV+.

Table 1: Summary of Achievements Under the 1st National PMTCT Strategy

INDICATOR	ACHIEVEMENT
1. % ANC Facilities that provide HIV testing	Target Met
2. % ODs with at least 1 PMTCT site	Target Met
3. % ANC clients tested for HIV and received results	Target Not Met
4. % estimated PW tested for HIV & received results	Target Met
5. % partners tested for HIV & received results	Information unavailable
6. % HIV+ PW received ARV prophylaxis or ART	Target Met
7. % HEI started CTX prophylaxis within 2 months	Target Not Met
8. % HEI received HIV test within 12 months of birth	Target Not Met
9. % HEI practicing exclusive feeding at 6 months	Information unavailable
10. Estimated % HEI infected (MTCT)	Target Met

3. Analysis of Current Situation: Cascade of PMTCT Services

3.1 HIV

3.1.1. Positive Prevention

PMTCT starts with "positive prevention" –ensuring that HIV+ women of childbearing age have sufficient knowledge and access to services to make informed reproductive health decisions. It also includes preventive measures for HIV negative women with HIV positive partners (sero-discordant couple), i.e. consistent condom use along with ART for the infected partner.

A study of sero-discordant couples conducted in 3 provinces in 2013 found that 80.3% of HIV+ men married to uninfected women reported consistent condom use. Factors linked to not using

condoms consistently included frequent alcohol intake (Odds Ratio 2.9) and a belief that ART prevents transmission (Odds Ratio 2.7).[24]

There is a dearth of information on contraceptive use by HIV+ women. Although many ART services now provide condoms and oral contraceptives on-site, uptake is low as these are already widely available throughout the country through both the public and private sector; among female pill users overall (by far the most popular form of contraception in Cambodia), two-thirds obtain their method from the private sector.[25] Users of the injectable (the second most popular method) are more likely to it from a public facility, but these are not available at the ART site and HIV+ women do not usually disclose their status when attending other government facilities for FP.

3.1.2 Cascade of Care for HIV in Pregnancy

Spectrum projections put the number of HIV+ PW in 2015 at 954. Using this figure, the following analysis visualizes the progress of HIV+ pregnant women and their infants through the cascade of PMTCT services in 2015.

3.1.2.1. Identification of HIV+ Pregnant Women

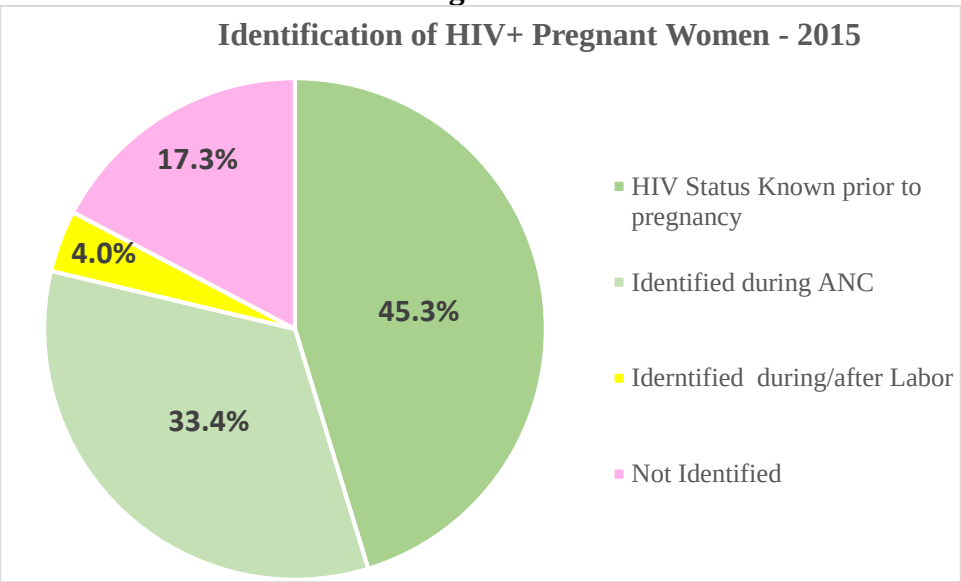
The first step in the cascade is identification of the pregnant women's HIV status. Figure 1 below shows the percentage of total estimated HIV+ pregnant women whose status was identified in 2015, based on a modeled number of 954 HIV+ pregnant women.

As can be seen, despite substantial progress in the availability and uptake of HIV testing during ANC, an estimated 17.3% of HIV+ pregnant women remain unidentified, and another 4.0% are identified only at the time of delivery. Included among the HIV+ pregnant women not identified would be at least some of the women who screen reactive but fail to receive a confirmatory test - currently 11.8% of all those who screen reactive during ANC, and 33.8% of those who screen reactive at L&D. Others would be women who did not receive ANC in a government facility and women who received it but were not tested during their visits(s).

[24] Tuot et. al. Determinants of Inconsistent Condom Use among HIV Serodiscordant Couples in Cambodia. *American Journal of Public Health Research*. 2016; 4(2):69-74. doi: 10.12691/ajphr-4-2-5.

[25] 2014 Cambodia Demographic and Health Survey.

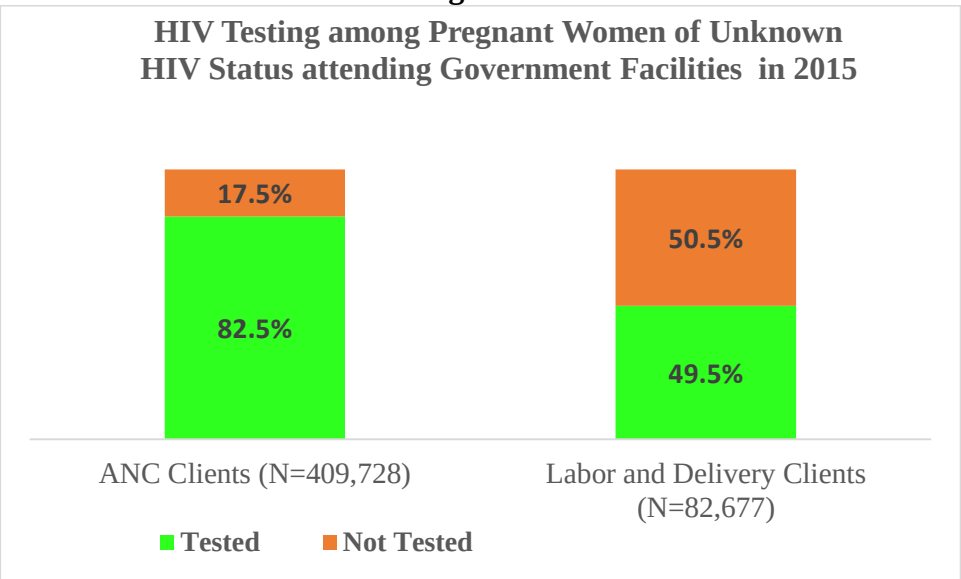
Figure 1:



Source: Denominator from Spectrum. Numerators from 2015 PMTCT database. % Identified at ANC and L&D refers to confirmed cases only.

Identification and treatment of HIV+ pregnant women early in ANC is the best means of preventing MTCT, since viral loads can be brought down to undetectable levels before delivery. However, even when this has not been possible, the risk of transmission can be greatly reduced through administration of antiretroviral (ARV) prophylaxis to the infant if the mother's HIV status can be identified at the time of labor and delivery. 27.6% of women who delivered in a government health facility in 2015 were of unknown HIV status when they went into labor. However, only about half (49.5%) of these received an HIV test:

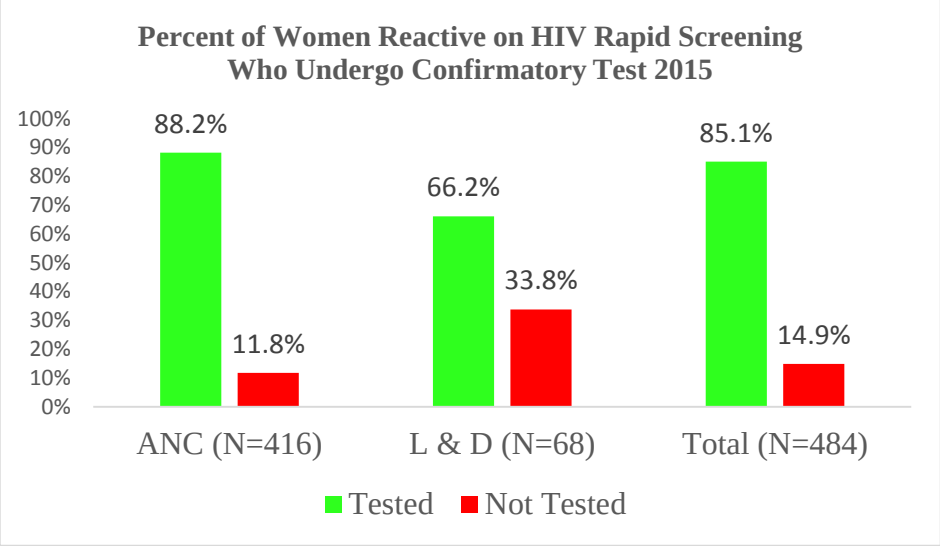
Figure 2:



Source: PMTCT Database 2015

The low rate of testing at labor and delivery masks a sharp discrepancy according to place of delivery. 100% of women delivering at a RH with unknown HIV status were tested compared to only 31.3% in HCs. In addition, it appears that about a third of the women who screen reactive at L&D did not receive confirmatory tests.

Figure 3:



Source: PMTCT Database 2015

Of women who do get a confirmatory test, 86.7% are positive. No information is available on the percentage of false negatives as there is currently no system of quality assurance in place for rapid testing at HCs.

In summary, there is missed potential to identify HIV+ pregnant women both the time of ANC and at the time of labor and delivery (L&D). Testing of women with unknown HIV status is especially low at the time of labor and delivery in HCs, which is where more than half of all facility deliveries in Cambodia take place (58.5% in 2015).[26] There is an unacceptably high rate of women who screen reactive at ANC or L&D but do not receive confirmatory tests (11% and 33.8% respectively), and the possibility of some false negatives due to improper testing/storage of test kits cannot be ruled out.

3.1.2.2. Treatment

The next steps in the cascade of services are initiating lifelong ART for the mother, and providing antiretroviral (ARV) prophylaxis to the baby.

3.1.2.2.1 Treatment of HIV+ Mothers

HIV+ pregnant women are advised to deliver at a Referral Hospital (RH) with an ART clinic. Overall, in 2015, 751 women were known during ANC to be HIV+; 718 delivered in a government hospital, and 11 delivered in a government HC. It is not known how many of the remaining 22 opted to terminate their pregnancies or suffered a miscarriage, but it is plausible that elective abortion and miscarriage between them account for most of this small gap. Clearly,

[26] HMIS 2015.

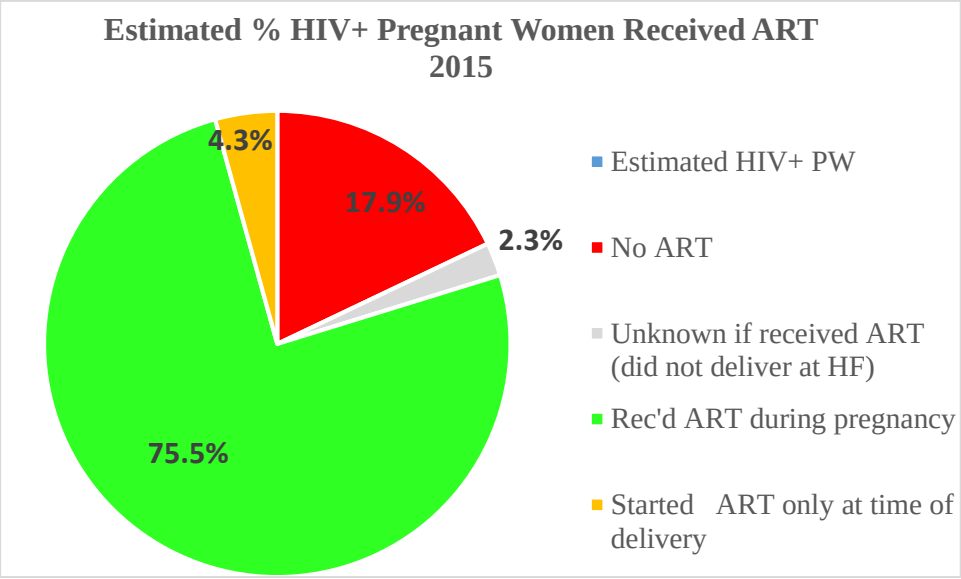
the vast majority of women known during pregnancy to be HIV+ do deliver in a government health facility. In addition, most (95.6%) delivered in a RH as opposed to a HC.

Of the 729 women delivering in a health facility and known prior to delivery to be HIV+, 720 had been placed on ART before the onset of labor (98.8%)[27]. The PMTCT database does not currently capture length of time on ART, only whether the mother was on ART during the antenatal period. Three of the nine known HV+ mothers not already on ART were started on it at the time of delivery, but six did not receive any ART. All six of these were women who delivered in a HC rather than a RH.

An additional 68 women of unknown HIV status at L&D tested reactive – 29 at RHs and 39 at HCs. All of those at RHs received ART but only 41% of those at a HC did, for an overall coverage (HC and RH combined) of 66.2%. As noted in the prior section, only about half of women with unknown status at L&D are tested, with especially low coverage in HCs.

Figure 4 shows the percentage of all estimated HIV+ pregnant women who receive ART. It treats the women known to be HIV+ during pregnancy who deliver at a government facility as a subset of known HIV+ ANC clients in government facilities. In practice, some women known to be HIV+ before pregnancy might deliver at a government facility without first having received ANC in one, but this is thought to be rare, since ANC services are readily available in or near the same government health facility as the ART sites. Likewise, some known HIV+ pregnant women might deliver at home or in a private facility, but this too is thought to be infrequent.

Figure 4



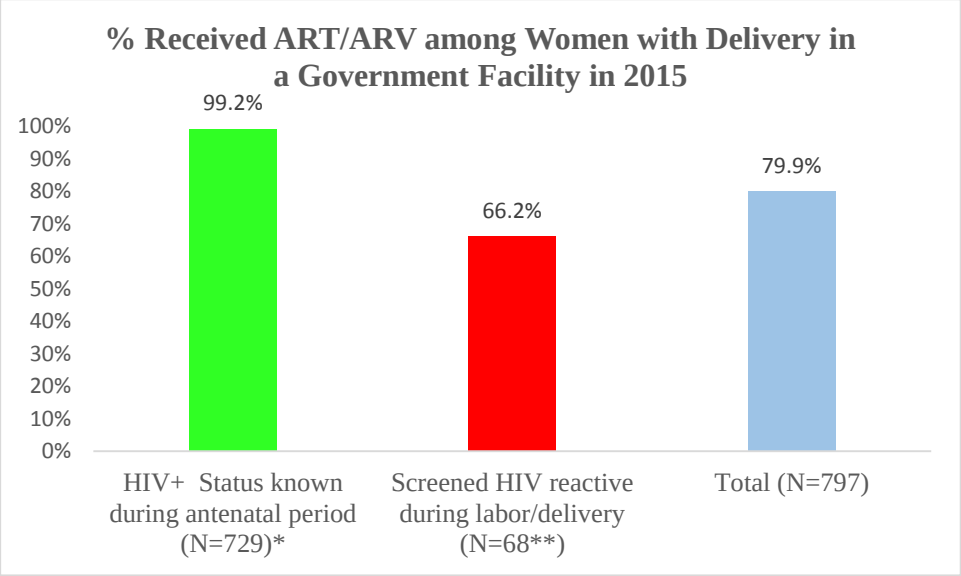
Source: Denominator from Spectrum. Numerators from 2015 PMTCT database. Women who started ART because they screened reactive at L&D but who were subsequently found to be negative on confirmatory testing (7 cases) are not included in the numerator.

[27] PMTCT database 2015.

75.5% of total estimated HIV+ pregnant women received ART in 2015, or 79.9% if ART initiated at the time of delivery is included. However, the rate differs greatly depending on when the HIV status was identified. It is quite high among women whose HIV status was known during the ANC period, but much lower for those first identified during labor and delivery. About a third of women of previously unknown HIV status who screen reactive at L&D do not receive ART.

As with HIV screening during L&D, there is a sharp difference between RHs and HCs in this regard: 100% of reactive women in RHs received ART compared to only 41% at HCs.

Figure 5



Source: PMTCT database 2015
*Numerator includes 3 cases identified during ANC but started on ART only at L&D, and 720 women already on ART prior to the onset of labor.
** Total # women who screened reactive at L&D, although not all of these will actually have been HIV+. It is protocol to initiate ART when a woman screens reactive at L&D and not delay treatment while awaiting the confirmatory test.

In summary, the single greatest barrier to treatment of HIV+ pregnant women is failure to identify them. A secondary barrier is low coverage for treatment of women identified during L&D at HC level. Among the issues with identification is both failure to receive a screening test at ANC or L&D and failure to receive confirmatory testing among those who screen reactive. Both screening and confirmatory testing rates are lower at L&D than at ANC.

3.1.2.2.2 ARV Prophylaxis for HIV-Exposed Infants

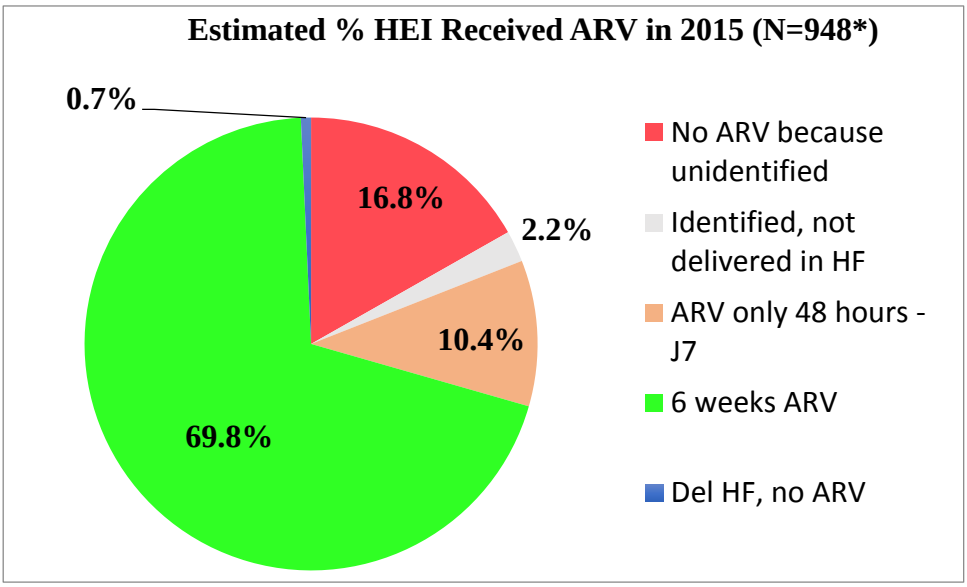
For the purpose of analysis, the number of HEI is assumed to equal the Spectrum projection for HIV+ pregnant women, or 954 in 2015. 699 of these were delivered in government health facilities in 2015, inclusive of 27 born at Health Centers, and another 101 delivered in the private charitable hospital Jayavarman 7, which submits annual data to the MoH. The estimated 154 other HEIs include infants born to mothers whose HIV status was not identified plus a very

small number of identified cases who did not deliver in a government facility; some of the latter may not have been carried to term.

Of those who delivered in a government facility, 15 stillbirths/neonatal deaths are recorded. Among the surviving live births, 99% received six weeks of neverapine (NVP) prophylaxis.[28]

However, the HEI delivered at Jayavarman 7 received just 48 hours NVP prophylaxis, and unidentified HEI will not have received any ARV. As shown in Figure 6 below, the total percentage of estimated HEI receiving ARV drops to only 70% when infants delivered at Jayavarman 7 and those not identified are included.

Figure 6:



Source: PMTCT database for numerators, denominator from Spectrum.
**Adjusted for perinatal deaths; assumes that the rate among HEI delivered in a government health facility applies to HEI who were not identified/did not deliver in a HF.

3.1.2.2.3 Early Infant Diagnosis and Follow-Up Care for HEI

HEI should receive a second DNA-PCR test, and start cotrimoxazole prophylaxis or opportunistic infections (OI), by the age of 6 weeks. An additional third DNA-PCR should be performed after 6 weeks totally cessation of breast-feeding (BF). DNA-PCR testing and OI prophylaxis is provided at Pediatric AIDs Care (PAC) clinics, of which there are currently only 33 in the country. The protocol has recently been updated to also include a dried blood sample (DBS) at birth, but this was not in effect in 2015.

Although virtually all HEIs delivering in a government health facility and Jayavarman 7 are referred to PAC, only 590 HEI actually enrolled in 2015.[29] This equals 75.2% of identified

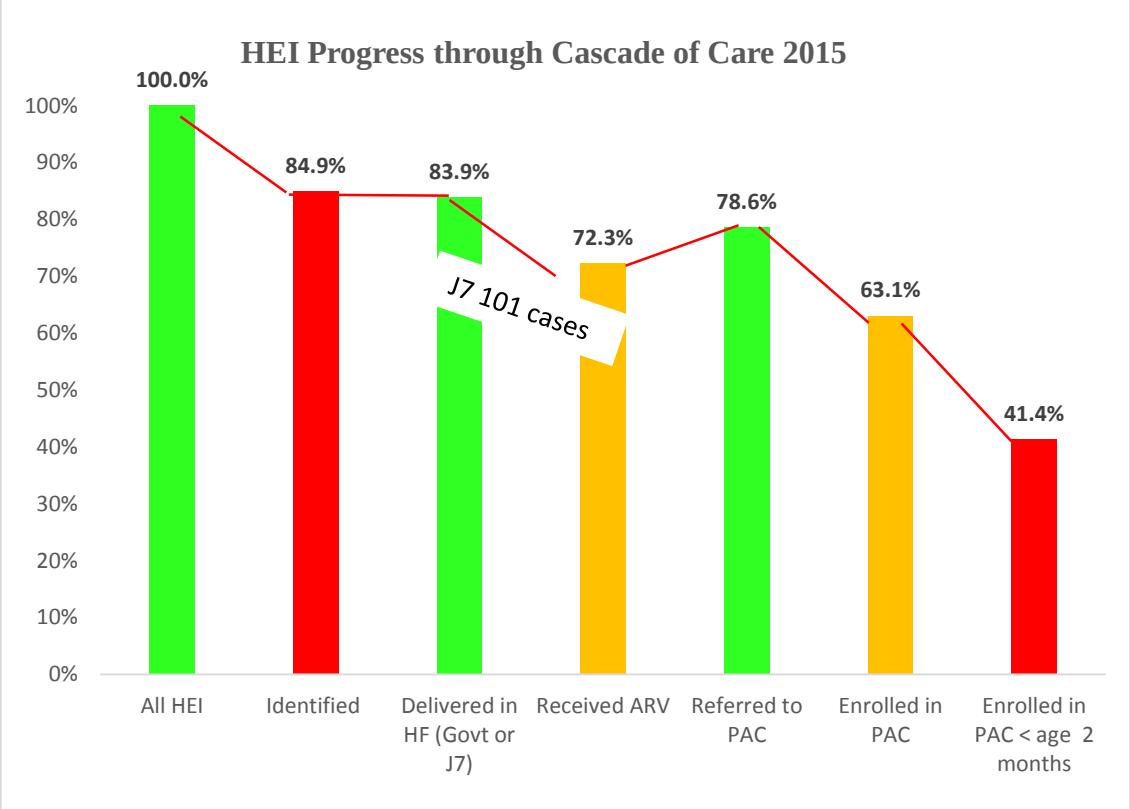
[28] In March 2016 the protocol was revised to provide high risk HEI (mother on ART <4 weeks before delivery) with 6 weeks AZT + 12 weeks NVP.

[29] Exposed Infant Database, NCHADS 2015.

HEI with delivery in a government facility or Jayavarman 7 and 63.1% of total estimated HEI. In addition, enrollment in PAC was often not timely, with more than a third of the infants who enrolled doing so at an age greater than 2 months old. Indicators for DNA-PCR testing and receipt of OI prophylaxis match those for PAC enrollment, i.e. the services are delivered to all HEI who enroll but limited by low enrollment and late age at enrollment.

Figure 7 below summarizes the progression of HEIs through the Cascade of Care.

Figure 7



As can be seen, there are 4 points where a significant number of HEI are either lost or miss a critical element of care:

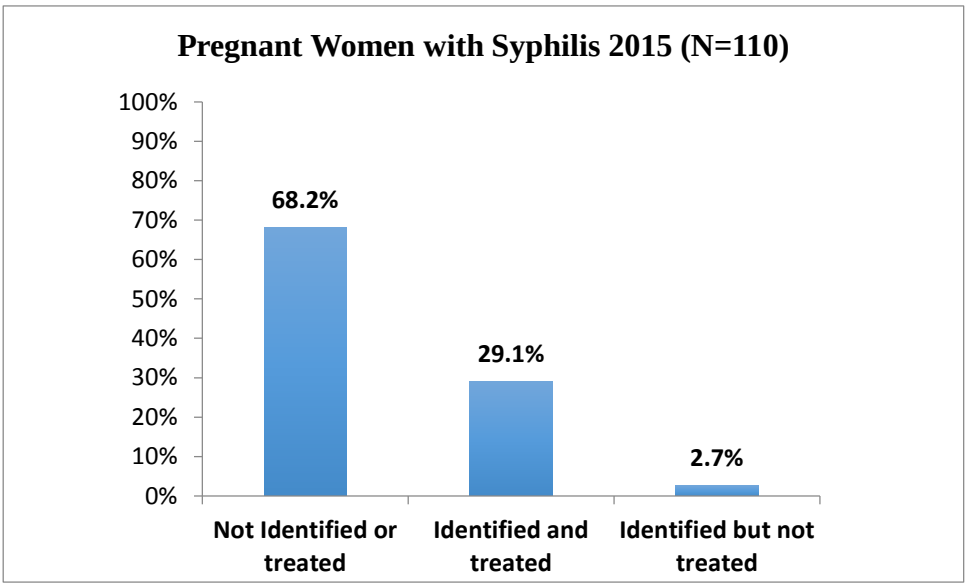
- Initial identification
- Receipt of ARV –Jayavarman 7 Hospital only
- Enrollment in PAC
- Enrollment in PAC before age 2 months

3.2 Syphilis

A nationwide shortage of syphilis test kits led to reduced numbers of women screened in 2015 (43.4% of ANC clients), as at that time separate tests were used for HIV and syphilis.
The country has since shifted to a single dual HIV/syphilis rapid screening test.

The following analysis assumes a syphilis prevalence of .03% among all pregnant women (see Section 1.2):

Figure 8



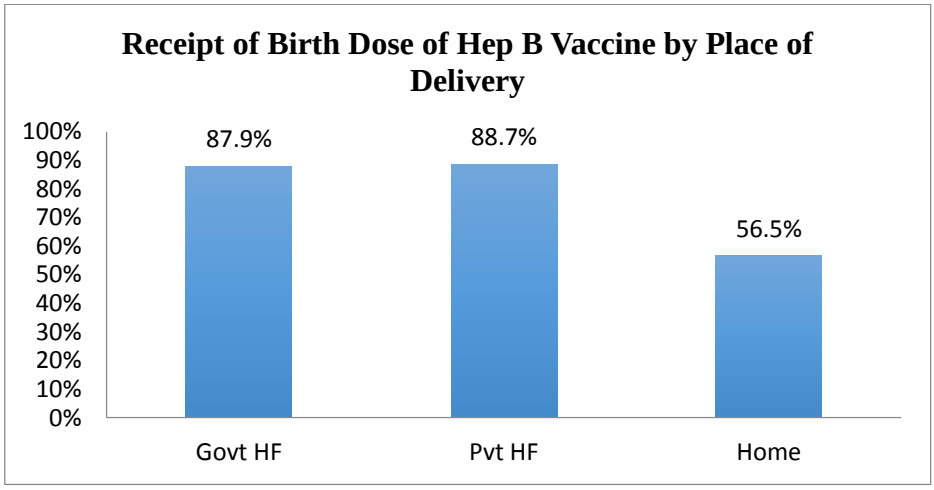
Source: PMTCT Database 2015

As can be seen, the primary constraint is a very low of identification. This is primarily due to lack of screening, but also reflects some reactive cases lost to confirmatory testing.

3.3 Hepatitis B

There is no recent nationwide data on the prevalence of chronic hepatitis B among children nor of the prevalence of HepBe surface antigen among pregnant women (see section 1.3). The following graph shows coverage for the birth dose of the Hepatitis B vaccine (currently the only program intervention) according to place of delivery. As can be seen, performance in public and private hospitals is similar, while home deliveries lag well behind.

Figure 9



4. Constraints to Delivery of PMTCT Services

A brain-storming session conducted in September 2016 with staff from the NMCHC PMTCT Unit, NCHADS, UNAIDs, WHO, PEPFAR, U.S.-CDC, FHI360, KHANA. Identified the following constraints to the delivery of PMTCT services:

4.1 Identification of HIV pregnant women/HEI:

Constrains to identification include:

- Supply of test kits at government facilities
- Quality of testing
- Lack of regular, adequately financed channels for dissemination of new guidelines
- Lack of utilization of government maternity services by some women.

4.1.1. Supply of test kits:

Frequent stock-outs and/or expiration of test kits at facility level was identified as the single greatest constraint; overall ANC attendance is high (95% in the 2014 CDHS) and it is reportedly very rare for clients to refuse the test. ANC in Cambodia is overwhelmingly provided by HCs at community level; the sheer number of these facilities (over 1,400) and their dispersal throughout the countryside make ensuring adequate stock a challenge. The NMCHC PMTCT Unit conducted a rapid survey, by telephone, of 60 HCs in 4 provinces in early October 2016. 11% were completely out of stock of HIV test kits at the time of interview. Problems occur at every step in the supply chain:

- Procurement: errors sometimes occur in estimation of the number of tests to be performed. In addition, quantification sometimes fails to make adequate allowance for wastage and for buffer stock. Cambodia's Drug Management Guidelines call for keeping a 6-month buffer in Central Medical Stores (CMS), 2-month buffer in OD pharmacies and 1-month buffer at facility level. This means that when a new commodity is introduced, it needs both the projected usage plus a 9-month additional supply to "prime" the system and ensure adequate buffer at all levels. This may not have been done when the rapid test kits were first introduced. Failure to ensure an adequate buffer leads to periodic shortages, especially at facility and OD levels. Deliveries are made by CMS to each OD only once a quarter, so if the recommended 2+1 month buffer is not maintained within the ODs, stock outs between CMS deliveries easily occur.

- HC staff and/or OD pharmacists may not be sufficiently skilled in estimation of needs to order a sufficient quantity of kits well enough in advance to avert stock-outs. This is especially likely at HC level, where the person charged with this task often has no specific training in inventory management and forecasting.

- OD pharmacies and Central Medical Stores (CMS) tend to automatically cut orders for amounts that exceed past consumption. As a result, low-performing facilities/ODs are locked into remaining low performing since they cannot obtain the quantity needed to increase the number of tests performed. The ANC caseload is not currently used as a basis for supply.

- Delays sometimes occur in the process of consolidating facility orders and submitting

requests to CMS, and in CMS review, approval and delivery. Further delays occur in delivery of supplies from the OD pharmacy to HCs, especially those located far from the OD office.

- PMTCT program managers do not currently monitor commodity stocks in facilities or take remedial actions such as arranging inter-facility borrowing or submitting exceptional requests to CMS.

An additional problem is expired stock; test kit shelf life is typically just 2 years from the date of manufacture. The time required for stock to arrive in country, clears customs, reach CMS and be entered into inventory, be delivered to ODs and then onward to HCs, further reduces this. CMS understandably uses a "First Expired – First Out" policy, delivering the kits closest to expiration. OD pharmacists have been trained to do likewise and do not currently take rates of consumption into account when allocating supplies to individual facilities. Some HCs, especially those in remote rural areas with low population density, handle only small numbers of clients each month, and thus may not be able to utilize kits with a short remaining shelf life.

4.1.2 Quality of testing:

HCs are not air-conditioned and most lack fans, with the result that it is not possible to store test kits at the recommended temperature of below 30 Celsius without use of refrigeration. Although HCs have refrigerators or coolers for vaccine storage, current policy prevents their use for other health products. The impact of using test kits that have been exposed to temperatures in excess of 30 C on test accuracy is unknown. In addition, an ongoing study by the U.S. Centers of Disease control (US-CDC) has found a number of other issues with testing quality, including use of normal saline instead of recommended diluent solution and absence of ongoing Quality Assurance mechanisms. The impact of these factors on the reliability of test results is not yet known. False positive results are of less concern than potential false negatives, since women who are reactive on rapid test are referred for confirmatory testing. This is performed at higher level facilities where QA mechanisms are in place and storage conditions are adequate. However, false negatives would contribute to failure to identify and treat cases of HIV in pregnancy.

4.1.3 Dissemination of new guidelines/protocols:

Testing women with unknown HIV status at the time of labor and delivery in HCs is a new guideline and has not yet been fully rolled out; previously guidelines called for testing only at the few HCs which are linked to an ART site. Although the new guideline was approved in March 2016, dissemination began only in October 2016 and has thus far reached just 2 provinces due to lack of budget.

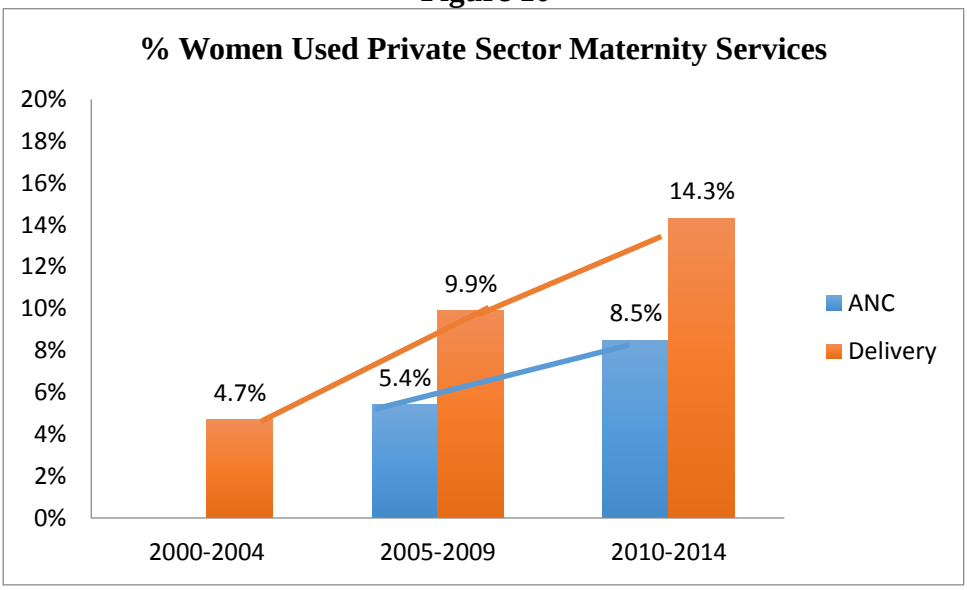
Historically, special vertical trainings/workshops have been the vehicle for dissemination of new guidelines/technical information to the midwifery workforce. As external donor support decreases, there is an increasing need to have an ongoing regular channel through which information can be rapidly disseminated. Under NMCHC Safe Motherhood guidelines, there are supposed to be regular meeting of Midwifery Coordination Alliance Teams (HC and RH midwives in each OD) which could potentially provide a vehicle for rapidly conveying new technical information and policies on PMTCT as well as other midwifery topics. However, MCATs tend to occur only in locations with external support and their focus is often dictated by the priorities of the donor. A quick assessment done by the NMCHC PMTCT Unit in

October 2016 found that only about half of ODs still conducted MCATs, often with irregular schedules, and that in a number of these the content was limited to a single focus linked to the funding source priorities. To date MCATs have not been utilized to disseminate PMTCT information or discuss problems related to PMTCT, a missed opportunity since they bring together the key ANC and delivery providers.

4.1.4 Private Sector Adherence to MoH Guidelines:

There is a growing trend towards utilization of private maternity services, especially for delivery, as shown in Figure 7 below. Regulation of the private medical sector is nascent in Cambodia, with relevant legislation still in the formative stage. With the exception of the NGO clinics run by the Reproductive and Health Association of Cambodia (RHAC), private ANC providers do not usually screen women for HIV and syphilis. And, with the exception of the private charitable Jayavarman 7 Hospital, private delivery services seldom include screening for HIV in women of unknown status.

Figure 10



Source: CDHS 2005, 2010 and 2014 Datasets.
Note: The 2005 survey did not ask about place of ANC.

As the population of Phnom Penh continues to expand, this trend towards private maternity care is likely to continue. Utilization of private facilities for maternity care is most common among urban women, who also have a higher prevalence of HIV than do their rural counterparts. In addition, some other sub-groups of women at higher than average risk for HIV may tend to disproportionately use private providers for various reasons, including stigma and time constraints associated with employment in entertainment venues or factories.

4.1.5: Utilization of maternity services:

The overall level of receipt of ANC is quite high in Cambodia (95% for women with a birth

between 2000 – 2014, compared to only 37.7% 15 years earlier[30]). However, the small minority of women who do not obtain ANC may contain a disproportionate number of women at elevated risk of HIV, such as migrants and factory workers. While garment factories are required to provide paid maternity leave to new mothers, they are not required to provide time off to access ANC, and very few do so.[31]

4.2 Constraints to provision of ART/ARV:

There are 3 main constraints to provision of ART to mothers and ARV to infants as follows:

- Logistical barriers in transporting drugs to HCs and RHs that are not co-located with an ART site (communication, transport, cost);
- Lack of a regulatory framework to ensure private facilities conform to MoH guidelines; and,
- Short post-partum stays, especially at HCs.

4.2.1. Transport of ART/ARV to HCs or RHs not co-located with an ART site:

The great majority of women known to be HIV+ during pregnancy are on ART before delivery, but **t**here are occasions cases where a known HIV+ positive woman comes for delivery having not yet started on ART (9 cases in 2015, 6 presenting at HC level and 3 at RH). Women known to be HIV-positive are strongly advised to deliver at a RH co-located with ART services and the great majority does so. However, given the difficulties inherent in predicting the timing of labor, some inevitably present at either a HC or a RH that does not include an ART site. In addition, many women deliver at HCs whose HIV status is unknown, and some of these prove reactive when screened, requiring immediate access to ART for the mother as well as ARV for the baby.

In such situations, the HCs request the ART and pediatric ARV drugs from a RH maternity ward. This may take time, especially if the HC is located far from the RH. Budget for transport of the drugs is also an issue. In addition, ART and pediatric ARV are not always available at RH maternity wards, especially in RHs that do not contain an ART site, as some district RHs do not[32]. This presents a challenge in ensuring that the drugs are obtained before the woman goes home, especially if the delivery occurred outside of usual working hours.

4.2.2. Private facility conformance to MoH Guidelines:

As previously mentioned, regulation of the private medical sector is still nascent in Cambodia. The private charitable hospital Jayavarman 7, which delivers about 10% of all HEI in the country, currently provides only 48 hours of neverapine rather than the 6 weeks that is MoH protocol (12 weeks for high risk). Other private facilities do not provide ARV as far as is known.

[30] Cambodia Demographic and Health Surveys of 2000, 2005, 2010 and 2014.
[31] ILO 2015. Practical Challenges for Maternity Protection in the Cambodian Garment Industry.
[32] 65 out of 88 RHs (73.8%) had an ART clinicin 2016 (20016 Health Congress report).

4.2.3 Short post-partum stays:

Although women are encouraged to stay at least 24 hours after delivery, many go home sooner, especially at HC level where the physical facilities and staffing at night are limited. This may lead to going home before ARV can be obtained for the baby (and for the mother, if not already on ART) if the delivery took place at a HC or a RH not co-located with an ART site. Even when delivery occurs in a RH with ART services, ARV are not always in stock at the maternity ward, and if the delivery occurs on weekends or holidays, it may not be possible to obtain it before the mother goes home.

4.3 Constraints to Enrollment in PAC /Follow-up of HEI:

Two factors between them account for the low rate of enrollment in PAC, and even lower rate of timely enrollment:

- Limited number and location of PAC services; and,
- Physical, financial and cultural barriers to travel for post-partum women and neonates.

4.3.1 Number and Location of PAC Services:

There are presently only 38 PAC units in the country, with the result that the majority of RH including about half of those which do have an adult ART unit – lack one. The result is that HIV+ women often deliver at a facility without PAC, and the mother would often have to bring the baby to a different (and more distant) location for care than the ART clinic she attends for herself.

4.3.2 Travel barriers for post-partum women and neonates:

In addition to the cost barrier that travel to a more distant facility entails, newly post-partum women and their newborns rarely travel far from home. This fact has historically constrained the provision of post-natal care, even by HCs which are usually located in the commune of residence. Staying close to home and engaging in various traditional behaviors is considered important to a woman's health, and, of course, women who have recently delivered are often still physically sore and weak, making it difficult to undertake travel, especially in rural areas where roads are in poor condition and motorcycles are the usual means of transport.

Under recently revised guidelines, the first DNA PCR test on HEI is to be done at birth through collection of a dried blood sample (DBS); this is hoped to address what is otherwise a very low level of testing. Although still in early stages of implementation, it is already evident that what would otherwise be an effective means of increasing Early Infant Diagnosis (EID) is constrained by the expectation that PAC staff will draw the blood sample. In addition to the limited number of PAC facilities, they are staffed only during normal government working hours, whereas deliveries occur round the clock, weekends and holidays included.

5. National Strategic Plan for PMTCT 2016 - 2020

5.1 Vision Statement:

The vision of the NSP-PMTCT 2016-2020 is a Cambodian society where all pregnant women, including those living with HIV, receive optimal antenatal and obstetrical care and there is no vertical transmission of disease from mothers to infants.

5.2 Linkages/Alignment

The NSP-PMTCT 2016 – 2020 is fully aligned with the following sectoral strategies:

- The draft Health Strategic Plan 2016-2020 (HSP3), which has as one of its Strategic Objectives "*Increase coverage and access to quality antenatal care, delivery, postnatal care, emergency obstetric and neonatal services, and prevention of mother to child transmission".*
- The Strategic Plan for HIV/AIDS and STD Prevention and Control in the Health Sector 2016-2020 (HSSP-HIV), which contains an objective to improve PMTCT cascade outcomes and reduce new pediatric HIV infections in through improved case diagnosis and increased access to PMTCT services.
- The National Strategy for Sexual and Reproductive Health 2013 – 2016, which includes and objective to strengthen HIV-related services for pregnant women.

The NSP-PMTCT 2016-2020 is also aligned and consistent with the following guidelines:

- National Guideline for the Prevention of Mother-to-Child Transmission of HIV and Syphilis 4th Edition NMCHC and NCHADS March 2016.
- Guidance Note on Integrated Case Management and Partner Tracing and HIV Testing for Cambodia 3.0 Initiative. NCHADS, October 2013
- Standard Operating Procedure for Implementation of Boosted Linked Response between HIV and SRH for Elimination of New Pediatric HIV Infections and Congenital Syphilis in Cambodia. NMCHC and NCHADS April 2013.
- Safe Motherhood Protocols for Referral Hospitals and HCs. NMCHC 2016.
- Standard Operating Procedures for HIV Testing and Counseling (HTC). NCHADS September 2012.
- Concept Note for Scaling up Syphilis Screening among Pregnant Women from 2010 to 2015 in Cambodia. NCHADS 2010.
- Guide for implementation of Positive Prevention among PLHIV in Cambodia. NCAHDs 2010.
- Cambodia National Immunization Program Strategic Plan 2016 – 2020 (still in draft)

It should be noted that dates of the above guidelines vary and some of their content overlaps. Where there was a difference in a specific standard/ protocol or indicator target, the most recent source was used as reference point for alignment.

5.3 Goal

The goal of the NSP-PMTCT 2016-2020 is to eliminate mother-to-child transmission of HIV, syphilis and Hepatitis B. The high level indicators are the modeled rate of MTCT of HIV, the incidence of congenital syphilis, and the development and approval of a roadmap for eMTCT of Hepatitis B[33]. The 2020 target for MTCT of HIV is <5% and a case rate of <50/100,000 live births; for the incidence of congenital syphilis, the target is <50/100,000 live births. These targets are consistent with the WHO impact criteria for elimination of HIV and syphilis, although it is not expected that all of the systems and processes required to validate elimination will be in place by 2020.

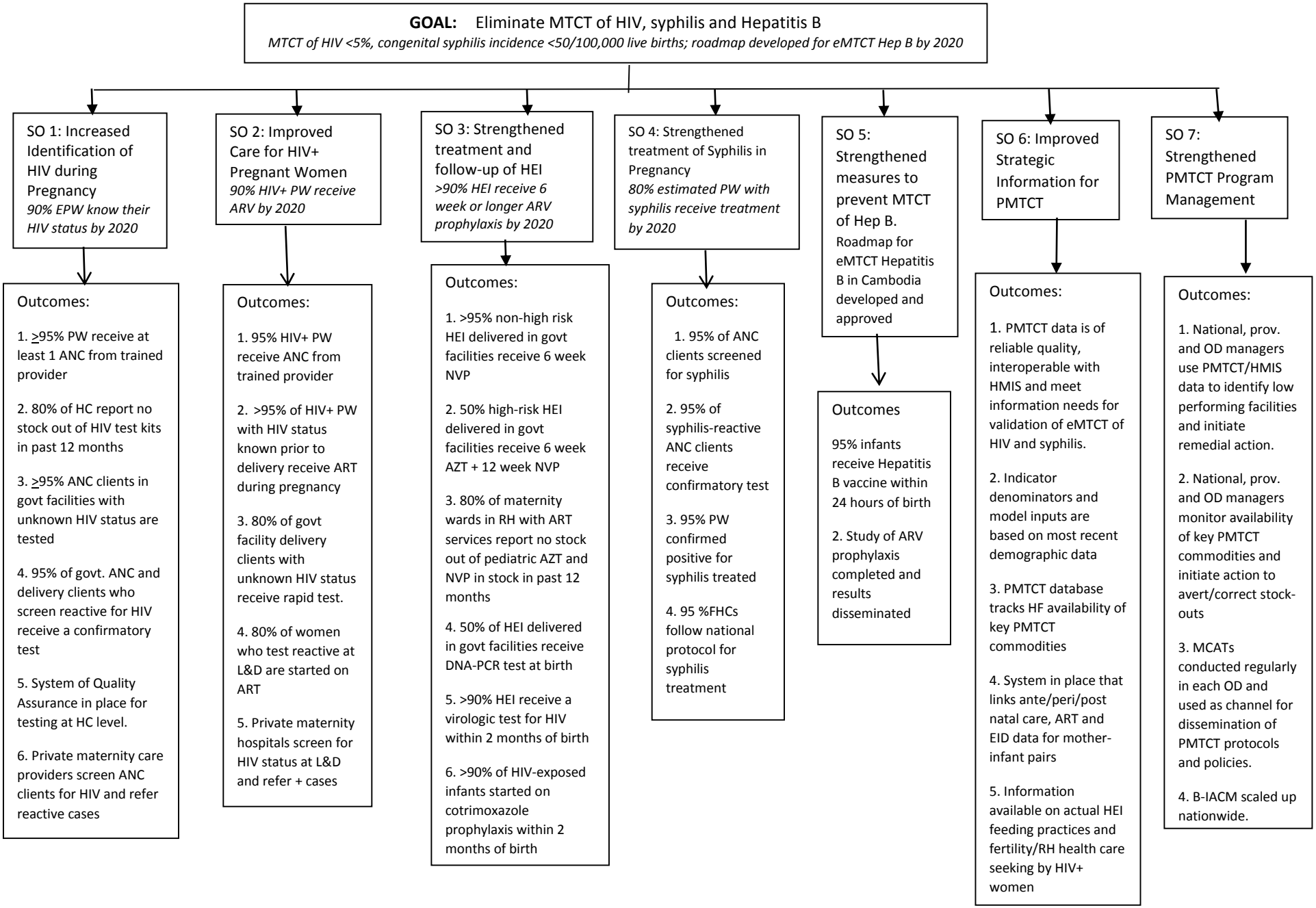
5.4 Strategic Objectives

1. Increased identification of HIV, syphilis during pregnancy.
2. Improved care for HIV+ pregnant women.
3. Strengthened treatment and follow-up of HEI.
4. Strengthened treatment of syphilis in pregnancy.
5. Strengthened measures to prevent MTCT of Hepatitis B.
6. Improved Strategic Information for PMTCT.
7. Strengthened PMTCT Program Management.

5.5 Results Framework

A complete Results Framework, with the outcomes that necessary for achievement of each objective, appears on the next page

[33] In the 2016-2020 National Immunization Strategy still in draft, Cambodia endorses the WHO Regional Framework goal of reducing the prevalence of chronic hepatitis in children under 5 to below 1%. However, the NIP Strategy does not currently include the prevalence of HBSAg as an indicator to be monitored. Whether and how to measure this will be one of the issues to be addressed in the Roadmap. Hence, for the period 2016-2020, the goal level indicator is formulation of the Roadmap.


GOAL: Eliminate MTCT of HIV, syphilis and Hepatitis B
MTCT of HIV <5%, congenital syphilis incidence <50/100,000 live births; roadmap developed for eMTCT Hep B by 2020
SO 1: Increased Identification of HIV during Pregnancy
90% EPW know their HIV status by 2020
Outcomes:
1. ≥95% PW receive at least 1 ANC from trained provider
2. 80% of HC report no stock out of HIV test kits in past 12 months
3. ≥95% ANC clients in govt facilities with unknown HIV status are tested
4. 95% of govt. ANC and delivery clients who screen reactive for HIV receive a confirmatory test
5. System of Quality Assurance in place for testing at HC level.
6. Private maternity care providers screen ANC clients for HIV and refer reactive cases
SO 2: Improved Care for HIV+ Pregnant Women
90% HIV+ PW receive ARV by 2020
Outcomes:
1. 95% HIV+ PW receive ANC from trained provider
2. >95% of HIV+ PW with HIV status known prior to delivery receive ART during pregnancy
3. 80% of govt facility delivery clients with unknown HIV status receive rapid test.
4. 80% of women who test reactive at L&D are started on ART
5. Private maternity hospitals screen for HIV status at L&D and refer + cases
SO 3: Strengthened treatment and follow-up of HEI
>90% HEI receive 6 week or longer ARV prophylaxis by 2020
Outcomes:
1. >95% non-high risk HEI delivered in govt facilities receive 6 week NVP
2. 50% high-risk HEI delivered in govt facilities receive 6 week AZT + 12 week NVP
3. 80% of maternity wards in RH with ART services report no stock out of pediatric AZT and NVP in stock in past 12 months
4. 50% of HEI delivered in govt facilities receive DNA-PCR test at birth
5. >90% HEI receive a virologic test for HIV within 2 months of birth
6. >90% of HIV-exposed infants started on cotrimoxazole prophylaxis within 2 months of birth
SO 4: Strengthened treatment of Syphilis in Pregnancy
80% estimated PW with syphilis receive treatment by 2020
Outcomes:
1. 95% of ANC clients screened for syphilis
2. 95% of syphilis-reactive ANC clients receive confirmatory test
3. 95% PW confirmed positive for syphilis treated
4. 95 %FHCs follow national protocol for syphilis treatment
SO 5: Strengthened measures to prevent MTCT of Hep B.
Roadmap for eMTCT Hepatitis B in Cambodia developed and approved
Outcomes
95% infants receive Hepatitis B vaccine within 24 hours of birth
2. Study of ARV prophylaxis completed and results disseminated
SO 6: Improved Strategic Information for PMTCT
Outcomes:
1. PMTCT data is of reliable quality, interoperable with HMIS and meet information needs for validation of eMTCT of HIV and syphilis.
2. Indicator denominators and model inputs are based on most recent demographic data
3. PMTCT database tracks HF availability of key PMTCT commodities
4. System in place that links ante/peri/post natal care, ART and EID data for mother-infant pairs
5. Information available on actual HEI feeding practices and fertility/RH health care seeking by HIV+ women
SO 7: Strengthened PMTCT Program Management
Outcomes:
1. National, prov. and OD managers use PMTCT/HMIS data to identify low performing facilities and initiate remedial action.
2. National, prov. and OD managers monitor availability of key PMTCT commodities and initiate action to avert/correct stock-outs
3. MCATs conducted regularly in each OD and used as channel for dissemination of PMTCT protocols and policies.
4. B-IACM scaled up nationwide.

5.6 Outcomes, Strategies and Activities

5.6.1 Strategic Objective #1: Increased Identification of HIV During Pregnancy

The indicator for this SO is the percentage of *all* estimated HIV+ pregnant women who know their HIV status. The target for 2020 is 90%[34].

5.6.1.1 Outcomes:

- ≥95% PW receive at least 1 ANC from trained provider
- 80% of HC report no stock out of HIV test kits in past 12 months
- 95% ANC clients in government facilities with unknown HIV status are tested[35]
- 95% of ANC and delivery clients who screen reactive for HIV receive a confirmatory test
- System of Quality Assurance in place for testing at HC level.
- Private maternity care providers screen ANC clients for HIV and refer reactive cases

5.6.1.2. Strategies:

Achievement of this Strategic Objective will require both supply and demand side interventions. On the demand side, underserved populations will be identified and reached with messages about the importance and availability of ANC services, and measures will be taken to ensure that all women who screen reactive receive a confirmatory test. On the supply side, the availability of ANC services that meet minimal quality standards and include HIV rapid test screening will be increased, both through the public sector and public-private partnerships. In the public sector, this will require ensuring an adequate supply chain for rapid test kits at all levels of the system: national, OD pharmacy and health facility. Receipt of confirmatory tests will be tracked through active case management, and the quality of rapid tests performed at HCs will be assured.

5.6.1.3 Specific Activities:

1. Train HC and RH midwives in use of the new dual HIV/syphilis rapid test.

2. Ensure consistent availability of test kits at every government ANC service delivery point through (i) adequate procurement forecasting based on projected need, taking required buffer[36] and wastage allowance into consideration; (ii) regular tracking and monitoring of stock availability at OD pharmacies and HC/RHs; (iii) provision of test kits to facilities based on documented ANC caseload, not past consumption; and (iv) close liaison with CMS and placement of "exceptional requests" when necessary to avert/correct stock outs.

3. Revise the rules/procedures governing HC refrigerators to allow storage of heat-sensitive reagents/test kits as well as vaccines.

[34] The target is aligned with that in the HIV Strategic Plan 2016 – 2020.
[35] Target aligned with that in the SOP for Boosted Linked Response.
[36] 6 month buffer at national level (CMS), 2 months at OD pharmacies and 1 month buffer at each health facility.

4. Coordinate with midwifery pre-service programs to integrate HIV testing and counseling into pre-service curricula.

5. Develop and maintain a database of which HC midwives have been trained in HIV testing and counseling; develop and implement a targeted plan to ensure that all HC midwives have this capability.

6. Develop a sustainable system to support travel costs for women in need of confirmatory testing. Explore the use of Health Equity Funds for this purpose through expansion of coverage to include HIV confirmatory testing for all clients, regardless of whether pre-identified poor. Seek donor support to offset this additional cost to the HEF system.

7. Coordinate with the MoH Department of Hospital Services and other agencies/partners working in the area of private sector regulation to ensure that private ANC providers offer HIV screening and refer reactive cases.

8. Develop and implement an ongoing system of Quality Assurance for HIV testing at HC level

9. Scale up boosted integrated active case management (B-IACM) through training of OD managers and HC/RH and ART providers, and supportive supervision; ensure tracking and follow-up of women who screen reactive.

10. Liaise with NGOs working with migrant populations and high-risk groups and with NGOs/CBOs in unusually underserved areas to promote ANC utilization.

11. Advocate with ILO and the Garment Manufacturers Association of Cambodia to make it mandatory for garment factories to allow pregnant workers to take leave for ANC visits.

12. Improve the overall quality of ANC (thereby improving client satisfaction) by scaling up testing for anemia and proteinuria in all HCs: provision of commodities, training and supportive supervision.

    - Comment: This activity will benefit both all pregnant women/newborns and HIV positive mothers and their infants. Women on ART have a higher than average risk of eclampsia and other maternal complications.

5.6.2 Strategic Objective #2: Improved Care for HIV+ Pregnant Women

The indicator for this SO is the percentage of *all* estimated HIV+ pregnant women who receive ART during pregnancy. The target for 2020 is >90%.[37]

5.6.2.1: Outcomes:

- >95% women known to be HIV+ during pregnancy receive ART
- 95% HIV+ pregnant women receive ANC
- 80% of delivery clients in government facilities with unknown HIV status receive rapid test
- 80% of women who test reactive at L&D are started on ART
- Private maternity hospitals screen for HIV status at L&D and refer + cases

5.6.2.2 Strategies:

Achieving this SO will require a combination of improved identification and improved treatment. Identification during pregnancy has already been addressed under SO#1. Identification at the point of L&D for women who present with unknown HIV status will be strengthened through routine screening in all facilities, including HCs. The primary strategy for increasing ART coverage of identified HIV+ PW will be to strengthen active case management with individualized tracking and follow-up, and address client-side constraints such as cost of travel. Active Case Management will also serve to ensure that all identified HIV+ women receive ANC.

5.6.2.3 Specific Activities:

1. Scale up boosted integrated active case management (B-IACM) through training of providers and OD managers, and supportive supervision; ensure tracking and follow-up of seropositive women and their infants.

2. Train/monitor HC midwives in implementation of new guidelines for rapid test at L&D if the mother's HIV status unknown, and initiation of ART for reactive clients pending confirmatory test.

3. Ensure emergency supply of ART at RH maternity wards through collaboration with ART sites and monitoring of stock levels by OD/PHD managers.

4. Develop a sustainable system to support travel costs for women who test reactive at L&D for confirmatory testing, by a means of transport appropriate for a newly delivered woman. Explore the use of Health Equity Funds for this purpose through expansion of coverage to include HIV confirmatory testing for all clients, regardless of whether pre-identified poor. Seek donor support to offset this additional cost to the HEF system.

[37] This target is aligned with that in the National Strategic Plan for HIV 2016-2020. 90% is also the minimum achievement for validation of elimination (WHO 2014. Global Guidance on Criteria and Processes for Validation: Elimination of Mother-to0-Child Transmission of Syphilis). Note that unlike the outcome indicator the denominator for this is all estimated HIV+ pregnant women (based on modeling), not just identified cases.

5. Coordinate with the MoH Department of Hospital Services and other agencies/partners working in the area of private sector regulation to develop a mechanism to ensure that private maternity services screen women of unknown HIV status at the time of delivery and promptly refer positive cases and alert B-IACM case managers.

5.6.3 Strategic Objective #3: Strengthened treatment and follow-up of HEI

The indicator for this SO is the percentage of all estimated HEI who receive at least 6 weeks of ARV prophylaxis. The target for 2020 is >90%.[38]

5.6.3.1: Outcomes:

- 80% of maternity wards in RH with ART services report no stock out of pediatric AZT and NVP in stock in past 12 months
- >95% of non-high risk HEI receive 6 weeks NVP
- 50% of high-risk HEI receive 6 week AZT + 12 week NVP (new protocol)
- 50% of all estimated HEI receive DNA-PCR at birth
- >90% HEI receive a virologic test for HIV within 2 months of birth (inclusive of at birth or any time between birth and age 2 months)
- >90% of HIV-exposed infants started on cotrimoxazole prophylaxis within 2 months of birth.

5.6.3.2 Strategies:

The strategy for increasing ARV coverage of HEI and early enrollment of HEI in PAC will be a combination of increasing service availability, strengthening active case management with individualized tracking and follow-up, and addressing client-side constraints such as cost of travel. Virologic testing at birth will be increased through a combined strategy of ensuring that HIV+ women deliver at a Referral Hospitals and involvement of delivery care providers in the collection of dried blood specimens (DBS).

5.6.3.3. Specific Activities:

1. Introduce pediatric AZT syrup for use in HEI prophylaxis in high-risk settings[39] and implement new protocol: 6 weeks AZT + 12 weeks neverapine.

2. Ensure consistent availability of pediatric ARV – including both NVP and AZT – at all RH maternity wards co-located with ART services[40] through (i) adequate procurement forecasting based on projected need; (ii) regular tracking and monitoring of stock availability at RH pharmacies and maternity wards; and (iii) close liaison with CMS.

[38] This target is aligned with the National Strategic Plan for HIV 2016 – 2020.

[39] Mother not on ART or started ART <4 weeks before delivery, or has Viral Load> 1000 per ml.

[40] On a case-by-case basis, NVP and AZT may also be stocked in the delivery ward of RHs without ART services if the distance to the nearest ART site is far and there is a history of delivery of HEI at that facility.

3. Scale up boosted integrated active case management (B-IACM) through training of providers and OD managers, and supportive supervision; ensure tracking and follow-up of seropositive women and their infants.

4. Develop and implement a clear Standard Operating Procedure (SoP) for round-the-clock collection of dried blood samples (DBS) at birth showing the respective roles of RH midwives and PAC staff. Train RH midwives in collection of dried blood sample (DBS) at birth and ensure consistent availability of DBS cards at maternity wards through adequate forecasting, distribution and continuous monitoring of stock.

5. Scale up PAC availability to all ART sites.

6. Develop a sustainable system to support travel costs for HEI for follow up virologic testing. Explore the use of Health Equity Funds for this purpose through expansion of coverage to include HIV confirmatory testing for all clients, regardless of whether pre-identified poor. Seek donor support to offset this additional cost to the HEF system.

5.6.4 Strategic Objective #4: Strengthened Treatment of Syphilis in Pregnancy

The indicator for this SO is the percent of estimated PW with syphilis who are identified and treated; the target is 80% by 2020.

5.6.4.1: Outcomes:

- 95% ANC clients are screened for syphilis
- 95% of syphilis-reactive PW receive confirmatory test.
- 95% PW positive on confirmatory test for syphilis are treated
- 95% Family Health Clinics follow national protocol for syphilis in pregnancy[41]

5.6.4.2 Strategies:

This strategic objective and its related outcomes will be achieved through both improved identification of pregnant women who are sero-positive for syphilis and improved treatment of sero-positive women their partners and their infants. Improving identification will require a strengthened supply chain for test kits and involvement of private sector ANC providers. Improving treatment will require both ensuring availability of the necessary drugs and addressing provider-side barriers such as lack of understanding of the protocol/risk of congenital syphilis and fears related to administration of long-acting penicillins.

5.6.4.3 Specific Activities

1. Train HC and RH midwives in use of the new dual HIV/syphilis rapid test.

[41] Mothers: Intramuscular benzathine penicillin 2.4 mU IM weekly x 3 weeks, unless allergic to penicillin, in which case 2 weeks of erythromycin. Symptomatic infant or infants born to inadequately treated mothers: aqueous penicillin G 100,000 – 150,000 U/kg/day divided into two daily doses x 10 days. In the latter case the FHCs, which are outpatient clinics, will have to refer to the RH for admission and treatment of the baby.

2. Ensure consistent availability of test kits at every government ANC service delivery point through (i) adequate procurement forecasting based on projected need, taking required buffer[42] and wastage allowance into consideration; (ii) regular tracking and monitoring of stock availability at OD pharmacies and HC/RHs; (iii) provision to health facilities based on documented ANC caseload, not prior consumption; and (iv) close liaison with Central Medical Stores and placement of "exceptional requests" when necessary to avert/correct stock outs.

3. Liaise with NGOS working with migrant populations and high-risk groups and with NGOS/CBOs in unusually underserved areas to promote ANC utilization.

4. Develop a sustainable system to support travel costs for women who test reactive for confirmatory testing, by a means of transport appropriate for a newly delivered woman. Explore the use of Health Equity Funds for this purpose through expansion of coverage to include syphilis confirmatory testing for all clients, regardless of whether pre-identified poor. Seek donor support to offset this additional cost to the HEF system.

5. Train staff of Family Health Clinics in the new protocol for treatment of maternal syphilis and infants born to syphilis positive mothers; use the training to specifically address provider fears and concerns re possible allergic reaction, needle size etc. and to emphasize the negative consequences of inadequate treatment. Include also the need to test and treat partners.

6. Train RH staff in detection and management of congenital syphilis, including presumptive treatment of newborns to any mother seropositive for syphilis who was not previously treated.[43]

7. Coordinate with MoH Department of Drugs and Food (DDF) to ensure that the Essential Medicine List includes benzathine penicillin for all RHs (CPA 1, 2 and 3) so that the above protocol can be implemented.

8. Implement an ongoing system of Quality Assurance for syphilis testing at HC level.

9. Ensure adequate supply of benzathine penicillin at FHCs and RHs.

10. Develop a sustainable system to support travel costs for women in need of a confirmatory test. Explore the use of Health Equity Funds for this purpose through expansion of coverage to include confirmatory testing for all syphilis-reactive clients, regardless of whether pre-identified poor. Seek donor support to offset this additional cost to the HEF system.

11. Scale up integrated active case management (IACM) through training of OD managers and supportive supervision; ensure tracking and follow-up of women who screen reactive and, if confirmed positive, their infants.

12. Work with MoH units involved in private sector regulation to ensure that private ANC providers screen for syphilis and refer reactive cases.

[42] 6-month buffer at national level (CMS), 2 months at OD pharmacies and 1 month buffer at health facility.
[43] The WHO protocol is now being incorporated into revised STI guidelines by NCHADS

13. Strengthen monitoring systems for maternal and congenital syphilis (see Strategic Objective #6).

5.6.5 Strategic Objective #5: Strengthened measures to prevent MTCT of Hepatitis B.

The indicator for this S.O. is that a roadmap for eMTCT of Hepatitis B in Cambodia has been developed and approved by the Ministry of Health.

5.6.5.1: Outcomes

- 95% infants receive Hepatitis B vaccine within 24 hours of birth
- Study of ARV prophylaxis completed and results disseminated

5.6.5.2 Strategies:

This strategic objective will be achieved through two approaches: (1) strengthened implementation of existing immunization policies, by both public and private providers, and (2) analysis and dissemination of the results of a study on identification and anti-viral treatment of pregnant women who are seropositive for the Hepatitis Be surface antigen, followed by stakeholder consultations to determine what the best approach for eMTCT of Hepatitis B in Cambodia is.

5.6.5.3 Specific Activities:

1. Continue to promote delivery in government health facilities through counseling during ANC and promotion by Village Health Support Groups (VHSGs)

2. Use VHSGs and EPI outreach activities to ensure that women with a home delivery are reported to the HC within 24 hours so that the birth dose of Hepatitis B vaccine, along with other routine post-natal care, can be provided.

3. Work with MoH units involved in private sector regulation to ensure that private delivery care providers follow MoH vaccination guidelines for Hepatitis B vaccine at birth.

4. Implement a study on identification and antiviral treatment of pregnant women who are seropositive for the Hepatitis B surface antigen with high viral load (already in progress).

- Analyze study results, looking at the feasibility and cost-effectiveness of such an intervention versus reliance solely on immunization of infants within 24 hours of birth and 3 doses thereafter. Seek appropriate TA from experts in Hepatitis B and health economics.
- Conductive a Consultative Workshop of key stakeholders to present findings and agree on the best "roadmap" for eMTCT of Hepatitis B in Cambodia.

5.6.6 Strategic Objective # 6: Improved Strategic Information for PMTCT.

5.6.6.1: Outcomes:

- PMTCT data are of reliable quality, interoperable with the HMIS and meet information needs for validation of eMTCT of HIV and syphilis
- Indicator denominators and model inputs are based on the most recent demographic data
- PMTCT database tracks the availability of key PMTCT commodities in HCs and RHs.
- A system is in place that links ante/peri/post natal care, ART and EID data for mother-infant pairs
- Information is available on actual HEI feeding practices and reproductive health care seeking by HIV+ women

5.6.6.2 Strategies:

These outcomes will be achieved through a combination of improvements to the PMTCT database in the Health Management Information System (addition/refinement of indicators, development of means of incorporating data from the private sector), updating of population estimates (total and pregnant women) using the most recent available data, and special studies.

5.6.6.3 Specific Activities:

1. Liaise with the MoH Department of Planning and Health Information (DPHI), the National Institute of Statistics and interested donors to develop updated population projections based on the 2013 Cambodia Inter-Censal Survey and 2014 CDHS. Revise baselines and targets as needed once these new denominators become available.

2. Liaise with DPHI and its technical assistance agencies to ensure that PMTCT database switches to the same server/platform as the main HMIS and that entry of data common to both is done only once.

3. Add the following indicators to the PMTCT database:
    - Syphilis sero-status of mothers with a stillbirth;
    - Number of spontaneous abortions of gestation <20 weeks, and mother's syphilis sero-status;
    - HC availability of: HIV/syphilis test kits, urine dipsticks, hemoglobin analyzer and microcuvettes;
    - Availability at RH maternity wards of ART, pediatric ARV (NVP and AZT) and DBS kits;
    - Number of syphilis-reactive women who undergo confirmatory testing;[44]and,
    - Number of women HIV reactive at labor and delivery who undergo a confirmatory test.[44]

4. Coordinate with the MoH DPHI and Department of Hospital Services to include congenital syphilis as a diagnostic category in OPD and RH reporting.

[44] Currently the total screened reactive and the total confirmed positive are included but not the total who had a confirmatory test.

5. Conduct a study, through the ART sites, of infant feeding and reproductive health practices of HIV+ women with a pregnancy in the prior 3 years.
6. Work with National Hospitals to revise their registers and reporting to distinguish between women with first visit at their facility and women with first ANC visits ever[45].
7. Improve/standardize utilization of the PMTCT code as a means of linking ANC and delivery information to the receipt of VCCT, ART and PAC services.
8. Develop reporting systems for ANC and HIV/syphilis service delivery data and PMTCT outcomes in private/non-governmental facilities, including measures to avoid double-counting of clients who receive ANC at more than one type of facility.

5.6.7 Strategic Objective # 7: Strengthened PMTCT Program Management

5.6.7.1 Outcomes:

- National, provincial and OD managers use PMTCT/HMIS data to identify low performing facilities and initiate remedial action.
- National, provincial and OD managers monitor availability of key PMTCT commodities and initiate action to avert/correct stock-outs.
- MCATs are conducted regularly in each OD and used as channel for dissemination of PMTCT protocols and policies.
- B-IACM scaled up nationwide.

5.6.7.2 Strategy:

The overall strategy under this Strategic Objective will be to strengthen lines of technical communication and problem solving at OD/PHD level, while enhancing proactive leadership at national level.

5.6.7.3 Core Activities:

1. Revive/strengthen the Midwifery Coordination Alliance Team (MCAT) at OD level as a platform for communication and problem solving around integrated maternal health concerns including PMTCT. This will reduce the need for multiple, single-topic workshops by providing an institutionalized channel for dissemination of information.

    - Train/assist ODs and PHDs to include MCAT costs in their Annual Operational Plans (AOPs).

    - Advocate with MoH, donors, and PHD Directors to allocate resources; raise awareness of the purpose and value of the MCAT and its cost-effectiveness compared to multiple vertical workshops.

[45] Currently, these hospitals record all first visits to their facility as ANC1, whereas many women have had prior ANC at a HC or other facility. This in turn creates inflation of ANC1 numbers and under-estimation of ANC2/3/4 coverage.

- Advocate with PHDs/ODs and H-EQIP donor consortium to make regular MCATs an expected output from ODs with performance-based contracts.

- Monitor the number of MCATs held and their attendance.

2. Broaden the functions of NMCHC Procurement staff to encompass logistics management, including monitoring of stock availability at health facilities and liaison with CMS, NCHADS etc. to avoid/correct stock outs.

3. Scale up integrated active case management (IACM) through training of OD managers and supportive supervision; ensure tracking and follow-up of women who are seropositive screen reactive and their infants.

6 MONITORING AND EVALUATION PLAN

National Strategic Indicators (2016 – 2020): PMTCT

INDICATOR	Baseline	2020 Target	Definition	Source	Comment
GOAL: Eliminate MTCT of HIV, syphilis and Hepatitis B					
MTCT of HIV	6.2% (2015)	<5%	Estimated percentage of child HIV infections from HIV-positive women delivering in the past 12 months (modeled rate)	Spectrum projection from NCHADS/ UNAIDS	Target is aligned with the National HIV Strategy
Incidence of Congenital Syphilis per 100,000 live births	n.a.	<50/100,000 live births	# cases congenital syphilis per 100,000 live births. Cases congenital syphilis = all still births, spontaneous abortion occurring after 20th week of pregnancy and live births occurring in a woman seropositive for syphilis who was not adequately treated during pregnancy. Syphilis seropositive in these cases means positive on confirmatory test, not just reactive on rapid test.	PMTCT database plus treatment records at FHC. Suspect cases to be identified through the PMTCT database: - confirmed cases in ANC not treated - stillbirths and spontaneous abortions>20 weeks in women who are seropositive (in some cases may be the same women). Request OD Coordinator or CMC to investigate and provide details as to whether the mother received syphilis treatment and if so, whether according to protocol. If not, assume it is congenital syphilis. If treatment records cannot be found, assume untreated and therefore congenital syphilis	Midwives will need to check syphilis status of all women with stillbirth or late (>20 week gestation) spontaneous abortion. The following cases are all counted as congenital syphilis: - live birth to woman with confirmed syphilis who was not treated during pregnancy according to protocol - stillbirth or spontaneous abortion>20 weeks in woman seropositive for syphilis who was not treated for it according to protocol Modeled estimates may also be done to account for underreporting

INDICATOR	Baseline	2020 Target	Definition	Source	Comment
GOAL: Eliminate MTCT of HIV, syphilis and Hepatitis B - continued					
Roadmap for eMTCT Hepatitis B	No roadmap	Roadmap developed and officially approved by MoH	A document describing the overall strategy and specific actions to be taken for eMTCT of Hepatitis B has been developed and approved by the MoH as indicated by signature and official MoH seal.	MoH document	
SO #1: Increased Identification of HIV in Pregnancy					

% Pregnant Women know their HIV status	83.0% (2015)	90%	Numerator = # PW who have been tested and received their result during this pregnancy plus #PW already known HIV+ before this pregnancy plus # PW tested at time of L&D.
			Denominator = estimated number of pregnant women (equivalent to estimated number of births)
				Numerator from PMTCT database.
				
				Denominator from Ministry of Planning National Institute of Statistics
					Target is aligned with the National HIV Strategy 2016 - 2020
					
					GARPR indicator

% Pregnant Women receive at least 1 ANC	95% (2014)	>98%	Numerator = Number of women received one or more ANC from a doctor, nurse or midwife. Denominator = all women with a birth in the reference time period.	CDHS	Target is aligned with the 2013 SoP for Boosted Linked Response. Source is CDHS rather than PMTCT database/HMIS because CDHS captures both public and private sector and avoids problem of double counting found in the HMIS.[46]

[46] Currently the national hospitals record a first visit to their facility as ANC1, even if the woman had prior ANC elsewhere, leading to double counting of ANC1 and underestimation of ANC2/3/4

SO #1: Increased Identification of HIV in Pregnancy – continued --					

% ANC clients with unknown HIV status tested and received their results	82.5% (2015)	>95%	Numerator = # ANC clients tested and received results.
			Denominator = #ANC clients with unknown HIV status
				PMTCT database
				
				Periodic CDHS provides % tested in pregnancy and can be used to assess accuracy of estimates from PMTCT database.
					Target is aligned with the 2013 SoP for Boosted Linked Response.
					
					Refers only to ANC clients at government facilities and private facilities which report data to the MoH.

% of pregnant women reactive on rapid test during ANC or L&D who receive a confirmatory test	85.1%	95%	Numerator = # PW screened reactive during ANC and received confirmatory test plus #PW screened reactive at L&D and received confirmatory test
			Denominator = total #PW who screen reactive at ANC plus total #PW screen reactive at L&D
				PMTCT database	This is the percent who *received* a confirmatory test, not the percent who were confirmed positive.

% HCs with no stock out of HIV test kits in past 12 months	n.a.	80%	Numerator = # HCs which reported having HIV test kits in stock in every monthly report that calendar year.
			Denominator = total # HCs reporting on this indicator
				PMTCT database	This requires addition of a new indicator to the PMTCT database

SO #2: Strengthened Treatment for HIV+ Pregnant Women					
% HIV+ women received ART during pregnancy	75.5%	90%	Numerator = # PW delivering in health facility who received ART during this pregnancy. Does *not* include women who started during L&D or postpartum. Denominator = total estimated HIV+ PW.	Numerator from PMTCT database Denominator from Spectrum projection by NCHADS.	Target is aligned with the National HIV Strategy 2016 - 2020 GARPR Indicator
# newly initiated on ART during the current pregnancy # already on ART before the current pregnancy			- # HIV+ PW newly identified during pregnancy who received ART plus any known HIV positive prior to pregnancy who started ART only after becoming pregnant. # PW known HIV+ prior to pregnancy and already taking ART before pregnancy.	Other numbers from PMTCT database, delivery section	GARPR asks for breakdown between ART started before/after pregnancy

INDICATOR	Baseline	2020 Target	Definition	Source	Comment
SO #2: Strengthened Treatment for HIV+ Pregnant Women -- continued --					

% Pregnant Women with unknown HIV status at L&D who are tested	49.5% (2015)	80%	Numerator = # Women delivering in health facility (HC or hospital) who received rapid HIV test.
			Denominator = #Women delivered in health facility (HC or hospital) with previously unknown HIV status
				PMTCT database	Refers only to women who deliver in government facilities and private facilities which report data to the MoH.

% Women who test reactive at L&D who are started on ART	66.2% (2015)	80%	Numerator = #women tested reactive during L&D who received ART.
			Denominator = #women tested reactive during L&D
				PMTCT database	Numerator and denominator may include women who subsequently were found not to be positive on confirmatory test, as it is protocol to start ART at once without waiting for confirmatory test is available.

INDICATOR	Baseline	2020 Target	Definition	Source	Comment
SO #3: Strengthened Treatment and Follow-Up of HEI					
%HEI received ARV	70% (2015)	>90%	Numerator = HEI who received 6 weeks or more of ARV. Shorter courses of ARV (e.g. single dose or 48 hours) not included in numerator. Denominator = estimated total HEI	Numerator from PMTCT Database. Denominator from Spectrum projection	Target aligned with HIV Strategy. GARPR Indicator.

% High risk HEI received 6 weeks AZT + 12 weeks NVP	n.a.	50%	Numerator = # infants born to mothers on ART for less than 4 weeks OR not on ART during pregnancy who received 6 weeks AZT and 12 weeks NVP.
			Denominator = # infants born to mothers on ART for less than 4 weeks OR not on ART during pregnancy
				PMTCT Database.	The definition of high risk also includes mothers with Viral Load >1000. However there is no way to capture this from the database, and most such women would have been on ART less than 4 weeks.

% of maternity wards with no stock out of pediatric AZT and NVP in stock in past 12 months	55.2%	80%	Numerator = #maternity wards in RHs co-located with ART services which had both unexpired AZT and NVP in stock every month for the past year
			Denominator = Total # RH co-located with ART
				PMTCT Database.	Baseline is from a survey done by the PMTCT unit in November 2016.
					RHs with only expired drugs are considered to have a stock out.

%HEI delivered in health facility received DNA-PCR at birth	0	50%	Numerator = # infants born to HIV+ mothers in health facilities who received a DNA-PCR test at birth
			Denominator = # infants born to HIV+ mothers in health facilities
				PMTCT Database.	Refers only to deliveries in government facilities and private facilities that report data to the MoH

% HEI receive a virologic test for HIV within 2 months of birth	40.0% (NCHADS EID database 2015)	>90%	Numerator = #infants aged less than 2 months received DNA-PCR1. (DNA-PCR at birth OR anytime before age 2 months).
			Denominator = estimated # HEI.
				Numerator from NCHADS Exposed Infant Database.
				Denominator from Spectrum projection
					Target aligned with HIV Strategy.
					GARPR Indicator.

INDICATOR	Baseline	2020 Target	Definition	Source	Comment
SO #3: Strengthened Treatment and Follow-Up of HEI -- continued --					

% of HIV-exposed infants started on cotrimoxazole prophylaxis within 2 months of birth	41.4%	>90%	Numerator = #HEI received cotrim by age 2 months
			Denominator = estimated # HEI.
				Numerator from NCHADS Exposed Infant Database.
				Denominator from Spectrum.
					Target aligned with HIV Strategy.
					GARPR Indicator.

SO #4: Improved Treatment of Syphilis in Pregnancy					

% Estimated pregnant women with syphilis who are identified and receive treatment	29.0% (2015)	80%	Numerator = # PW confirmed positive for syphilis who received treatment.
			Denominator = estimated total # PW with syphilis. Estimate as follows: multiply total EPW by .03% (.0003). (This was the estimated prevalence based on testing of ANC clients in 2015). See comment.
				Numerator from PMTCT database.
				Denominator from MoP/NIS population projection multiplied by .0003
					In 2015, EPW = 366,117. Multiply by .0003 = estimate 110 cases. Treated was 32 so 32/110 = 29%
					The prevalence value (.0003) can be revised in subsequence years if indicated

% ANC Clients screened for syphilis	43.4% (2015)	95%	Numerator = # ANC clients screened for syphilis.
			Denominator = total number ANC1.
				PMTCT database	Target aligned with the 2013 SoP for Boosted Linked Response.

% of syphilis-reactive PW receive confirmatory test	n.a.	95%	Numerator = # PW received a confirmatory test
			Denominator = # PW reactive on rapid test for syphilis
				PMTCT database	This is the percent who *received* a confirmatory test, not the percent positive. Requires new indicator in PMTCT database.

% PW positive for syphilis treated	91.4% (2015)	95%	Numerator = # PW treated for syphilis
			Denominator = # PW positive on confirmatory test
				PMTCT database	Unlike the first indicator this refers only to *identified* cases of syphilis in pregnancy, not all estimated cases.

INDICATOR	Baseline	2020 Target	Definition	Source	Comment
SO #4: Improved Treatment of Syphilis in Pregnancy -- continued --					
% Family Health Clinics follow national protocol for treatment of syphilis in pregnancy	TBD	95%	Numerator= # FHCs following correct protocol[47]. Denominator = # FHCs whose records were reviewed.	FHC records. Identify ODs with positive cases from the PMTCT database and request CMA, PAO or OD Coordinator to obtain details of treatment.	Since collecting this requires a special effort, to be done only once a year
SO #5: Strengthened Measures to prevent MTCT of Hepatitis B					
% infants receiving Hepatitis B vaccine at birth	82.6% (2014 CDHS)	95%	Numerator = # children received Hepatitis B vaccine within 24 hours of birth in the past year Denominator = total #children aged 0-11 months	Numerator from HMIS. Denominator form MoP population projections.	Can also obtain from periodic CDHS
Study of ARV prophylaxis completed and results disseminated	Study not complete.	Study completed and disseminated	Study findings described in a report. Workshop or meeting held to present and discuss findings.	Copy of report. Minutes of meeting or workshop.	
SO #6: Improved Strategic Information for PMTCT					
PMTCT database tracks HF availability of key PMTCT commodities	Does not include indicator on commodities	Includes indicators on commodities	PMTCT database contains indicators for availability of HIV/syphilis test kits in HCs, pediatric ARV at RHs	PMTCT database output	
EPW denominators is based on most recent demographic data	EPW Denominator based on outdated population projections	EPW Denominator based on new population projections	Revised population projections disseminated by Ministry of Planning/NIS	Population projections stamped by NIS.	

[47] Protocol= Mothers: Intramuscular benzathine penicillin 2.4 mU IM weekly x 3 weeks, unless allergic to penicillin, in which case 2 weeks of erythromycin. Symptomatic infant or infants born to inadequately treated mothers: aqueous penicillin G 100,000 – 150,000 U/kg/day divided into twice daily doses x 10 days.

INDICATOR	Baseline	2020 Target	Definition	Source	Comment
SO #6: Improved Strategic Information for PMTCT - continued --					
Information available on actual HEI feeding practices and RH health practices of HIV+ women	No information on actual practices, only initial preference stated	Information available	Study completed which describes and quantifies infant feeding practices and FP use by HIV+ women.	Study report.	
SO #7: Strengthened PMTCT Management					
% ODs conduct MCATs.	57.3 (2016)	75%	Numerator = #ODs held at least 2 MCATs in past 12 months Denominator= Total # ODs	OD MCH Coordinators	Request information from OD Coordinators annually
NMCHC has Logistics Coordinator on staff	No position	Position created and filled	A staff position exists within NMCHC with job description that includes tracking availability of key PMTCT commodities. May sit within any NMCHC department and may be either contract/casual staff or civil servant.	Job description.	