Final Report

Evaluation of Namibia’s PMTCT Programme-2016.

Submitted by:
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Consultant
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<tr>
<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
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<td>ANC</td>
<td>Antenatal Care</td>
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<td>ART</td>
<td>Antiretroviral Therapy</td>
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<td>ARV</td>
<td>Antiretroviral Medicine</td>
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<td>AZT</td>
<td>Zidovudine</td>
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<td>CD4</td>
<td>Cluster of Differentiation</td>
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<td>DNA</td>
<td>Deoxyribonucleic Acid</td>
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<tr>
<td>DPT</td>
<td>Diphtheria, Pertussis and Tetanus Vaccine</td>
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<tr>
<td>EDT</td>
<td>Electronic Dispensing Tool</td>
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<td>EID</td>
<td>Early Infant Diagnosis of HIV</td>
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<td>ELISA</td>
<td>Enzyme Linked Immunosorbent Assay</td>
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<td>eMTCT</td>
<td>Elimination of Mother-to-Child Transmission of HIV</td>
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<tr>
<td>EPMS</td>
<td>Electronic Program Monitoring System</td>
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<tr>
<td>GRN</td>
<td>Government of the Republic of Namibia</td>
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<tr>
<td>HTC</td>
<td>HIV Testing and Counseling</td>
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<tr>
<td>HIS</td>
<td>Health Information System</td>
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<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>IYCF</td>
<td>Infant and Young Children Feeding</td>
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<td>GBV</td>
<td>Gender Based Violence</td>
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<td>KI</td>
<td>Key Informants</td>
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<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
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<td>MNCH</td>
<td>Maternal, Newborn and Child Health</td>
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<td>MIS</td>
<td>Management Information Systems</td>
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<tr>
<td>MoHSS</td>
<td>Ministry of Health and Social Services</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>MTCT</td>
<td>Mother-to-child transmission</td>
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<td>NDHS</td>
<td>National Demographic and Health Survey</td>
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<td>NIMART</td>
<td>Nurse Initiated and Management of ART</td>
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<td>NSAP</td>
<td>National Strategy and Action Plan for HIV/AIDS response</td>
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<td>NSF</td>
<td>National Strategic Framework</td>
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<td>OVC</td>
<td>Orphans and Vulnerable Children</td>
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<td>PCR</td>
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<td>PHC</td>
<td>Primary Health Care</td>
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<td>PMTCT</td>
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<td>ToC</td>
<td>Theory of Change</td>
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<td>SDG</td>
<td>Sustainable Development Goals</td>
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<td>SPM</td>
<td>System for Program Monitoring</td>
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<td>STI</td>
<td>Sexually Transmitted Infections</td>
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<td>SWOT</td>
<td>Strength Weakness Opportunities Threats</td>
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<td>UNAIDS</td>
<td>The Joint United Nations Programme on HIV/AIDS</td>
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<td>UNEG</td>
<td>United Nations Evaluation Group</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>WACPU</td>
<td>Women and Child Protection Units</td>
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EXECUTIVE SUMMARY

The Government of the Republic of Namibia (GRN) has implemented a program for prevention of mother-to-child transmission of HIV (PMTCT) for the last 12 years. In 2013, a National Strategy and Action Plan (NSAP) for Elimination of Mother-to-Child Transmission of HIV (eMTCT) and Keeping Their Mothers Alive was adopted. To find out the progress on the plan for eMTCT as well as the facilitating and constraining factors, the Ministry of Health and Social Services (MoHSS), UNICEF and UNAIDS organized for this evaluation. This evaluation assessed achievement on targets outlined in the NSAP as well as the global criteria for validation of pre-elimination of eMTCT of Human Immunodeficiency Virus (HIV). Progress on eMTCT can be assessed using pre-elimination or elimination criteria. To qualify for elimination or pre-elimination validation, a country has to meet a set of process and impact targets. Elimination process targets include achievement of coverage equal to more than 95% on antenatal care (ANC) attendance, HIV testing during pregnancy and coverage of antiretroviral therapy (ART) during pregnancy; impact indicators include a mother to child (MTCT) rate of less than 5% and a case rate of less than 50 new HIV infections due to MTCT per 100,000 live births. Breastfeeding countries with HIV prevalence > 2% among the general population can be validated for pre-elimination rather than elimination of MTCT. Pre-elimination is an attempt to recognize the progress that has been made in PMTCT of HIV in high burden countries. Validation for pre-elimination requires process indicator targets lower than those for elimination i.e. coverage equal to or above 90% on ANC attendance, HIV testing among pregnant women and antiretroviral coverage for pregnant women living with HIV. There is no pediatric new HIV infection case rate requirement for pre-elimination but the MTCT rate must be below 5%.

The objectives of the evaluation were tri-fold

1. To contribute to improving the MoHSS’s accountability for its performance and results by defining key achievements as well as missed opportunities in support of improved PMTCT outcomes over the past decade.
2. To generate evidence and learning to guide i) the effective action towards quality monitoring and reporting towards eMTCT ii) an effective roadmap to overcome the remaining barriers and bottlenecks to reach elimination ii) MoHSS positioning in eMTCT, Sustainable Development Goals (SDGs) and the post 2015 HIV agenda as guided by the UNAIDS 2016-2021 strategy.
3. The findings and recommendations generated by the consultancy will be used to determine Namibia’s qualification to submit an application towards the eMTCT validation and accreditation process. They will also influence strategic direction and partnerships/advocacy as well as programme strategies to achieve the results and targets outlined by the National Strategic Framework (NSF). The findings will provide insights into the continuum of care for the PMTCT cascade; through early treatment and retention. In addition, the consultancy will provide smart recommendations on how the MoHSS can best re-position the PMTCT programme vis-à-vis the UNAIDS Strategy and the 2030 Agenda for Sustainable
Development. The findings of the evaluation will also support Namibia’s application towards the eMTCT validation and accreditation process.

The evaluation combined both quantitative and qualitative information. Quantitative information was largely secondary obtained from routinely collected program data, review of implementation progress reports, population-based surveys, researches done, modeling estimates, etc. The only routinely collected program data available for this evaluation were of 2015. Qualitative data were obtained from key informants (KIs) in Kavango, Zambezi, Ohangwena, Otjozondjupa and Khomas regions. Quantitative data provided information on coverage and impact while qualitative data provided information on the weakness and strength of the program as well as opinions of stakeholders on the different program components and implementation strategies. The evaluation used a Theory of Change (ToC) approach to compare the activities planned and results achieved against those anticipated for the different PMTCT interventions and outcomes.

The prevalence of HIV in Namibia is generalized but heterogeneous. About 80% of people living with HIV (PLWHIV) reside in seven (Kavango, Zambezi, Ohangwena, Khomas, Omusati, Oshana and Oshikoto) out of thirteen regions. The same regions also have comparatively higher number of health facilities and population density.

PMTCT services were introduced in Namibia in 2002 as a pilot and later scaled-up nationally in 2004 using single-dose nevirapine regimen. In 2008, a more efficacious regimen using a combination of ARVs was introduced. In 2010, the programme adopted “Option A” for antiretroviral (ARV) prophylaxis and in 2013, the MoHSS aligned the PMTCT strategy with the global plan towards eMTCT and keeping their mothers alive. This strategy recommends use lifelong combination antiretroviral therapy (ART) for all pregnant and breastfeeding women living with HIV (Option B+).

Antenatal Care (ANC) is the entry point for eMTCT interventions. ANC care attendance is almost universal. From the National Demographic Health Surveys (NDHS), 97% of pregnant women in Namibia received antenatal care (ANC) from a skilled provider at least once in 2013. However, less than 90% of women attended ANC at least once in Omaheke region (88.8%) or if they had no education (87.7%). Only 63% attended four ANC visits or more in 2013 which was a decline from 70% in 2006-07. Out of 80,373 pregnant women attending ANC at least once in 2015, 12,325 (15.3%) were 15-19 years of age and 433 (0.5%) were children below 15 years.

Out of 74,562 women estimated to have become pregnant in 2015, 75,896 (101.8%) tested for HIV during ANC or were known to be HIV-positive. Why the number tested was higher than the estimated annual pregnancies could be explained in this evaluation and is one of the inconsistencies between modeled estimates (number of pregnant women in the country) and directly measured data (number of women tested for HIV). The only regions with HIV-testing coverage of less than 90% were Otjozondjupa (87.3%) and Omaheke (84.5%). From the routinely collected data of 2015, 3,586 ANC women were not tested for HIV. The majority
women who were not tested were from Kunene where 24.7% of ANC women receiving pre-test counseling (n=3409) were not tested for HIV (n=842). According to UNAIDS modeling estimates, about 95 (86-95) % of pregnant women in Namibia are aware of their HIV status from 2013 to 2015.

After a clear decline of new infections among women of reproductive age from the early 2000s, new infections have remained constant in the last 4-6 years. If new infections are to decline at a population level, it requires more than the HIV-prevention interventions offered in the context of PMTCT. It requires strengthening a combination of behavioral, biomedical and structural interventions spelt out in the National Combination Prevention Strategy and Operational Plan. One key intervention for primary prevention at a community level is to expand HIV testing and counseling (HTC) and strengthen linkages of HIV-positive to care. The MoHSS also needs to consider treatment as prevention strategy by treating all PLHIV irrespective of CD4 count so as to reduce population level viral load.

Most of the HTC of pregnant women at health facilities was largely through the provider initiated strategy. In addition to facility based testing, HTC was also provided through door-to-door (home-based) or outreaches in the general population. Repeat testing of HIV-negative women during pregnancy in the third trimester or testing breastfeeding women who may have missed a test previously was not routinely practiced and as result, it was not possible to identify women tested positive on second test or postpartum. Another bottleneck to HIV-testing was shortages of Rapid Diagnostic HIV Test kits (RDTs). In the absence of RDTs some health facilities used ELISA for HIV testing. This is more expensive and often requires sample transportation resulting in longer turnaround time.

Based on MOHSS reporting (2010-2013), about 4% of partners of PMTCT female clients were tested for HIV. However, this may be an underestimate. In the NDHS 2013, 45% of women who received ANC for their last birth in the past two years reported that their partner was tested for HIV during any of their ANC visits and 87% of women received the test results and disclosed them to their partners.

Most providers in the regions and facilities visited are aware that eliminating unmet need for family planning is one of the strategies for PMTCT. Unmet need for family planning in the general population has declined from 21.8% in 1992 to 12% in 2013. In 2015, out of 1546 HIV-positive women attending ANC, 1188 (76.8%) became pregnant when they were known HIV-positive. It was not possible to establish if some of these pregnancies were unplanned. In the sites visited, family planning was not routinely offered during HIV/AIDS services as is recommended. It was left up to each client to decide if she needs family planning and approach the responsible provider. Most PMTCT service providers were not sure if clients were using dual family planning methods or not. In the case of women who would like to get pregnant, most PMTCT providers were not sure about the availability national guidelines. All Key informants (KIs) interviewed were not sure how unmet need could be assessed.
In the facilities visited, pregnant and breastfeeding women received first line regimen which is a fixed dose combination of efavirenz, emtricitabine, and tenofovir disoproxil fumarate for PMTCT. Treatment was life long and was started on the day of HIV diagnosis, irrespective of CD4 count or clinical stage, as is recommended by national guidelines. According to routinely collected program data, out of 11,592 HIV positive ANC clients 11,364 (98%) received ART for PMTCT in 2015. From the same data set however, One hundred and one ANC clients were reported to have received a PMTCT regimen that has been phased out (single dose nevirapine plus zidovudine and lamivudine). From the data, one inconsistence noted was that the number of women accessing ART during ANC in 2015 (total 11,364; with 7431 already on ART during ANC and 3933 starting ART during ANC) was more than the upper bound estimate of women in need of PMTCT (10,004) for 2015 to the May 2016 Spectrum Modeling estimates\(^1\). This discrepancy was also noted in the Namibia AIDS Response Progress Report 2015. While calculating the percentage of HIV-positive women living with HIV who received ARVs for PMTCT, the numerator (8,786) from programmatic data was higher than the denominator (8,779) from spectrum modeling. Overall, UNAIDS estimates that more than 95% (86-95) of women living with HIV received ART for PMTCT from 2013 to 2015. In 2015, about 80% (7431/9295) of known HIV- positive women were already on ART by their first ANC visit. It is noteworthy however, that in 2015, 58 women refused ART during pregnancy. The reasons or circumstances for refusals could not be ascertained. Although initiation of ART for PMTCT was reported to be almost universal and well documented, retention in care and adherence to treatment was less certain. There were suggestions from interviews with KIs, that retention of breastfeeding women (especially adolescents and young women) may be poorer than other adults. Over time it is also important to monitor pregnancy and newborn outcomes related to ART. The risk of congenital birth defects is likely to be low for the currently recommended first-line ARV drugs, but little is known about newer drugs and the possible effects on growth, development and organ maturation resulting from pre-conception exposure to newer ARVs.

From the routinely collected program data of 2015, only 371 infants are documented to have received any form of ARV prophylaxis. However, the number of HIV positive pregnant women who had given birth were not included in the data base provided. A number of challenges were noted with infant ARV prophylaxis. It was not clear to some of the providers on when to stop nevirapine prophylaxis for HIV-exposed infants. Some HIV-exposed infants did not receive prophylaxis because of stock outs of nevirapine suspension. It was also noted that the final HIV-test after breastfeeding was often not done. The main reason was because it was up to the care-givers of HIV-exposed infants to bring them back for testing when breastfeeding has stopped. However, very few care givers actually bring the children back for testing and the system to track and trace those who not brought back is weak. As result, it was reported that most children are not formally discharged from follow-up and most of the available routinely

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\(^1\) SOURCE: Spectrum Policy Modeling System, Version 5.43 (2016); Namibia model May 2016
collected data on MTCT is at 6-8 weeks and yet, the pre-elimination target requires data at the end of breastfeeding. Routinely collected data set of 2015 available for this evaluation did not include the number of exposed infants found to be HIV infected. However, according to MoHSS reporting, the proportion of HIV-exposed infants tested with DNA PCR increased from 36% in 2006/7 to 88% in 2013/14. The report did not indicate if the denominator was all the HIV-exposed infants in the country. The turnaround time for DNA PCR was reported to be within two weeks as recommended. Providers were aware on the need to start treatment for all children with HIV infection. Nurse Initiated and Managed ART (NIMART) training provides nurses with the capacity to manage adults, infants and children with HIV. Data from NDHS 2013 shows an increase of exclusive breastfeeding in the general population in the first 6 months from 23.9% in 2006-7 to 49% in 2013. In 2015 however, 368 infants were on replacement feeding. Most of these infants were in Khomas region.

New pediatric infections are estimated to have declined by 75.5% from 1,521 in 2010 to 372 in 2015. Modeled estimates also indicate that the current MTCT rate after breastfeeding is less than 5% (4.1%). It is also estimated that adult deaths declined by 30.8% from 4,156 in 2010 to 2875 in 2015 while deaths among children (0-4 years) declined by 73.9% from 581 in 2010 to 152 in 2015.

The GRN provides strong political, administrative, and financial leadership and support for the HIV/AIDS response including PMTCT. The GRN has demonstrated its commitment of ownership of the national response by steadily increasing its proportion of expenditures to the HIV/AIDS response over past years, which currently represents 64% of the total HIV/AIDS spending. However the GRN faces challenges with numbers and turnover of the human resources for health in the public sector. The quality and quantity of PMTCT services offered in the private sector (where 8% women gave birth in 2013) is not well documented. Program officers at district and regional Primary Health Care (PHC) departments reported that the large number of programs to supervise compromizes the attention given to PMTCT. PMTCT was noted to be well integrated in Maternal and Child Health (MCH) services especially at the health centre and clinic levels. Some health centres and clinics reported inadequate space especially for storage of commodities and counseling. The Monitoring and Evaluation (M&E) system for the national response consists of multiple data sets from multiple data systems within the broader Health Information System (HIS). Guidance, including tools for data collection and submission has been produced and disseminated. However, the routinely collected data did not cover all the targets in the NSAP for eMTCT and global guidance indicators. It was also noted that the mother-baby follow-up register was not always complete. Another data related challenge is the issue of “visitors”. Some PMTCT mothers and infants received follow-up services at facilities where they are not registered (visitors) and could be regarded as lost to follow-up where they are registered and yet there are not. There is need for data quality assessment of routinely collected data. In addition, cohort monitoring and/or a directly measured baseline MTCT rate would be useful to validate and better understand the accuracy of available programmatic data vis-a-vis modeled estimates. It will also be used to make comparisons in future to assess
progress on eMTCT. A directly measured baseline can be obtained by testing all children during their first immunization clinic visit combined with active follow up of exposed infants. To qualify for pre-elimination of MTCT a country has to demonstrate that a robust information system is in place such that coverage can be adequately estimated and the majority of cases of perinatal HIV can be identified.

On the basis of findings from this evaluation, the following recommendations are made for the short term (6-12months) or medium term (12-24 months) implementation.

**Recommendations for implementation in the short term (6-12 months):**

1. Strengthen focused ANC attendance (at least 4 visits) nationally.
2. Strengthen HTC and ART for PMTCT in Omaheke and Otjozondjupa regions.
3. Strengthen supply chain management for PMTCT commodities (RTDs, nevirapine suspension).
4. Expand HTC especially through community based testing and strengthen linkages to care and treatment as well as retention in chronic care for people living with HIV.
5. Strengthen and document repeat testing of pregnant women who initially tested HIV negative.
6. Identify and document breastfeeding women who did not test for HIV during pregnancy and offer them HTC.
7. Document reasons for ART refusal so that they may be acted upon.
8. Assess retention in chronic care through age disaggregation of data on retention among women starting ART through PMTCT paying particular attention to adolescents and young women.
9. Regularly assess adherence to ART during ANC, child birth and postpartum.
10. Offer HTC to all infants with unknown or uncertain HIV status and for all children with a parent living with HIV.
11. Strengthen clinic-based data systems for identification, pro-actively pursue follow-up, DNA PCR testing and reporting of HIV-exposed infants until the end of breastfeeding.
12. Ensure regular reporting of numbers tested at the end of breastfeeding.
13. Provide regular training, support-supervision and mentoring on how to fill in mother-baby follow-up registers.
14. Conduct a data quality assessment for PMTCT.
15. Adopt of treatment as prevention through treatment of all PLWHIV irrespective of CD4 count.
16. Strengthen integration of HIV and family planning by building capacity of health care workers to assess and satisfy need for family planning. Pay particular attention to the needs of adolescents.
17. Report on unmet need for family planning identified and satisfied.
18. Prioritize viral load testing of pregnant and breastfeeding women so as to enhance adherence support and offer prolonged infant prophylaxis for women with unsuppressed viral load.
19. Monitor congenital abnormalities, low births weights, prematurity among HIV-exposed infants.
20. Integrate PMTCT services offered in the private sector into the national data base.
21. Establish cohort monitoring and/or a directly measured baseline measure of MTCT rate to validate estimates from mathematical models.
22. Integrate MTCT of HIV and Syphilis
23. Develop a five-year plan to move from pre-elimination to elimination after confirmation of these pre-elimination targets.

Namibia made remarkable progress towards eMTCT. Pre-elimination process targets have been achieved at a national level (except ANC in Omaheke; HTC and ART for PMTCT in Omaheke and Otjozondjupa regions). New pediatric HIV infections have also declined and the MTCT rate is lower than 5% (4.1%) as planned in the NSAP for eMTCT and required for validation for pre-elimination. However, most of these targets were based on findings from a mathematical model. There is an urgent need to validate data from the mathematical model with directly collected data.

Namibia had the potential to eliminate MTCT of HIV. With the strong political leadership combined with substantial financial resources and health infrastructure, evidence-based programmatic focus, and a relatively modest HIV-infected population all give Namibia a unique opportunity to achieve this ambitious aspiration.

This evaluation had limitations. Routinely collected data were only available for 2015 and had no data on number HIV-exposed infants born, tested for HIV or tested positive with DNA PCR. There were contradictions between data from Spectrum modeling and directly collected data that could not be resolved. Only data from health facilities in the public sector were available.
1.0: BACKGROUND:

Namibia is an upper middle income country with an estimated gross national income per capita of $5,630. However, substantial inequalities still exist and more than one in four (28.7%) of the population live in poverty while about 27.4% are unemployed. With a large land mass and a population of about 2.4 million, Namibia is one of the sparsely populated countries in the world (2.8 people/sq. km.). Population densities vary enormously from region to region. Almost two thirds of the population resides in the northern regions and less than one tenth of the population live in the south. Population density has an impact on health services delivery. Health services delivery is challenging for hard-to-reach sparsely populated areas. Despite ongoing rapid urbanization, most Namibians (~57%) still live in rural areas. Namibia is divided into 14 regions and 35 health districts.

Figure 1: Regions of Namibia

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3 http://cms.my.na/assets/documents/p19dmlj9sm1rs138h7vb5c2aa91.pdf
4 http://cms.my.na/assets/documents/p19dmlj9sm1rs138h7vb5c2aa91.pdf
5 The map (just like most of the information in the report) refers to Kavango as one region. It has been split into Kavango East and Kavango West regions.
About 14% of total government expenditure is spent on health. Government is the biggest contributor to health spending in the country; it represents over half of total health spending (54 percent). The rest is by households (16%), employers (11%), donors (8%) and others (11%).

Most national health indicators have improved since independence. According to the 2013 Namibian Demographic and Health Survey (NDHS) almost all women (97%) received antenatal care (ANC) from a skilled provider at least once. However, the proportion of pregnant women attending four or more ANC visits declined from 70% in 2006-7 to 63% in 2013. Less than half (43%) started their ANC visits during the first trimester as recommended. More than four in five births (87%) take place in a health facility and are assisted by a skilled provider (88%). About two in three (68%) of mothers receive postnatal care from a skilled provider within two days of delivery and 63% of children are fully vaccinated against major childhood diseases by one year of age. Breastfeeding is almost universal; with 96% ever breastfed. However, about half (49%) of children under 6 months are exclusively breastfed and only 13% of children 6-23 months of age are fed appropriately based on recommended Infant and Young Child Feeding (IYCF) practices. The median duration of breastfeeding is 14.7 months. The total fertility rate is 3.6 children per women; median age at first birth among women aged 15-49 is 21.6 years; 19% of young women (15-19 years old) have begun child bearing. 50% of all women in Namibia are using a modern contraceptive method. However, 12% of women have unmet need for contraception (8% for spacing and 4% for limiting births) and 10% of births are unwanted.

One of the major challenges to the Namibian health system is Human Immunodeficiency Virus (HIV) infection and Acquired Immunodeficiency Syndrome (AIDS). According to the Ministry of Health and Social services (MoHSS), HIV is the underlying cause for more than half of maternal and childhood deaths. In terms of years of life lost due to premature deaths, HIV/AIDS was ranked first followed by tuberculosis and respiratory tract infection in 2013. Unsafe sex and alcohol use were the main risk factors for HIV transmission among adults. There is an estimated 260,000 [240,000 - 280,000] people living with HIV in Namibia. The HIV prevalence among adults in 2013 was 14% for the 15-49 year old and 16.4% for the 50-64 years old but higher (19.9%) among women 15-49 years of age.

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7 The Namibia Ministry of Health and Social Services (MoHSS) and ICF International. 2014. The Namibia Demographic and Health Survey 2013. Windhoek, Namibia, and Rockville, Maryland, USA: MoHSS and ICF International

8 Ministry of Health and Social Services (MoHSS) [Namibia] and Macro International Inc. 2008. Namibia Demographic and Health Survey 2006-07. Windhoek, Namibia and Calverton, Maryland, USA: MoHSS and Macro International Inc.


12 http://www.unaids.org/en/regionscountries/countries/namibia

13 The Namibia Ministry of Health and Social Services (MoHSS) and ICF International. 2014. The Namibia Demographic and Health Survey 2013. Windhoek, Namibia, and Rockville, Maryland, USA: MoHSS and ICF
Government has responded to the HIV/AIDS epidemic by implementing a national HIV/AIDS National Strategic Framework (NSF). The six-year NSF 2010/11-2015/17 for HIV and AIDS was developed in 2010, and reviewed in 2013. A key component of the NSF and the national HIV-response is prevention of mother-to-child transmission of HIV (PMTCT).

Mother-to-child transmission (MTCT) is responsible for over 90% of pediatric HIV infections. Transmission can occur during pregnancy, labor and delivery or breastfeeding. In the absence of any antiretroviral intervention, the overall risk of transmission is about 30–35%. However the use of highly effective antiretroviral drugs (ARVs) can reduce this risk to less than 5% in breastfeeding populations. MTCT can be less than 2% for mothers with undetectable viral load from conception until the end of breastfeeding.

In Namibia, there is a strong political commitment at the highest level to eliminate vertical transmission of new HIV infections in children. The goal for elimination of mother-to-child transmission of HIV (eMTCT) initiatives is to reduce MTCT of HIV to a very low level, such that it is no longer a public health problem.

In 2014, the WHO provided criteria for validation of eMTCT as a public health problem. To qualify a country has to meet a set of process and impact targets. Process targets include antenatal care attendance, HIV testing during pregnancy and coverage of antiretroviral therapy (ART) during pregnancy; impact indicators include a MTCT rate of less than 5% and a case rate of less than 50 new HIV infections due to MTCT per 100,000 live births. Cuba, Thailand, Armenia, Belarus and The republic of Moldova are some of the countries that have been validated for eMTCT. A number of countries in East and Central Africa including Namibia are making progress towards these targets. In order to recognize significant success and progress being made on the path to eMTCT, a new category of pre-elimination has been proposed. There are three key differences to highlight between Elimination and Pre-elimination:

1. In order to be considered for Pre-elimination, a country must have prevalence greater than or equal to 2% among the general population.
2. The process indicator targets are lower for pre-elimination than those for elimination (ANC attendance equal to or above 90%, HIV testing equal to or above 90% among

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http://apps.who.int/iris/bitstream/10665/112858/1/9789241505888_eng.pdf

15 Policy Brief: Validation of Pre-elimination of Mother-to-Child Transmission of HIV as a public health problem: Setting intermediate goals for high HIV burden countries to recognize progress towards elimination
pregnant women and ART coverage for pregnant women living with HIV equal to or above 90%).

3. There is no pediatric new HIV infection case rate requirement for Pre-elimination but countries need to submit a 5-year plan on how they will reduce the new pediatric HIV case rate

4. The MTCT rate indicator is maintained and must be below 5%.

In addition to meeting the specific indicators, the national programme should also be able to show that:

- Results have been achieved in a manner consistent with the protection of human rights
- A robust information system is in place such that coverage can be adequately estimated and the majority of cases of perinatal HIV can be identified
- Laboratory services have quality assurance mechanisms
- The programme provides services to all communities in all regions, and there are no “unattended hotspots” of transmission which may reflect low coverage of services in a specific region and/or for a specific population.
- Process indicators have been met for at least 2 consecutive years and the impact indicator for at least 1 year.

Table 1: Criteria for validation of elimination and pre-elimination of MTCT

<table>
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<tr>
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<th>Elimination</th>
<th>Pre-elimination</th>
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<tbody>
<tr>
<td>Prevalence</td>
<td>No prevalence minimum requirement</td>
<td>HIV prevalence ≥ 2%</td>
</tr>
<tr>
<td>IMPACT indicators</td>
<td>MTCT od HIV &lt;5% in breastfeeding populations at the end of breastfeeding or less than 2% in non-breastfeeding populations at the end of 6 weeks</td>
<td>MTCT of HIV &lt;5% in breastfeeding populations at the end of breastfeeding.</td>
</tr>
<tr>
<td>Annual case rate for pediatric HIV &lt;50/100,000 births</td>
<td>A five-year plan to reduce the new pediatric HIV case rate</td>
<td></td>
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<tr>
<td>PROCESS indicators</td>
<td>ANC coverage: ≥ 95% of all pregnant women attend first ANC</td>
<td>ANC coverage: ≥ 90% of all pregnant attend first ANC</td>
</tr>
<tr>
<td></td>
<td>Coverage of HIV testing: ≥ 95% of all PW tested</td>
<td>Coverage of HIV testing: ≥ 90% of all pregnant women tested</td>
</tr>
<tr>
<td></td>
<td>Coverage of ART: ≥ 95% of all pregnant women with HIV treated</td>
<td>Coverage of ART: ≥ 90% of all pregnant women with HIV treated</td>
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To generate evidence and document the country’s current status in regards towards eMTCT, the MoHSS with support from UNICEF and UNAIDS requested for an evaluation of the national PMTCT Program. This evaluation assessed achievement on targets outlined in the NSAP for eMTCT as well as the criteria above for validation of pre-elimination of MTCT.
2.0: OBJECTIVES AND SCOPE OF EVALUATION:

2.1: Objectives:
The objectives of the evaluation are tri-fold

1. To contribute to improving the MoHSS’s accountability for its performance and results by defining key achievements as well as missed opportunities in support of improved PMTCT outcomes over the past decade.
2. To generate evidence and learning to guide i) the effective action towards quality monitoring and reporting towards eMTCT ii) an effective roadmap to overcome the remaining barriers and bottlenecks to reach elimination ii) MoHSS positioning in eMTCT, Sustainable Development Goals (SDGs) and the post 2015 HIV agenda as guided by the UNAIDS 2016-2021 strategy.
3. The findings and recommendations generated by the consultancy will be used to determine Namibia’s qualification to submit an application towards the eMTCT validation and accreditation process. They will also influence strategic direction and partnerships/advocacy as well as programme strategies to achieve the results and targets outlined by the NSF. The findings will provide insights into the continuum of care for the PMTCT cascade; through early treatment and retention. In addition, the consultancy will provide smart recommendations on how the MoHSS can best re-position the PMTCT programme vis-à-vis the UNAIDS Strategy and the 2030 Agenda for Sustainable Development. The findings of the evaluation will also support Namibia’s application towards the eMTCT validation and accreditation process.

2.2: Scope of evaluation:
The consultancy covered the MoHSS PMTCT programme and examined the MoHSS’s organizational engagement at a national level. The evaluation focused on the following:

Programmatic Focus: The evaluation covered the four prongs of PMTCT programming and creates a Strength, Weakness, Opportunities and Threats analysis to assess bottlenecks. In addition, six particular aspects of PMTCT will be evaluated

a) Leadership, advocacy and partnership
b) Resource mobilization
c) Strategic Information, knowledge generation and dissemination
d) Aspects of MoHSS’s organization
e) Community Engagement
f) Service Delivery

Within these aspects of PMTCT programming, the evaluation paid particular attention to three cross-cutting issues namely: gender, child rights and equity.

Institutional Focus: The evaluation included the MoHSS’s PMTCT treatment program response to assessing the bottlenecks and determining way-forward.
**Geographic Focus:** Evaluation of the MoHSS’s PMTCT programme response at a national, regional, and district level as a measure of equity.

**Time frame:** A 10 year perspective was used in the evaluation in order to trace the evolution of thinking, strategies, policies, approaches, and resources over time. Key decision points and choices made over the decade will be determined in order to understand how well the MoHSS and partners influence, learn and understand the basis of present choices. The evolution of the PMTCT programme will also be related to the changes at global level.

**Data Focus:** Programmatic data were compared with spectrum modeling estimates to establish reliability of modeling data and guide the programme towards e-MTCT.

**Operationalization:** The evaluation determined the best approach towards implementing the Option B+ M&E framework, using already available data collection tools and methods.
3.0: EVALUATION METHODOLOGY:

The evaluation combined both qualitative and quantitative information. Quantitative information provided coverage in inputs, outcomes and impact. Qualitative information provided views of stakeholders on the different program components and implementation strategies as well as providing explanations for the results achieved or missed. Qualitative information was obtained from data collected from key informants (KIs) and observations made during field visits conducted from April 27th to May 11th 2016.

3.1: Evaluation framework:

To evaluate programmatic performance, comparison was made between inputs, outcomes and impact planned versus what has been obtained at national and sub-national levels. In assessment of performance, five basic questions based on UNAIDS monitoring and evaluation (M&E) framework\(^{16}\) were applied.

a) Are the right things being done (inputs)?
b) Are they being done in the right way (processes)?
c) Are they being done on a large enough scale (outputs)?
d) Are the right people being reached (outcomes)?
e) Was the programme making a difference (Impact)?

Table below shows the range of issues that were covered under each of the five basic review questions in this evaluation.\(^ {17}\)

Table 2: Questions asked in the four areas of the evaluation framework.

<table>
<thead>
<tr>
<th>Are the right things being done?</th>
<th>Are they being done in the right way?</th>
</tr>
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<tbody>
<tr>
<td>Adequate policies, plans and targets defined.</td>
<td>Service delivery models appropriate for reaching the right population groups.</td>
</tr>
<tr>
<td>Appropriate interventions for the type of epidemic and right population groups identified.</td>
<td>Decentralization of services and community empowerment.</td>
</tr>
<tr>
<td>Adequate resources available and allocated in line with priorities.</td>
<td>Partnership and inclusive planning, implementation and accountability.</td>
</tr>
<tr>
<td>Sufficient human resources, infrastructure, equipment, supply chain and information systems.</td>
<td>Integration with other health and development programmes.</td>
</tr>
<tr>
<td>Effective programme management, coordination and quality assurance.</td>
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\(^{16}\) Adapted from UNAIDS M&E framework: Monitoring and evaluation fundamentals: basic terminology and frameworks for monitoring and evaluation.

\(^{17}\) WHO.2013. Guide to conducting program reviews for the health sector response to HIV/AIDS
3.2. Sources of data:

3.2.1: Technical briefing:

The evaluation started with a full technical briefing about the programme to be reviewed by the technical officers responsible for PMTCT from UNICEF and UNAIDS as well as the MoHSS program manager and team. The program manager and team are responsible for the managing and implementing the program day to day and provided information on the current situation, program priorities, interventions, achievements, challenges and future perspectives as well as possible sources of information. The briefings also clarified on some aspects of terms of reference for the evaluation. The interactions between the consultant for the evaluation and these technical officers continued through the evaluation.

3.2.2. Desk review of literature:

All available documents relevant to the objectives of this activity were collected and reviewed. Literature review provided information on national context of the program (including key socioeconomic indicators and determinants), national HIV policies, strategies and service delivery models over time; as well as current situational analysis on program implementation etc. Literature review also demonstrated the information gaps that needed to be filled in by other sources. The desk literature review was largely undertaken before other data collection and analysis but also on an on-going basis as the situation required.

3.2.3. Routinely collected programmatic data:

Information from routinely collected data was necessary to establish the coverage and impact of the PMTCT services. The only routinely collected programmatic data available for this evaluation were for 2015.

3.2.4. Modeling estimates:

Modeling was used to determine national-level HIV incidence, MTCT transmission rates, the number of children living with HIV and the number of pregnant women in need of PMTCT interventions. The software used was Spectrum Version 5.43 done 16th May 2016.
Additional data were collected were largely qualitative in nature and were obtained from interviews with key informants (KIs) and observations of service delivery at facilities providing PMTCT services. These additional data provided explanations and filled in gaps in the information obtained from the desk review, routinely collected data and modeling estimates. They provided information on the weakness and strength of the program as well as opinions of stakeholders on the different program components and implementation strategies. To establish the root causes, a 3 whys approach was used. For example if the respondent was asked “why are pregnant women not tested for HIV” (first why) and she answers “Because there are no RDTs”; she was then asked “and why are there no RDTs (second why)”? If for example she answers “because they were not supplied” she was asked the third and final why; i.e. why were the RDTs not supplied?

3.3: Key informants interviewed and sites visited:

Sites to visit were purposely selected with the aim of reaching regions with higher HIV prevalence. The regions visited were: - Kavango West, Kavango East, Zambezi, Ohangwena, Otjozondjupa and Khomas. The work schedule is attached as appendix i.

In the 6 regions, 3 regional and 3 district teams were interviewed. The teams were composed of regional/district health focal persons for Health Information Systems (HIS), PMTCT (Primary Health Care), Antiretroviral Therapy (Special Programs) and pharmacist. In addition, 4 Hospitals, 4 Health Centres and 3 Clinics were visited and providers in ART clinics, PHC clinics and maternity interviewed:

- **Kavango West**: Nankudu District Hospital (ART clinic, PHC clinic, Maternity).
- **Kavango East**: Rundu Intermediate Hospital (ART clinic, PHC clinic, Maternity)
- **Zambezi**: Katima Mulilo Hospital (ART clinic, Maternity), Katima Mulilo Health Centre and Ngweze Clinic.
- **Ohangwena**: Ongha Health Centre, Epinga Clinic.
- **Otjozondjupa**: Otjiwarongo District Hospital ART clinic and Orwetoveni Health Centre
- **Khomas**: Katatura Health Centre and Robert Mugabe Clinic

An interview guide used for KIs is attached as appendix ii.

3.4: Theory of Change:

The Theory of Change (ToC) for eMTCT was designed to facilitate this evaluation. It summarizes the planned activities, and anticipated outcomes and impacts as well as the indicators and time frame in which they were to be achieved. In order to eliminate new HIV infection among children and keep their mothers alive, the ToC provides four outcomes that have to be achieved. These outcomes based on the World Health Organization (WHO) strategic approaches to a comprehensive PMTCT services are to: (1) Reduce the number of new
infections among women of child bearing age; (2) Prevent unintended pregnancies among women living with HIV (3) Prevention of mother to child transmission of HIV (4) Family-centered care treatment and support. Some of the interventions implemented for one outcome may also contribute to another outcome (shown in broken lines in the schematic presentation). In addition, the TOC also shows a set of cross-cutting interventions required to strengthen the health system or act as inputs. These include leadership advocacy and partnerships; resource mobilization; MoHSS organization; human resource capacity building; community engagement; essential medicines and supplies; information, knowledge generation and dissemination. In addition to the causal processes, the ToC also outlines the contextual factors (i.e. gender, equity and child rights) that produce change.

The ToC contributed to determine evaluation questions, design and methods of data collection and analysis. The evaluation compared the targets for the activities, outcomes and impact anticipated in the ToC with results achieved. The schematic depiction of theory of change is shown below. The narrative for the ToC report is also attached as appendix iii.

3.5: PMTCT steering committee approval:
The inception and draft final report were reviewed by the PMTCT steering committee and their inputs were incorporated into the final report. This was not research and no Institutional Review Board request for ethical approval was required or sought.

3.6: Deliverables:


*Phase II: Field Work Deliverables:* De-briefing presentation (PowerPoint presentation of observations and preliminary findings) with PMTCT Evaluation Steering Committee prior to departure from the Namibia; Stand-alone easy to read summary of field work results.

*Phase III: Analysis and Report Preparation deliverables:* Draft Report Final Report; A power point presentation of key findings and recommendations that can be used for dissemination and advocacy; Stand-alone easy to read summary of key findings and recommendations to be used for dissemination and advocacy.

This report was guided by the UNICEF evaluation report standards (2010).18

ACTIVITIES FOR OUTCOME ONE
Provider-initiated HTC to all pregnant and breast feeding women (P&BW).
Counseling and support to HIV negative P&BW.
Provider-initiated repeat HTC for P&BW
Couple HTC
Screening & management of STIs of P&BW.
P&BW provided with condoms & education and skills for negotiation, correct, consistent use.

ACTIVITIES FOR OUTCOME TWO
Routine counseling and family planning services to child bearing women.
Routine offer of dual family planning methods.

ACTIVITIES FOR OUTCOME THREE
Combination ART for PMTCT to all P&BW living with HIV.
Safe delivery practices that reduce risk of HIV transmission;
ARVs for PMTCT to all HIV exposed infants and young children.
Counseling and support for nutrition of mothers and breastfeeding of children

ACTIVITIES FOR OUTCOME FOUR
On-going support for adherence & retention of P&BW on ART
Cotrim prophylaxis of HEIs from 6wks
HIV tests on HEIs at 6wks of age & after breastfeeding.
Linkage of HIV infected infants & young children.

IMPACT ONE: Elimination of new pediatric HIV infections.
IMPACT TWO: Survival of HIV-infected mothers and children.

OUTCOME ONE: New HIV infections in women of child bearing age reduced
OUTCOME TWO: Unintended pregnancies in HIV + women prevented
OUTCOME THREE: MTCT of HIV prevented
OUTCOME FOUR: Family centered HIV care treatment & support provided

Cross-cutting, Health System Strengthening Interventions.
- Leadership advocacy and partnerships,
- Resource mobilization
- MoHSS organization
- Human resource capacity building
- Essential supplies & medicines
- Community engagement
- Information, knowledge generation and dissemination

Critical enablers
Equity, Child Rights and Gender

Figure 2: Schematic depiction of theory of change
4.0: FINDINGS:

4.1: Distribution of HIV-prevalence:

The prevalence of HIV in Namibia is generalized but heterogeneous. About 80% of pregnant women living with HIV are in the regions of Kavango, Khomas, Ohangwena, Omusati, Oshana, Oshikoto and Zambezi. According to the 2014 National Sentinel Surveillance (NSS) report, the HIV prevalence among ANC women was 4% in Opuwo (Kunene region) to 36.0% in Katima Mulilo (Zambezi region). The same regions with high HIV prevalence also have comparatively higher number of health facilities and population density.

Figure 3: PLWHIV in the Regions

Figure 4: Population density and health facilities

4.2: Evolution of PMTCT strategies in Namibia over time:

PMTCT services were introduced in Namibia in 2002 as a pilot in two state hospitals. The country’s first PMTCT guidelines produced in 2004 were based on the use of a single-dose of NVP, given to the mother at the onset of labor and a single dose given to the HIV exposed infant within 72 hours of birth. However, with new evidence showing that combination regimens reduced the risk of MTCT even better, the national PMTCT guidelines were revised and more efficacious regimens were introduced in 2008. In 2010, the programme adopted “Option A” for ARV prophylaxis (which recommend ARV prophylaxis utilizing AZT for the pregnant HIV infected women from as early as 14th week of gestation and throughout the pregnancy; while the breastfeeding infant is put on ARV prophylaxis using NVP until 4 weeks after completion of breastfeeding). In 2013, the MoHSS aligned the PMTCT strategy with the Global Plan Towards the Elimination of New HIV Infections Among Children and Keeping Their

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Kavango has now been split into Kavango East and Kavango West regions.
Mothers Alive. A National Strategy and Action Plan (NSAP) for eMTCT (2012/13-2015/16)\textsuperscript{20} for Namibia has been developed and is being implemented.

Table 3: Namibian PMTCT strategies over time

<table>
<thead>
<tr>
<th>Period</th>
<th>ART/ARV PROPYLAXIS RECOMMENDATIONS\textsuperscript{21}</th>
<th>Breastfeeding recommendations.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mother</td>
<td>Infant</td>
</tr>
<tr>
<td>2002-2008 Single dose NVP</td>
<td>Single dose NVP at the start of labor.</td>
<td>Single dose NVP within 72 hours of birth</td>
</tr>
<tr>
<td>2008-2010 Efficacious regimen</td>
<td>AZT 300mg starting at 28 weeks; at the start of labor, single dose NVP PLUS AZT and lamivudine (3TC) for 7 days</td>
<td>Single dose NVP PLUS AZT and 3TC for 7 days</td>
</tr>
<tr>
<td>2010-2013 Option A</td>
<td>AZT 300mg starting at 14 weeks; at the start of labor, single dose NVP PLUS AZT and 3TC for 7 days</td>
<td>NVP prophylaxis until all 4 weeks after all breastfeeding has stopped</td>
</tr>
<tr>
<td>2014-todate Option B+</td>
<td>ART for life for all pregnant and breastfeeding women.</td>
<td>NVP prophylaxis for 4 weeks if replacement feeding or 4 weeks after Viral load suppression or 4 weeks after all breastfeeding has stopped</td>
</tr>
</tbody>
</table>

Below is a report on the progress on the activities for eMTCT as outlined in the NSAP for eMTCT along the four prongs of a comprehensive PMTCT service.

4.3: Primary Prevention of HIV among women of reproductive age:

4.3.1: Activities to achieve outcome:

Activities outlined in the NSAP to prevent new HIV infections among women of child bearing age include:-

a) Routine offer of provider-initiated HTC to all pregnant and breastfeeding women.

b) Counseling and support to HIV negative pregnant and breastfeeding mothers to enable them to remain un-infected throughout pregnancy and while breastfeeding;

\textsuperscript{20} The Namibia, Ministry of Health and Social services (MoHSS), 2012. National strategy and action plan for the elimination of new pediatric HIV infections and keeping their mothers alive 2012/13-2015/16

\textsuperscript{21} Excludes pregnant and breastfeeding women in need of ART for their own health
c) Routine offer of provider-initiated repeat testing and counseling during pregnancy at 36 weeks if tested negative three or more months earlier, and while breastfeeding for all HIV negative mothers;
d) Couple counseling and testing for HIV as a strategy for enhancing disclosure of HIV status, family planning and addressing risk of transmission due to sero-discordance among couples.
e) Screening for sexually transmitted infections during pregnancy and managing all the identified clients; and
f) Provision of male and female condoms with accompanying education and skills building for negotiation and correct, consistent use especially during pregnancy and the lactating period to prevent HIV infection.

Although this outcome is about all women of child-bearing age, in the context of programmes for PMTCT, the focus is on the pregnant and breast feeding women as well as their male partners.

Antenatal care (ANC) is the entry point for most of the interventions for PMTCT. According to the 2013 Namibian Demographic and Health Survey (NDHS) almost all women (97%) received ANC from a skilled provider at least once. Women were less likely to attended ANC at least once if they were in they had no education (87.7%) or from Omaheke region (88.8%). However, less than half (43%) started their ANC visits during the first trimester as recommended. The best approach to care for pregnant women is through Focused ANC which requires at least 4 ANC visits. In the 2013 NDHS, 63% of women had at least 4 visits, a decline from 70% in 2006-7. Data from the National HIV Sentinel Survey (NSS) show that in 2014, more than a half (51.9%) of pregnant women already knew their HIV-status by the time of their first antenatal visit. From routinely collected program data, out of 1546 women HIV-positive women during ANC, 1188 (76.8%) were known positives in 2015.

4.3.2: Outcome targets for primary prevention of HIV:

The main outcome target for primary prevention of HIV among women of reproductive age selected in the NSAP for eMTCT is to increase the proportion of pregnant women aware of their HIV status from 79% in 2010/11 (baseline) to 95% in 2015/16. For Pre-elimination validation, the target is 90% for the same indicator. Three data sources of data were used to assess achievement of this target namely routinely collected programmatic data, NDHS as well as Spectrum modeling estimates. In 2015, about 74,562 women are estimated to have become pregnant and 75,896 (101.8%) tested for HIV during ANC or were known HIV-positive. The more than 100% coverage is one of the inconsistencies between data from modeling estimates and directly collected data. This means that either the number of pregnant women with known

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22 The Namibia Ministry of Health and Social Services (MoHSS) and ICF International. 2014. The Namibia Demographic and Health Survey 2013. Windhoek, Namibia, and Rockville, Maryland, USA: MoHSS and ICF
23 Using the upper bound estimate of in-need of PMTCT.
HIV status is higher than it should be or the number of pregnant women is underestimated or both. This could not be resolved in this evaluation.

Data from two NDHS (2006 and 2013) included questions on HIV counseling and testing of pregnant women during ANC. In the 2013 NDHS, 81% of women who gave birth in the two years preceding the survey and received pre- and post-test counseling on HIV, an HIV test during ANC and the test results. This was an increase on the 2006 finding where only 61.9% women 15-49 years of age were counseled, offered and accepted an HIV test, and received results. NDHS provide information based on samples that are representative of the general population and avoid biases associated with health facility data. However, the most recent NDHS (2013) included data as far back as 2010 and this may explain the lower HTC coverage documented. 15% of women attending ANC for the first time in the NDHS of 2013 were less than 20 years of age.

To find out if HTC is equitable, the proportion of women aware of their HIV status during ANC was determined for every region.

Table 4: ANC women aware of their HIV-infection in the regions of Namibia (2015)

<table>
<thead>
<tr>
<th>Region</th>
<th>Estimated annual pregnancies</th>
<th>Number of women tested during ANC and known HIV-positive</th>
<th>Proportion of women tested during ANC and known HIV positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omusati</td>
<td>7516</td>
<td>9012</td>
<td>119.9%</td>
</tr>
<tr>
<td>Ohangwena</td>
<td>8849</td>
<td>9940</td>
<td>112.3%</td>
</tr>
<tr>
<td>Oshana</td>
<td>5552</td>
<td>6139</td>
<td>110.6%</td>
</tr>
<tr>
<td>Kavango</td>
<td>9315</td>
<td>10004</td>
<td>107.4%</td>
</tr>
<tr>
<td>Zambezi</td>
<td>3498</td>
<td>3562</td>
<td>101.8%</td>
</tr>
<tr>
<td>Karas</td>
<td>2438</td>
<td>2405</td>
<td>98.7%</td>
</tr>
<tr>
<td>Erongo</td>
<td>5177</td>
<td>5015</td>
<td>96.9%</td>
</tr>
<tr>
<td>Hardap</td>
<td>2553</td>
<td>2456</td>
<td>96.2%</td>
</tr>
<tr>
<td>Oshikoto</td>
<td>6138</td>
<td>5856</td>
<td>95.4%</td>
</tr>
<tr>
<td>Kunene</td>
<td>3604</td>
<td>3436</td>
<td>95.3%</td>
</tr>
<tr>
<td>Khomas</td>
<td>12289</td>
<td>11147</td>
<td>90.7%</td>
</tr>
<tr>
<td>Otjozondjupa</td>
<td>5139</td>
<td>4486</td>
<td>87.3%</td>
</tr>
<tr>
<td>Omaheke</td>
<td>2495</td>
<td>2109</td>
<td>84.5%</td>
</tr>
</tbody>
</table>

The testing coverage of more than 100% in Zambezi, Oshana, Omusati, Ohangwena and Kavango again brings into question the quality of the data and or assumptions on the expected number of pregnant women. The only regions with HIV-testing coverage of less than 90% were Otjozondjupa (87.3%) and Omaheke (84.5%). It is noteworthy that even in the 2013 NDHS the two regions had the lowest ANC attendance coverage (less than 90%).
According to UNAIDS Modeling Estimates however, about 95% (86-95) of pregnant women are aware of their HIV status from 2013 to 2015.\textsuperscript{24}

From routinely collected data set of 2015, out of 62,717 women who received pretest counseling, 3,586 (5.7%) were never tested. As a proportion of women who received pre-test counseling, those never tested ranged from as low as 0.2% in Oshana to 24.7% in Kunene as shown below. The reasons why up to one in three ANC women were not tested in Kunene could not be established.

**Table 5: ANC women not tested for HIV in the regions of Namibia (2015).**

<table>
<thead>
<tr>
<th>REGION</th>
<th>ANC client received pre-test counseling</th>
<th>ANC clients not tested</th>
<th>ANC client received pre-test counseling</th>
<th>Proportion not tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kunene</td>
<td>3409</td>
<td>842</td>
<td>3409</td>
<td>24.7</td>
</tr>
<tr>
<td>Otjozondjupa</td>
<td>4357</td>
<td>415</td>
<td>4357</td>
<td>9.5</td>
</tr>
<tr>
<td>Kavango</td>
<td>9892</td>
<td>711</td>
<td>9892</td>
<td>7.2</td>
</tr>
<tr>
<td>Ohangwena</td>
<td>9566</td>
<td>670</td>
<td>9566</td>
<td>7.0</td>
</tr>
<tr>
<td>Zambezi</td>
<td>3617</td>
<td>235</td>
<td>3617</td>
<td>6.5</td>
</tr>
<tr>
<td>Hardap</td>
<td>2564</td>
<td>72</td>
<td>2564</td>
<td>2.8</td>
</tr>
<tr>
<td>Oshikoto</td>
<td>5920</td>
<td>151</td>
<td>5920</td>
<td>2.6</td>
</tr>
<tr>
<td>Khomas</td>
<td>10523</td>
<td>209</td>
<td>10523</td>
<td>2.0</td>
</tr>
<tr>
<td>Erogo</td>
<td>4585</td>
<td>74</td>
<td>4585</td>
<td>1.6</td>
</tr>
<tr>
<td>Karas</td>
<td>2156</td>
<td>35</td>
<td>2156</td>
<td>1.6</td>
</tr>
<tr>
<td>Omusati</td>
<td>8389</td>
<td>130</td>
<td>8389</td>
<td>1.6</td>
</tr>
<tr>
<td>Omaheke</td>
<td>2260</td>
<td>32</td>
<td>2260</td>
<td>1.4</td>
</tr>
<tr>
<td>Oshana</td>
<td>5234</td>
<td>10</td>
<td>5234</td>
<td>0.2</td>
</tr>
</tbody>
</table>

A proxy measure for new infections among women of the reproductive age group is the prevalence of HIV-infections among young women (15-24 years of age). Data from National HIV Sentinel Surveillance Surveys (NHSS) and modeled estimated were used for this assessment. Table below shows data from NHSS on the prevalence of HIV infections among young women (15-24 years) from 2006 to 2014 and 15-19 years from 1994-2014.

**Table 6: HIV-Prevalence among young women.**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19 years</td>
<td>6.0</td>
<td>11.0</td>
<td>12.0</td>
<td>12.0</td>
<td>11.0</td>
<td>10.0</td>
<td>10.2</td>
<td>5.1</td>
<td>6.6</td>
<td>5.4</td>
<td>5.8</td>
</tr>
<tr>
<td>15-24 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14.2</td>
<td>10.6</td>
<td>10.3</td>
<td>8.9</td>
</tr>
<tr>
<td>Namibia</td>
<td>8.4</td>
<td>15.4</td>
<td>17.4</td>
<td>19.3</td>
<td>22.0</td>
<td>19.7</td>
<td>19.9</td>
<td>17.8</td>
<td>18.8</td>
<td>18.2</td>
<td>16.9</td>
</tr>
</tbody>
</table>

\textsuperscript{24} http://aidsinfo.unaids.org/
These data show a decline in prevalence from 14.2% to 8.3% from 2006 to 2014 among the 15-24 age group and a decline from 10.2% in 2000 to 5.8% in 2014 among the much younger women (15-19 years). However, the number of sentinel surveillance sites providing data increased from 8 in 1992, to 18 in 2000, to 29 in 2006 and to 35 from 2008-2014. The initial sites were located in facilities with higher HIV prevalence compared to the additional sites. This may explain the higher HIV prevalence initially and subsequent decline in the HSS data. In fact, from 2008 to 2014 when the sentinel surveillance sites were maintained at 35, there was no significant change in prevalence in either the 15-19 or 15-24 age groups at a national level.

The modeled estimates of new infections among females (15-24 years of age) are shown in the table below. They also show a decline from an estimated numbers from 2,406 in 2005 to 1,670 in 2015. However, still there was no significant decline in the last 4 years (2012 to 2015).

Table 7: Modeled estimates of new infections among females (15-24 years).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>2,130</td>
<td>2,008</td>
<td>2,021</td>
<td>1,758</td>
<td>1,722</td>
<td>1,502</td>
<td>1,449</td>
<td>1,317</td>
<td>1,313</td>
<td>1,311</td>
<td>1,304</td>
</tr>
<tr>
<td>Estimate</td>
<td>2,406</td>
<td>2,279</td>
<td>2,256</td>
<td>2,042</td>
<td>2,054</td>
<td>1,849</td>
<td>1,811</td>
<td>1,661</td>
<td>1,653</td>
<td>1,670</td>
<td>1,670</td>
</tr>
<tr>
<td>Upper</td>
<td>2,749</td>
<td>2,611</td>
<td>2,607</td>
<td>2,364</td>
<td>2,435</td>
<td>2,195</td>
<td>2,135</td>
<td>1,996</td>
<td>1,987</td>
<td>2,014</td>
<td>2,044</td>
</tr>
</tbody>
</table>

4.3.3: Process targets for primary prevention of HIV:
The process targets in the NSAP are to increase the percentage of male partners who know their HIV status to 25% and to increase the facilities providing condoms during antenatal and postnatal care to 90% by 2015/16. However, there were no data on health facilities providing condoms during ANC available for this evaluation.

Male partner engagement: Based on MoHSS reports (2010-2013), about 4% of partners of PMTCT clients were tested for HIV from 2009 to 2013 (see figure below). In 2015, only 3.5% partners of ANC clients were tested or were known positives ranging from 0.8% in Kunene to 6.8 in Zambezi.
Figure 5: Male partner HTC as part of PMTCT

Table 8: Male partner HTC during ANC the regions of Namibia (2015)

<table>
<thead>
<tr>
<th>Region</th>
<th>Known HIV+</th>
<th>Tested for HIV</th>
<th>Known HIV+ or tested</th>
<th>Total ANC-one clients</th>
<th>% partners tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zambezi</td>
<td>162</td>
<td>94</td>
<td>256</td>
<td>3720</td>
<td>6.9</td>
</tr>
<tr>
<td>Oshikoto</td>
<td>114</td>
<td>296</td>
<td>410</td>
<td>6056</td>
<td>6.8</td>
</tr>
<tr>
<td>Khomas</td>
<td>174</td>
<td>538</td>
<td>712</td>
<td>11432</td>
<td>6.2</td>
</tr>
<tr>
<td>Omaheke</td>
<td>25</td>
<td>78</td>
<td>103</td>
<td>2467</td>
<td>4.2</td>
</tr>
<tr>
<td>Oshana</td>
<td>86</td>
<td>151</td>
<td>237</td>
<td>6165</td>
<td>3.8</td>
</tr>
<tr>
<td>Kavango</td>
<td>170</td>
<td>168</td>
<td>338</td>
<td>11344</td>
<td>3.0</td>
</tr>
<tr>
<td>Erongo</td>
<td>52</td>
<td>80</td>
<td>132</td>
<td>5069</td>
<td>2.6</td>
</tr>
<tr>
<td>Karas</td>
<td>20</td>
<td>41</td>
<td>61</td>
<td>2519</td>
<td>2.4</td>
</tr>
<tr>
<td>Ohangwena</td>
<td>99</td>
<td>146</td>
<td>245</td>
<td>10963</td>
<td>2.2</td>
</tr>
<tr>
<td>Omusati</td>
<td>145</td>
<td>56</td>
<td>201</td>
<td>9175</td>
<td>2.2</td>
</tr>
<tr>
<td>Hardap</td>
<td>10</td>
<td>30</td>
<td>40</td>
<td>2462</td>
<td>1.6</td>
</tr>
<tr>
<td>Otjozondjupa</td>
<td>9</td>
<td>36</td>
<td>45</td>
<td>5160</td>
<td>0.9</td>
</tr>
<tr>
<td>Kunene</td>
<td>7</td>
<td>26</td>
<td>33</td>
<td>3956</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Although these figures show very low partner testing, it may be an underestimate. In the NDHS of 2013, 45% of women who received ANC for their last birth in the past two years reported that their partner was tested for HIV during any of their ANC visits and 87% of women received the test results and disclosed them to their partner.

4.3.4: Key achievements on primary prevention of HIV:
Most of the HIV testing and counseling (HTC) of pregnant women at health facilities was largely provider initiated as is recommended. In addition to facility based testing, HTC was also done through door-to-door (home-based) or outreaches. Uptake of door-to-door HTC was reported to be high. It was also reported to have increased couple testing and counseling (Program
Officer KI, Zambezi) and improved access to geographically hard-to-reach populations. Home-based HTC is being conducted by non-governmental organizations namely Total Control of Epidemic and Project HOPE. Two KIs in Otjozondjupa suggested that Health Extension Workers should also be trained and facilitated to offer home-based HIV-testing.

4.3.5: Bottlenecks to primary prevention of HIV:
Couple counseling and testing and male engagement in general is low. The main reasons for lack of male partner engagement in Namibia has been found to be socio-cultural barriers, work-related absence of men; casual and unstable relationships; or if the man is engaged with other women. Repeat testing of HIV-negative women during pregnancy in the third trimester or testing breastfeeding women who may have missed a test during pregnancy or labor and delivery was not a routine practice and from the available data it was not possible to identify women tested positive on second test or postpartum. Another bottleneck to HIV-testing was occasional shortages of HIV Rapid Diagnostic Test (RDTs) kits. This was reported to be as a result of changes in the testing algorithm. In the absence of RDTs some health facilities used ELISA for HIV testing. This is more expensive and often requires sample transportation resulting in longer turn around time. Although indicated in NSAP, medical male circumcision of HIV-negative men was not routinely offered as part of PMTCT services. There were no data available to this evaluation on condom use and treatment of Sexually Transmitted Infections (STIs) as part of PMTCT.

4.4 Elimination of unmet need for family planning:

4.4.1: Activities to achieve outcome:

a) Routine offer of provider-initiated HTC services to all women of child-bearing age who access Maternal Newborn and Child Health (MNCH) and nutrition services from health facilities and outreach service delivery points, as a strategy to increase knowledge of HIV sero-status;
b) Routine offer of counseling on, and provision of family planning services to all women of childbearing age who access MNCH and nutrition services from the health facilities and outreach service delivery points; and
c) Routine offer of dual family planning methods (male or female condoms and another method) at all HIV prevention, care and treatment as well as family planning service delivery points. This would include the assessment of women living with HIV who access services from the HIV clinics for their pregnancy status as well as intentions at each visit.

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25 NawaLife Trust. A rapid market research on male involvement in Namibian PMTCT program.
4.4.2: Outcome target for elimination of unmet need for family planning:

The outcome target in the NSAP is to reduce the proportion of women with unmet need for family planning\(^{26}\) in the general population to zero. Information on unmet need for family planning in the general population obtained from NDHS is shown in the table below: Unmet need for family planning in Namibia declined from 21.8% in 1992 to 12% in 2013 in the general population. There were no programmatic data collected on unmet need for family planning among women living with HIV.

**Table 9: Unmet need for family planning in the general population.**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unmet need (%)</td>
<td>21.8</td>
<td>23.9</td>
<td>20.7</td>
<td>12</td>
</tr>
</tbody>
</table>

4.4.3: Process targets for elimination of unmet need for family planning:

The two process targets in the NSAP are to increase women aged 15-49 who access comprehensive family planning services by 50% and also the proportion of HIV-infected women who access family planning services by 50%. However, there were no data availed to this evaluation to assess achievement on these targets.

4.4.4: Key achievements on elimination of unmet need for family planning:

Most providers in the regions and facilities visited are aware that eliminating unmet need for family planning is one of the strategies for PMTCT.

4.4.5: Bottlenecks to elimination of unmet need for family planning:

The NSAP recommends “Routine offer of dual family planning methods (male or female condoms and another method) at all HIV prevention, care and treatment as well as family planning service delivery points. This would include the assessment of women living with HIV who access services from the HIV clinics for their pregnancy status as well as intentions at each visit.” However in the sites visited family planning was not routinely offered with in HIV/AIDS services. It is up to each client(s) to decide if she or they needs family planning and approach the responsible provider. Most PMTCT service providers were not sure if clients were using dual family planning methods or not. In the case of women who would like to get pregnant, most PMTCT providers were not sure about the availability national guidelines. Only one KI (*a nurse from Robert Mugabe Health Centre*) reported that HIV-positive women wishing to get pregnant should be started on ART irrespective of CD4 count. All KIs interviewed were not sure how unmet need could be assessed.

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\(^{26}\) Women with unmet need for family planning are women aged 15-49, married or in union, who are fecund and sexually active but not using any method of contraception and report not wanting any more children or wanting to delay the next pregnancy.
4.5 Prevention of mother-to-child transmission of HIV:

4.5.1: Activities to achieve outcome:

a) Provision of ART for PMTCT to all HIV infected women during pregnancy and the breastfeeding period according to the national guidelines;
b) Ensuring safe delivery practices that reduce risk of HIV transmission;
c) Provision of antiretroviral drugs for PMTCT to all HIV exposed infants and young children according to the national guidelines; and
d) Providing counseling and support on maternal nutrition as well as infant and young child feeding in preparation for optimal infant practices within the context of HIV infection.

4.5.2: Outcome target for prevention of MTCT:

The main outcome target for reduction of vertical transmission of HIV is a population-based reduction of MTCT to less than 5%. This is one of the impact targets in the NSAP and well as for Pre-elimination validation and is reported under impact below.

4.5.3: Process targets for prevention of MTCT:

The process targets for prevention of vertical HIV transmission in the NSAP are to increase the proportion of HIV positive women who received ARVs for PMTCT to 95%; the proportion of HIV-exposed infants (HEIs) receiving ARV prophylaxis to 95% and the proportion of HEIs exclusively breastfed through the six months of life to 40%. The validation for Pre-elimination target is to increase the proportion of HIV positive women receiving ART for PMTCT to 90%

Uptake of ART for PMTCT: To assess uptake of ART for PMTCT, routinely collected data (2015) and modeled estimates were used. According to routinely collected program data, in 2015, out of 11,592 HIV positive ANC clients, 11,364 (98%) received ART for PMTCT. According to the same data set, about 90% or more of HIV positive ANC clients received ART in the regions except Erongo (85.1%) and Kunene (58.6%). It is could not be established why Kunene had such a low uptake.
Table 10. Uptake of ART for PMTCT in the Regions of Namibia.

<table>
<thead>
<tr>
<th>Region</th>
<th>HIV-Positive ANC clients</th>
<th>Number of clients on ART</th>
<th>Proportion of clients on ART</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omaheke</td>
<td>192</td>
<td>192</td>
<td>100</td>
</tr>
<tr>
<td>Ohangwena</td>
<td>1366</td>
<td>1360</td>
<td>99.6</td>
</tr>
<tr>
<td>Oshana</td>
<td>1169</td>
<td>1161</td>
<td>99.3</td>
</tr>
<tr>
<td>Kavango</td>
<td>1643</td>
<td>1561</td>
<td>95</td>
</tr>
<tr>
<td>Khomas</td>
<td>1859</td>
<td>1744</td>
<td>93.8</td>
</tr>
<tr>
<td>Zambezi</td>
<td>968</td>
<td>905</td>
<td>93.5</td>
</tr>
<tr>
<td>Omushati</td>
<td>1141</td>
<td>1056</td>
<td>92.6</td>
</tr>
<tr>
<td>Otjozondjupa</td>
<td>486</td>
<td>448</td>
<td>92.2</td>
</tr>
<tr>
<td>Hardap</td>
<td>256</td>
<td>234</td>
<td>91.4</td>
</tr>
<tr>
<td>Karas</td>
<td>303</td>
<td>272</td>
<td>89.8</td>
</tr>
<tr>
<td>Oshikoto</td>
<td>1225</td>
<td>1092</td>
<td>89.1</td>
</tr>
<tr>
<td>Erongo</td>
<td>626</td>
<td>533</td>
<td>85.1</td>
</tr>
<tr>
<td>Kunene</td>
<td>358</td>
<td>210</td>
<td>58.6</td>
</tr>
</tbody>
</table>

One hundred and one ANC clients were reported to have received other regimens that were not ART and have been phased out. 32 clients were given AZT at 34 weeks of gestation or greater plus single dose NVP and AZT/3TC to take home; 53 clients were given AZT from 14 weeks or greater and 16 clients were given NVP to take home at 32 weeks. Non-ART regimens were reported in all regions except Oshikoto and Karas. The respective region and number of clients on non-ART regimens were: - Khomas (28), Kavango (18), Otjozondjupa (15), Ohangwena (14), Omusati (11), Zambezi (5), Erongo (4), Erongo (4), Hardap (2), Oshana (2), Kunene (1), Omaheke (1), Oshikoto (0) and Karas (0). It is also noteworthy that 269 ANC clients were entered into the data set as “HIV-positive but not yet 14 weeks”. The interpretation is that these ANC clients were waiting to start the AZT-regimen at 14 weeks. The Namibian Standard Operational Procedures for health workers recommend initiation of three-ARV based regimen for PMTCT at any gestation once pregnant women tests HIV-positive.

The Namibia AIDS Response for the 2013/14 reporting period showed an increase on the percentage of HIV positive women on ARVs for PMTCT from 42% in 2006/7 to 90% in 2013/14 as shown in the figure below.\(^{27}\)

According to the most recent Spectrum Modeling estimates, a maximum of 10,004 women (8,075-10,004) were in need of PMTCT services in Namibia in 2015 and 7962 pregnant women are HIV positive yet more women received ART during ANC (total 11,364 with 7431 already on ART during ANC and 3933 starting ART during their ANC) from routinely collected data in 2015. This discrepancy was also noted in the Namibia AIDS Response Progress Report of 2015. While calculating the percentage of HIV-positive women living with HIV who received ARVs for PMTCT, the numerator (8,786) from programmatic data was higher than the denominator (8,779) from spectrum modeling. Overall, UNAIDS estimates that more than 95% (86-95) of women living with HIV were received ART for PMTCT from 2013 to 2015. From routinely collected data, in 2015, about 80% (7431/9295) of known HIV-positive women were already on ART by their first ANC. It is noteworthy however, that in 2015, 58 women refused ART during pregnancy. The reasons or circumstances for refusals could not be ascertained. Refusal were documented in all regions except Oshikoto but more so in Kavango, Otjozondjupa and Zambezi. The region and the number that refused were as follows: Kavango (17), Otjozondjupa (15), Zambezi (9), Omusati (4), Erongo (2), Hardap (1), Karas (1) Khomas (1) Kunene (1) Ohangwena (1), Oshana (1), Oshikoto (0).

HIV-exposed infants receiving ARV prophylaxis: From routinely collected data, only 371 infants are documented to have received any form of ARV prophylaxis in 2015. The number of HIV positive women who had given birth were not indicated in the data set.

Infant feeding: There were no routinely collected data for this evaluation on exclusive infant feeding. The only available data on exclusive breastfeeding were from NDHS and shows an increase of exclusive breastfeeding in the general population in the first 6 months from 23.9%

28 Source: Spectrum ver 5.43 Namibia-16 May 2016
29 99 http://aidsinfo.unaids.org/
in 2006-7 to 49% in 2013. In 2015 however, from routinely collected program data, 368 infants were on replacement feeding. The data set did not indicate the number of HIV-exposed infants and so the proportion on replacement feeding could not be determined. Most of the infants receiving replacement feeding were in Khomas.

4.5.4: PMTCT interventions during labor and delivery:

No targets were set for PMTCT interventions during labor and delivery in the NSAP. However, child birth is the most risky period for MTCT and safer birth practices are an essential component to prevent vertical transmission of HIV. In the 2013 NDHS, 87% of live births in the five years preceding the survey took place in a health facility, and 88% were delivered by a skilled provider. However, only 73% of births to women in the lowest wealth quintile were delivered by a skilled provider, in contrast to 98% of births to women in the highest quintile. Among women who gave birth in the two years preceding the survey, 69% received a postnatal checkup within the first two days after birth; 68% received the checkup from a skilled provider and 31% indicated that distance to a health facility is a serious problem. From routinely collected programmatic data on the other hand, at the time of giving birth, the HIV status of 66,797 women was known, 2793 (4.2%) with unknown status were tested and of those tested, 291 (10.4%) were HIV-positive. Forty nine clients refused ART during labor and delivery. The reasons and circumstance for ART refusal could not be established.

4.5.5: Key achievements on prevention of MTCT:

In all the facilities visited it was reported that pregnant and breastfeeding women received first line regimen which is a fixed dose combination of efavirenz, emtricitabine, and tenofovir disoproxil fumarate. Treatment was life long and was started on the day of HIV diagnosis irrespective of CD4 count as is recommended in the national and global guidelines.

4.5.6: Bottlenecks to prevention of MTCT:

A number of challenges were noted with infant ARV prophylaxis. It was not clear to some providers on when to stop nevirapine prophylaxis for HIV-exposed infants. According to the national guidelines, breastfeeding HIV-exposed infants should receive nevirapine prophylaxis for 6 weeks or longer depending on maternal viral load. Nevirapine can be stopped four weeks after the mother’s viral load is <20 copies/ml or 4 weeks after cessation of breastfeeding. Only two KIs (a nurse in Katatura Health Centre and a doctor at the ART clinic in Rundu Intermediate Hospital) reported that NVP prophylaxis for the HEI can be stopped if the viral load of the mother is suppressed before the end of breastfeeding. The doctor reported that results for the viral load are always stamped in the health passport of the infant and expects the providers in the PHC clinic to check and take the decision. The nurse on the other hand reported that when the doctor find out that the mother’s viral load suppressed it is the doctor’s responsibility to inform her to stop nevirapine prophylaxis. A harmonized approach is required. The majority however, reported that nevirapine (NVP) prophylaxis is given to all HIV-exposed infant until 4 weeks after breastfeeding. One KI (a nurse at Robert Mugabe Health Centre) said that some
providers do not want to stop prophylaxis because the mother may have a viral load rebound due to a slip in her own adherence to ART even if she had a suppressed viral load at some point in time. Another challenge reported was the occasional stock outs of nevirapine suspension. As result some HIV-exposed infants did not receive prophylaxis.

The national guidelines recommend that HIV-exposed infants who initially test HIV negative should have a final HIV test four weeks after all breastfeeding has stopped. Usually, the final test is done after 18 months using RDTs. During field visits, this was noted the final HIV-test was often not done. The main reason was because it was up to the care-givers of HIV-exposed infants to bring them back for testing when breastfeeding has stopped. However, few are actually brought back for testing and the system for tracking those not tested at the end of breastfeeding is weak. As result, most of the HIV-uninfected children are not formally discharged from follow-up and the available routinely collected data on MTCT is about transmission at 6-8 weeks and yet, the NSAP and pre-elimination targets requires data on HIV transmission at the end of breastfeeding.

4.6: Family centered HIV care, treatment and support:

4.6.1: Activities to achieve outcome:

a) Provision of follow up support and counseling throughout the antenatal period, labor and delivery and breastfeeding period while ensuring that the mother is receiving ART and the baby is receiving prophylaxis.

b) Provision of cotrimoxazole prophylaxis to all HIV exposed infants from six weeks of age;

c) Conducting of HIV tests on all the HIV exposed infants using the DNA-PCR methodology at about six to eight weeks of age. Additional HIV tests would be conducted after all breastfeeding has stopped, according to the national guidelines; and linkage of the identified HIV infected infants and young children to ART sites for initiation on treatment for their own health.

d) Testing of family members (older children and partners) of a pregnant or breastfeeding woman living with HIV and for those testing positive, linkages to care and treatment.

4.6.2: Outcome target for family centered HIV care, treatment and support:

The main outcome target for the family centered HIV care, treatment and support in the NSAP is to increase the percentage of HIV-infected children who are identified and initiated on ART before the age of two years to 95% by 2015/16. No data were available to this evaluation on this target.

4.6.3: Process targets family centered HIV care, treatment and support:

The process targets in the NSAP for family centered HIV care, treatment and support are for HIV-exposed infants tested by DNA-PCR at 6-8 weeks to be increased to 95%; the proportion of health facilities collect samples for or providing virological testing for diagnosis of HIV to be
increased to 95%; and of HEI provided with cotrimoxazole from 6-8 weeks of age to be increased to 90%. No data were available to this evaluation for assessing cotrimoxazole prophylaxis. However table below shows virological testing up to 2013 from a MoHSS report.

Table 11: Proportion of HIV-exposed infants with virological tests.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>2006/7</th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of HEIs with virological test</td>
<td>36</td>
<td>59</td>
<td>60</td>
<td>67</td>
<td>61</td>
<td>88</td>
</tr>
</tbody>
</table>

4.6.4: Key achievements for family centered HIV care, treatment and support:

The turnaround time for DNA PCR was reported to be within two weeks as recommended in the guidelines. The DNA PCR laboratory services have quality assurance mechanisms. Providers were aware on the need to start treatment for all children with HIV. Nurse Initiated and Managed ART (NIMART) training provides nurses with the capacity to manage all PLWHIV.

4.6.5: Bottlenecks to interventions for family centered HIV care, treatment and support:

Although initiation of ART for PMTCT was reported to be almost universal and documented, retention in care and adherence to therapy needs to be strengthened. For example, whereas all maternity facilities made effort to find out if a woman giving birth has been tested and is on ART if tested positive, none reported finding out if they are adherent to treatment. There were suggestions that retention of breastfeeding women (especially adolescents and young women) may be poorer than for other adults. It was also reported that some women feel they are taking ART for the sake of the child. So after giving birth, if they still have a high CD4 count they choose to stop. It was also noted that there is a lot of internal movements of women before and after giving birth. For example, some women may move from rural to urban areas so as to give birth in a health facility and go back after giving birth.

4.7: Impact of interventions for eMTCT

4.7.1: Impact targets:

The NSAP for eMTCT (2012/13-2015/17) set four impact targets to be achieved by 2015/16 from a baseline of 2006/7. These were to reduce:-

1. The number of new pediatric HIV infections by 90%
2. The population level MTCT rate from 13% to less than 5%.
3. AIDS-related infant deaths by at least 50%.
4. AIDS-related maternal deaths by at least 50%.

31 The Denominator was the medium bound estimates of women in need of PMTCT (Spectrum 5.03 March 2014)
The targets were set before the release of the global guidance on criteria and processes for validation of pre-elimination and elimination of MTCT.\textsuperscript{32}

**New pediatric infections:** New pediatric infections are estimated using Spectrum to have declined by 75.5\% from 1521 in 2010 to 372 in 2015 as shown in table below.

### Table 12: Estimated number of new pediatric infections:\textsuperscript{33}

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower bound</td>
<td>1,405</td>
<td>1,301</td>
<td>1,403</td>
<td>1,473</td>
<td>1,234</td>
<td>888</td>
<td>818</td>
<td>639</td>
<td>283</td>
<td>194</td>
</tr>
<tr>
<td>Estimate</td>
<td>1,734</td>
<td>1,461</td>
<td>1,574</td>
<td>1,746</td>
<td>1,521</td>
<td>1,136</td>
<td>1,078</td>
<td>798</td>
<td>443</td>
<td>372</td>
</tr>
<tr>
<td>Upper bound</td>
<td>2,006</td>
<td>1,660</td>
<td>1,823</td>
<td>2,031</td>
<td>1,845</td>
<td>1,441</td>
<td>1,357</td>
<td>1,080</td>
<td>732</td>
<td>630</td>
</tr>
</tbody>
</table>

**MTCT rate:** Spectrum Modeled Estimates indicate that the MTCT after breastfeeding was less than 5\% (4.1\%) in 2015.

### Table 13: Estimated MTCT rates:\textsuperscript{34}

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>MTCT Rate (%)</td>
<td>20.82</td>
<td>17.74</td>
<td>17.38</td>
<td>17.97</td>
<td>14.82</td>
<td>11.23</td>
<td>10.82</td>
<td>8.19</td>
<td>4.7</td>
<td>4.1</td>
</tr>
</tbody>
</table>

**Mortality rates:** Using spectrum models it is estimated that adult deaths declined by 30.8\% from 4,156 in 2010 to 2,875 in 2015 while deaths among children (0-4 years) declined by 73.9\% from 581 in 2010 to 152 in 2015.

### Table 14: Estimated annual deaths of adults (15+) due to HIV/AIDS.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>6,767</td>
<td>5,395</td>
<td>3,411</td>
<td>3,656</td>
<td>3,317</td>
<td>2,871</td>
<td>2,423</td>
<td>2,250</td>
<td>2,179</td>
<td>2,334</td>
</tr>
<tr>
<td>Estimate</td>
<td>8,143</td>
<td>6,562</td>
<td>4,388</td>
<td>4,645</td>
<td>4,156</td>
<td>3,547</td>
<td>3,018</td>
<td>2,824</td>
<td>2,717</td>
<td>2,875</td>
</tr>
<tr>
<td>Upper</td>
<td>9,360</td>
<td>7,659</td>
<td>5,491</td>
<td>5,712</td>
<td>4,962</td>
<td>4,201</td>
<td>3,588</td>
<td>3,444</td>
<td>3,333</td>
<td>3,543</td>
</tr>
</tbody>
</table>

\textsuperscript{32} WHO. Global guidance on criteria and processes for validation: elimination of mother-to-child transmission (EMTCT) of HIV and syphilis.

\textsuperscript{33} Spectrum ver 5.43_16May 2016

\textsuperscript{34} Spectrum ver 5.43_16May 2016

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Table 15: Estimated annual deaths of children (0-4 years) due to HIV/AIDS

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>735</td>
<td>594</td>
<td>537</td>
<td>523</td>
<td>4530</td>
<td>365</td>
<td>298</td>
<td>239</td>
<td>135</td>
<td>86</td>
</tr>
<tr>
<td>Estimate</td>
<td>875</td>
<td>688</td>
<td>611</td>
<td>622</td>
<td>581</td>
<td>478</td>
<td>416</td>
<td>298</td>
<td>183</td>
<td>152</td>
</tr>
<tr>
<td>Upper</td>
<td>1,012</td>
<td>791</td>
<td>716</td>
<td>755</td>
<td>718</td>
<td>606</td>
<td>532</td>
<td>392</td>
<td>282</td>
<td>249</td>
</tr>
</tbody>
</table>

4.8: Cross-cutting interventions:

Cross-cutting interventions in NSAP for eMTCT are essential for strengthening the health system in Namibia. This is the foundation on which the specific interventions for PMTCT outlined above are based.

4.8.1: Leadership, advocacy and partnership:

The GRN provides strong political, administrative, and financial leadership and support for the HIV/AIDS response including PMTCT. At the national level PMTCT enjoys tremendous support from the President and First Lady among other leaders. The First Lady has launched an initiative for male involvement in PMTCT. The revised National Coordination Framework (NCF) for HIV and AIDS 2013-2017 provides an effective and efficient coordination and management of the national multisectoral HIV and AIDS response. At the national level, a PMTCT Technical Working Group provides technical guidance on PMTCT services. However, the TWG is reported to have had only a couple of meetings in the last two years. At subnational levels, Regional AIDS Coordinating Committees (RACOCs) and Constituency AIDS Coordinating Committees (CACOCs) and district coordination committees are responsible for coordination of the HIV-response including PMTCT.

4.8.2: Resource mobilization:

The Government has demonstrated its commitment and ownership of the national response by steadily increasing the funds dedicated to the HIV/AIDS response over past years, which currently represents about 64% of the total spending. Contributions from PEPFAR and Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) represents about 27% and 6% respectively while the private sector contributes about 1% of total HIV-expenditure.
4.8.3: Human resources for health:

Namibia faces some challenges with the human resources for health. A significant proportion of senior health care workers are foreign. About 80% of doctors work in the private sector and yet only 20% of medical services are provided through the private sector. The government is making progress through in-country training of human resources for health but it will take some time to be self-sufficient in skilled staff within the public sector. In addition to inadequate numbers, high turnovers rates were reported and when providers trained in PMTCT leave, often they are replaced with those who are not yet trained. Meanwhile, the GRN is building capacity of all nurses so that they are able to use ART to treat adults, children and infants through pre-service and in-service training in NIMART.

4.8.4: Aspects of MoHSS’s organization

The MoHSS is the mainly responsible for implementing PMTCT services. Within the Ministry, the directorates of Primary Health Care (PHC) and Special Programs (DSP), Tertiary Health Care and Clinical Support Services (THC&CSS), Policy, Planning and Human Resources Development (PP&HRD); the national training institutions and the professional councils work together to ensure different components of PMTCT services are provided. However, PMTCT services remain the primary responsibility of the PHC directorate. The PHC directorate is also responsible form other programs such nutrition, reproductive health, Maternal and Child Health (MCH) etc. During field visits, the program officers at regional and district management reported that the large number of programs to supervise compromises the attention given to PMTCT. It was reported that a review of MoHSS organizational structure will soon be undertaken.

4.8.5: Service delivery:

PMTCT is successfully being integrated in maternal and child health services especially at the health centre and clinic levels. In the hospitals visited however, ART clinics were responsible for
maternal ART while PHC clinics followed up HIV-exposed infants up to the final HIV-test and discharge from follow-up. It was also noted that while most health facilities had the infrastructure to cater for the services required for PMTCT some health centres and clinics reported inadequate space especially for storage of commodities and counseling.

4.8.6: Community Engagement:

The overall coordination of civil society organizations in Namibia is the mandate of Namibian Non-Governmental Organizations Forum (NANGOF). NANGOF has delegated the responsibility for coordinating of civil society organizations involved in the HIV and AIDS response to the Namibian Association of AIDS Service Organizations (NANASO), which is a member of NANGOF. The private sector institutions are coordinated through Health Works Business Coalition on AIDS which mainly focuses on private sector response through HIV and AIDS work place programmes. The Alliance of Mayors Initiative for Community Action on AIDS at the Local Level (AMICAALL) supports the coordination of HIV and AIDS initiatives within the Local the Authorities. One major challenge is that the quality and quantity of PMTCT services offered in the private sector is not well known or documented by the MoHSS.

4.8.7: Essential Medicines and Supplies:

Correct forecasting quantification and timely procurement of essential medicines and supplies requires collective efforts of a number of directorates within the MoHSS (PHC, DSP and THC and CSS) as well as the Central Medical Stores and key stakeholders including the National Institute of Pathology (NIP). The country has phased out stavudine (d4T) and is offering the first line of efavirenz, emtricitabine, and tenofovir disoproxil fumarate in a fixed dose combination. There were reports of shortages of Rapid Diagnostic Test kits and nevirapine suspension. Shortages in RDTs were attributed to changes in the testing algorithm. Reasons for shortages in nevirapine suspension were not clear. All of these shortages have since been rectified.

4.8.8: Strategic Information, knowledge generation and dissemination:

The Monitoring and Evaluation (M&E) system for the national response consists of multiple data sets from multiple data systems within the broader Health Information System (HIS). Data from non-health facility based programmes, implemented by the private sector, civil society; government ministries and agencies are reported into the System for Programme Monitoring (SPM). The MOHSS has established an ART monthly reporting system that uses an electronic dispensing tool (EDT) from which information on number of patients on various ART regimens; stock levels at the three levels, ART retention rates are generated. There is an Electronic Programme Monitoring System (EPMS) also based within the RM&E Unit that is used to track the profile of HIV clients from pre-ART, ART and even when they die. Guidance, including tools for data collation and submission, has been produced and disseminated.
However, there were challenges of PMTCT data were noted from field visits and interviews with KIs. Routinely collected data did not cover all the targets stipulated in the NSAP for eMTCT. The mother-baby follow-up register has not been rolled out to all health facilities and in the facilities where it was already, data entry was not always complete. The reasons given for incomplete data entry were inadequate training, support supervision and mentoring on data collection as well as the heavy work load. It was also noted that PMTCT program officers at district and regional offices did not always participate in data quality checks with MIS personnel. Another data related challenge is the issue of “visitors” i.e. PMTCT mothers and infants who come for follow-up at a facility where they are not registered. For example, it was reported that more visitors are served at Katatura Health Centre than the clients who registered there. From the registers it may appear that these women have missed their appointments or are lost to follow-up when in fact they are receiving services from somewhere else. Most of the facilities visited had made registers for visitors. However those data were never entered into the national data base. A major data challenge for this evaluation is that there were contradictions between modeling estimates and routinely data that could not be resolved. These include:-

- Women tested for HIV from routinely collected data in 2015 were more than the estimated number of pregnant women in Namibia in the same years from Spectrum Modeling estimates resulting in coverage of more than 100% for HTC.
- Women on ART from routinely collected data in 2015 were more than the upper limit of women in need of PMTCT or HIV Positive pregnant women from Spectrum Modeling estimates in the same year.

In addition, in the routinely collected data set of 2015, some of the data reported were questionable. For example, some ANC clients were reported to have been given ARV regimens for PMTCT which have been phased out and only 371 HIV-exposed infants were documented to have received ARV prophylaxis in 2015. It could not be established if this was accurate reporting or there were errors in data collection and or compilation.

4.8.9: Equity, gender and child rights:

Equity, gender and child rights play a critical role in the prevention of MTCT. HIV/ AIDS in Namibia has a young, female face and affects disproportionately specific regions of the country. One of the main principles of the National Strategic Framework for HIV and AIDS Response in Namibia 2010/11 – 2015/17 (NSF) is to mainstream and operationalize interventions for gender equality, equity, and human rights into the national response.

Gender: Gender inequality including Gender Based Violence (GBV) affects women's and girls’ ability to protect themselves from HIV, control their fertility and access and adhere to HIV prevention, care and treatment services. Gender based violence discourages pregnant and breastfeeding women getting tested for HIV, from sharing their HIV status with partners,
following preventive measures, and receiving treatment, care, and support services. GBV is a major problem in Namibia. According to NDHS (2013), one in three (32%) of ever-married women age 15-49 have experienced physical violence at least once from age 15, and 14% experienced physical violence within the 12 months prior to the survey. Six percent of women reported experiencing violence during pregnancy. Reporting violence is not common as 15% of Namibian women who have experienced it never sought help and never told anyone about it.

Gender inequities also impact on family planning which one of the four prongs for comprehensive PMTCT services. Many women, regardless of HIV status, are often unable to use contraception for a variety of reasons rooted in gender inequality. Restrictions on women’s mobility and lack of access to transportation and financial resources may limit their ability to seek contraceptive services. In addition, husbands, who tend to desire more children than their wives, often hold greater decision-making power about childbearing, contraceptive use and the timing and conditions of sex. Women may also not try to space or limit births because their social and economic status is defined by their ability to bear children. Dual contraceptive use recommended for women living with HIV depends on condom use. Correct and consistent condom use, in turn, requires the cooperation of male partners. Where gender inequality limits HIV-positive women’s decision-making power and ability to negotiate the conditions of sex, discordance about fertility desires and a reliance on condoms for pregnancy prevention among HIV-positive or serodiscordant couples may contribute to unintended pregnancies.

Male partner engagement is therefore a critical factor for pregnant and breastfeeding women to access and continuously use PMTCT services. However, men are least equipped with the knowledge, attitude and practices required for PMTCT. According to the 2013 NDHS, in the 15-49 age group, when compared to women, men were: less likely to have comprehensive knowledge about HIV/AIDS (63% vs. 49%); less likely to be aware that HIV can be transmitted through breastfeeding and that this risk can be reduced by taking special drugs (52.0% vs. 69.5%) and more likely to have multiple sexual partners (10% vs. 2%). Couple counseling, testing and mutual disclosure during ANC, one of the interventions to promote male partner engagement, is still very low in Namibia. From the MoHSS routinely collected program data only 3.5% of partners of women attending ANC tested for HIV in 2015. From interviews with KIs it was reported couple counseling and testing was likely to take place through home-based rather than facility based HTC approaches.

In the 2015 routinely collected program data, a number of women refused ART. Although the reasons could not be established, there were reports from KIs that women’s initiation and continued use of ART for PMTCT was largely dependent on their husbands’ approval. Namibia

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has achieved a very high uptake of ART for PMTCT. However, there is need to find out the retention of “PMTCT women” in chronic care and the role of gender inequities in the loss to follow-ups.

HIV-prevalence is higher among Namibian women of child-bearing age (15-49 years) than men in the same age group (16.9% vs. 10.9%)-see figure below. This can be attributed to gender inequities among other factors.

Figure 8: HIV prevalence by age and sex in the general population.  

![HIV prevalence by age and sex in the general population](image)

The GRN is addressing the underlying gender inequalities that make women and children vulnerable to HIV and often prevent them from accessing and continuing to use services. Several laws and policies have been passed in respect to gender equality and gender based violence such as the National Gender Policy (2010)\(^{39}\), Combating of Rape Act (No.8 of 2000) and Marriage Person’s Equality Act (No.1 of 1996). Fifteen Women and Child Protections Units (WACPU) have been established in all the regions of the country to respond to incidents of abuse and provide a safe haven for women and children.

In addition, the first lady is spearheading a campaign for male involvement in PMTCT services as well integration of PMTCT services into Maternal Newborn and Child Health (MNCH). As a result of this initiative Namibia has initiated mass media campaigns around multiple concurrent partnerships and gender based violence.

\(^{38}\) MoHSS (2013). Demographic and Health Survey  
\(^{39}\) MGECW (2010). National Gender Policy (2010-2020)
Other interventions to address gender inequality beyond the PMTCT context include empowering women and girls as well as engaging men and boys to promote gender equality. Decreasing women's vulnerability to HIV through empowerment initiatives that includes improvement of women's access to information, education, services and technologies;

40 The Namibian  Tue 30 Aug 2016.
strengthen skills to communicate and negotiate safer sex; and/or increase control over financial and material resources.

**Child rights:** In Namibia, children are defined as human being younger than 18 years of age. However, children are not a homogenous population and they affected by HIV and AIDS differently depending on age. For the under-fives (0-5 years), HIV/AIDS mainly impacts their early childhood development as well as morbidity and mortality for those infected. In the 2013 NDHS, the infant and under-5 mortality rates were estimated to be 39 and 54 deaths per 1,000 live births, respectively. Currently, HIV/AIDS is among the top 10 causes of childhood mortality in Namibia. HIV/AIDS has a faster disease progression and mortality rate among children compared to adults. To minimize HIV-related mortality and morbidity, Namibia is therefore implementing strategies for early infant diagnosis and provides treatment to all children with HIV. PMTCT interventions also aim to keep mothers living with HIV alive by implementing Option B+ which offers treatment for all pregnant and breastfeeding mothers irrespective of clinical or immunological status. When mothers die, their children are also likely to die irrespective of their infection status. In addition, a comprehensive policy of early childhood development and protection for all children in the country has also been put in place.

Another consequence of HIV/AIDS epidemic is an increase in Orphans and Vulnerable Children (OVC). In Namibia, orphans and other vulnerable children are defined as children under the age of 18 whose mother, father or either parents or primary caregiver has died, and/ or is in need of care and protection’. Of the 114,000 children in Namibia defined as orphans 77,000 are orphaned by AIDS. The National Plan of Action for Orphans and Vulnerable Children was put in place and provides targets and activities in five strategic areas: Rights and Protection; Education; Care and Support; Health and Nutrition; Management and Networking.

HIV impacts adolescent children (10-17 years) differently from younger children. In addition to vertical transmission, adolescents are also vulnerable to sexually acquired HIV. From the 2013 NDHS, 2.5% of girls and 2% of boys aged 15-19 years were HIV infected. In Namibia, HIV-prevalence is higher among pregnant adolescents and the country has a high adolescent pregnancy rate. From the 2013 NDHS, 19 percent of young women age 15-19 have begun childbearing, an increase from 15 percent in the 2006-07. From the routinely collected programmatic data of 2015, out of 80,373 pregnant women who attended ANC at least once, 12,325 (15.3%) were 15-19 years of age, while 433 (0.5%) were children less than 15 years of age. Of the HIV positive women attending ANC in the 2014 NHSS, 5.8% were 15-19 years of age. Early sexual debut, which is an important indicator of exposure to the risk of HIV, is high in Namibia and in 2013; nearly half of all girls aged 15–19 in Namibia (45%) had already had sex.

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42 This definition was adopted at the Second National Conference on Orphans and Other Vulnerable Children, June 2002.

43 Christele Diwouta Tiki. Harmonisation of laws relating to children in Namibia

An estimated 73% of new infections in the age group 15-19 years are among young girls and only 27% in boys.\(^{45}\)

Adolescents are least prepared for PMTCT. From the 2013 NDHS, in the 15-49 age-group, adolescents aged 15-19 were the least aware than HIV can be transmitted through breast feeding and risk can be reduced by taking special drugs.

One of the conditions for validation of pre-elimination or elimination of MTCT is that results should have been achieved in a manner consistent with the protection of human rights. One other area evaluated for consistency with human rights was HTC of children. Namibia has a clear and appropriate policy on HTC that caters for children as well\(^{46}\) and from interviews with KIs its implementation is consistent with international practices.

Although data on HIV testing among pregnant adolescents were available in the routinely collected data there is also need for age disaggregated data on uptake and use of ART for PMTCT that tracks adolescents. From interviews with KIs there were reports that adolescents are less likely to be retained in chronic care and this has been documented in other countries from the review of literature.

Namibian HIV and AIDS Charter of Rights\(^{47}\) specifically prohibits all discrimination against children orphaned by AIDS. It states that such children are entitled to love, support and care and a nurturing environment that would enable them to realize their full potential, and that they should be cared for and supported within their communities. The Charter further requires that information on services, grants and benefits for AIDS orphans should be made freely available. With the ratification of the Convention on the Right of the Child, Namibia committed itself to fulfill all the rights of children which are also reflected in the Constitution. Laws such as the Combating of Rape Act 2000, Combating of Domestic Violence Act of 2003 and the Maintenance Act of 2003 have improved the protection of all children including those with HIV.

Working for an HIV-free generation through e-MTCT is one important way to take care of the best interests of children, ensure their right to life, survival and contribute to their development as enshrined the UN Convention on the Rights of the Child.

**Equity:** The prevalence of HIV in Namibia is generalized but heterogeneous. About 80% of PLWHIV reside in eight (Kavango East, Kavango West, Zambezi, Ohangwena, Khomas, Omusati, Oshana and Oshikoto) out of thirteen regions. In most regions however, there were suggestions of inequities in access to PMTCT services for geographically hard to reach populations, poor people as well as adolescent and young women. In the 2013 NDHS, 28% of women reported that getting money for treatment was a serious problem in accessing health care when they are

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\(^{45}\) WHO Africa Health Observatory>

\(^{46}\) MoHSS, GRN (2011). National Guidelines for HIV Counseling and Testing in Namibia

\(^{47}\) www.hsph.harvard.edu/population/aids/namibia.aids.00.pdf
sick while 31% indicated that distance to a health facility is a serious problem. Women were less likely to attended ANC at least once if they had no education (87.7%) or from Omaheke region (88.8%). Only 73% of births to women in the lowest wealth quintile were delivered by a skilled provider, in contrast to 98% of births to women in the highest quintile.

One of the conditions for validation of pre-elimination or elimination of MTCT is for the programme to provide services to all communities in all regions, and there are no “unattended hotspots” of transmission which may reflect low coverage of services in a specific region and/or for a specific population. Below are the regions with low coverage of some of the PMTCT services. In the routinely collected data (2015), out of 72,472 women who attended ANC at least once, 3,536 are reported not to have tested for HIV. The majority were in Kunene where 24.7% never tested. Other regions with non-testing rates higher than 5% were Otjozondjupa (9.5%), Kavango (7.2%), Ohangwena (7%) and Zambezi (6.5%). In the same data set, about 90% or more of HIV positive ANC clients received ART in the regions except Erongo (85.1%) and Kunene (58.6%). One hundred and one ANC clients were reported to have received other regimens that were not ART and have been phased out. The respective region and number of clients on non-ART regimens were: - Khomas (28), Kavango (18), Otjozondjupa (15), Ohangwena (14), Omusati (11), Zambezi (5), Erongo (4), Erongo (4), Hardap (2), Oshana (2), Kunene (1), Omaheke (1), Oshikoto (0) and Karas (0). Fifty eight women refused ART during pregnancy. The region and the number that refused were as follows: - Kavango (17), Otjozondjupa (15), Zambezi (9), Omusati (4), Erongo (2), Hardap (1), Karas (1) Khomas (1) Kunene (1) Ohangwena (1), Oshana (1) and Oshikoto (0). It is could not be established why some regions had a low uptake of PMTCT services than others.

To ensure equity, appropriate emphasis should be placed on districts/regions with increased risk for MTCT. Risk factors include high HIV prevalence, populations more vulnerable to HIV infection or poor PMTCT outcomes.
5.0: DISCUSSION AND RECOMMENDATIONS:

Namibia has made impressive progress in the efforts to eliminate MTCT of HIV but there are challenges to overcome before this goal can be achieved. To accelerate further progress towards eMTCT, there is need to strengthen a number of areas and interventions. In view of the heterogeneous nature of the HIV epidemic, some of the interventions such as community based HTC, repeat testing for HIV or treating all PLWHIV will be more cost-effective in those regions and districts with higher HIV-prevalence. Areas and interventions that need further strengthening are discussed below along the four strategic prongs of a comprehensive PMTCT service and not in the order of importance or cost-effectiveness.

5.1: Primary prevention

After a clear decline of new infections among women of reproductive age from the early 2000s, development of new infections has remained constant in the last 4-6 years. For new infections to decline at a population level requires more than the interventions offered in the context of PMTCT. It requires strengthening a combination of behavioral, biomedical and structural interventions which are well spelt out in the National Combination Prevention Strategy and Operational Plan. Behavioral interventions include couple counseling, testing and disclosure; condom promotion; and alcohol risk reduction. Biomedical interventions include providing ART to HIV-infected partners; medical male circumcision and treating sexually transmitted infections. Structural-level efforts to reduce gender inequalities, reduce poverty, address HIV stigma and strengthen community-related interventions and well as interventions for key populations.

More specifically, a new and key intervention to reduce new HIV-infections at a population level is to treat all PLWHIV. Studies have provided evidence that people on ART are more than ten times less likely to transmit HIV to their partners than that not on treatment. This means that ART has the highest efficacy so far seen for any ‘real-world’ HIV-prevention intervention. Condoms have 95-99% efficacy in ideal use, but in real-world settings 100% attempted use has an efficacy of no more than 85%. Treating all PLWHIV irrespective of CD4 count or viral load is now recommended by the World Health Organization. To be effective, treatment as prevention requires expansion of HTC to reach a high enough proportion of the population; strengthen linkages of people living with HIV to care and treatment and ensure they are retained in chronic care. Door-to-door HTC is reported to have increased coverage on HIV testing in general and hard-to reach populations in particular. A KI in Zambezi region reported that it has also increased couple counseling and testing in their region. Other approaches could be used to expand community-based testing. One approach suggested is to incorporate HIV-testing among the package of services offered by health extension workers. They are already on board and are on government pay roll. Since they cover a specific number of households this

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would also help with linkages as well as tracing and tracking loss to follow-up. This strategy was suggested by two KIs (a Program Officer and Health Centre nurse) in Otjozondjupa. As coverage of most clients coming to health facilities becomes universal, the contribution from the hard to reach populations to new pediatric infections becomes increasingly important. In Botswana, one of the best performing African country, the 6% of mothers who do not access ante-natal care account for half of the HIV transmissions. Initiatives should be developed and designed to reach these marginalized mothers.

At a health facility level, with universal access to HTC of pregnant women and ART for PMTCT, it is likely that the proportion of new infections from serocoversion during pregnancy or breastfeeding will increase. Without testing couples a number of discordant relationships are missed. It is estimated that approximately 10% of couples tested in public health facilities are identified as discordant, while 85% are concordant negative and 5% concordant positive. In 2015 for example, out of 7438 women who tested HIV-negative about 743 could have had positive partners. One cohort study from Zimbabwe reported that up to 20% of all breastfeeding-associated transmission takes place in women who acquire HIV in the postnatal period. There is need to strengthen repeat testing during pregnancy and early postpartum for the women who initially tested negative. A system that identifies postpartum women who did not test for HIV during pregnancy should be strengthened. However, repeat testing to identify sero-conversions during pregnancy may be constrained by lesser proportion of women attending at least 4 ANC visits. Whereas 97% of pregnant women attend at least one ANC visit, only 63% attend at 4 ANC visits or more in the 2013 NDHS and this was a decline from 70% in 2006-7 according NDHS.

5.1.1: Recommendations for primary prevention of HIV:

1. Strengthen Focused ANC attendance nationally
2. Strengthen HTC and ART for PMTCT in Omaheke and Otjozondpupa regions.
3. Strengthen supply chain management for PMTCT commodities (RDTs, nevirapine suspension).
4. Expand HTC especially through community based testing and strengthen linkages to care and treatment as well as retention in chronic care for people living with HIV.
5. Adopt treatment as prevention by treating all PLWHIV irrespective of CD4 count.
6. Strengthen repeat testing pregnant women who initially tested HIV negative.
7. Identify and document breastfeeding women who did not test for HIV during pregnancy and offer them HTC.

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5.2: Family planning:

Most of the pregnancies among women living with HIV are from known HIV-positives (76.8% in 2015). However, it is not clear if some of the pregnancies among these women were unplanned. To eliminate unmet need for family planning (FP) in the context of PMTCT services, it is necessary to integrate family planning in HIV/AIDS services. A study that reviewed the literature, current recommendations, and evidence from the service provision assessment health facility surveys on integration of HIV and family planning documented the following evidence-based benefits of integration.\(^{50}\) Integrated services were shown to:

- increase contraceptive use among HIV-positive women who want to prevent or delay births;
- increase uptake of dual protection, which is particularly important for discordant couples;
- allow clients to access multiple services during one visit, and making it notably easier for clients to coordinate their HIV-related care with their pregnancy-prevention goals;
- increase the likelihood that providers have knowledge of client’s HIV status, which in turn allows them to respond better to their family planning needs and tailor services better to these needs, which is particularly relevant in the context of PMTCT and the needs of HIV-positive women who may wish to get pregnant;
- eliminate the need for external referrals and minimizing clients getting lost in the system in case of co-located services.

All of this fosters a more client-centered and a rights-based approach to women’s health. Integration may also help with the attitudinal bias of health care workers against people living with HIV having children.

Integration of HIV/FP may end up with co-location of services or but not always. Either way, there is need for regular counseling to help ensure that HIV-positive women are making informed choices. This can be done if providers routinely ask two questions to every woman of reproductive age living with HIV who is sexually active and has a partner as shown below.

<table>
<thead>
<tr>
<th></th>
<th>Would you like to have another child soon?</th>
<th>NO</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are you currently using a family planning method?</td>
<td>NO</td>
<td>YES</td>
<td>NO/YES</td>
</tr>
</tbody>
</table>

**ACTION TAKEN**  
- Has unmet need for FP. Offer/refer for counseling on FP.
- Ensure dual FP methods.
- Needs ART, partner testing and follow guidelines.

Depending on the responses, action is taken as indicated above and findings documented. To ensure integration of HIV and family planning is effective, district and regional reports should include unmet need for family planning identified and satisfied.

5.2.1 Recommendations on family planning for PMTCT

1. Strengthen integration of HIV and family planning by building capacity of health care workers to assess and satisfy need for family planning
2. Regularly report on unmet need for family planning identified and satisfied.

5.3: Prevention of vertical transmission of HIV.

MTCT largely depends on viral load especially at the time of giving birth and this in turn depends on duration of and adherence to ART. Health providers were therefore keen to initiate ART on the day HIV diagnosis is made in pregnant and breastfeeding women. However, retention in care and adherence to ART need as much emphasis. There were anecdotal reports from field visits that compared to other adults on ART, pregnant and breastfeeding mothers have poor adherence to ART and retention in care. Previous research estimates that around a quarter of pregnant women have inadequate ART adherence, and this is higher during the postpartum period.\(^{51}\) Poor patient retention undermines programme and patient outcomes, including achieving sustained viral suppression. The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates that in more than half the cases of infants who acquired HIV-1 infection from their mothers in 2013, transmission occurred during breastfeeding, in part because health care programs have been focused on the antepartum components of prevention, with less emphasis on systematic follow-up and retention in care during prolonged breast-feeding.\(^{52}\) The national effort to increase the number of people on ART needs to ensure that people taking ART are retained in chronic care for life. From field visits it was reported that adolescent and young women are more likely to be lost to follow-up. A review of literature also shows that this has been documented elsewhere in Africa.\(^{53,54}\) The high risk of loss to follow-up and poor adherence to ART has particularly been documented among adolescents aged 15–19


In 2015 about 15% of pregnant Namibian women living with HIV were within the 15-19 years of age bracket. Retention and adherence to ART among pregnant and breastfeeding women in Namibia requires further investigation. The starting point should be age-disaggregation of data on retention among women starting ART through PMTCT. In addition, adherence to ART should be routinely assessed during ANC, child birth and postpartum. As monitoring with viral load becomes increasingly available, testing of viral load for pregnant women should be of priority. This would help to identify those with unsuppressed viral load and in need of enhanced adherence support and prolonged infant prophylaxis. Another area that needs attention is the follow-up and management of HIV-exposed infants. Some providers were not aware of when nevirapine prophylaxis should be stopped vis-à-vis maternal viral load suppression. Currently, there are no more shortages of nevirapine suspension for HEI prophylaxis. However in case of shortages, the health care providers need rapid advice on alternative to use. A system that enables identification of HIV-exposed infants who have stopped breastfeeding and tests them for HIV needs to be established or strengthened. For example all mothers living with HIV should be asked about breastfeeding when they come for their ARV medications (whether in the ART or primary health care clinic) from birth until 2 years of age. HIV testing after breastfeeding should be routinely monitored and reported on in all district, regional and national reports. This will provide motivation for facility providers, program officers and data managers to ensure that these data are available as well as provide an assessment of the effectiveness for the system established.

5.3.1 Recommendations for prevention of vertical transmission of HIV:

1. Document reasons for ART refusal so that they may be acted upon
2. Assess retention in chronic care through age disaggregation of data on retention among women starting ART through PMTCT.
3. Regularly assess adherence to ART during ANC, child birth and postpartum.
4. Prioritize viral load testing of pregnant women and enhance adherence support and prolonged infant prophylaxis for women with unsuppressed viral load.

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5.4: Family centered HIV care, treatment and support:

HIV is a family disease and identification of index pregnant and breastfeeding women with HIV gives an opportunity to identify family members who are HIV-infected. In addition to offering partners HTC and documenting results of partners, all infants with unknown or uncertain HIV exposure being seen in health-care facilities at or around birth or at the first postnatal visit (usually 4–6 weeks) or other child health visit have their HIV exposure status ascertained. Children with a parent living with HIV should be routinely offered HIV testing and, if found to be either infected or at high risk of infection through breastfeeding, should be linked to services for treatment or prevention.

Services for HIV-exposed infants require strengthening through training, supervision and mentoring of providers as well as rolling out mother-baby registers.

To date, no evidence suggests a significantly increased risk of congenital anomalies associated with the currently recommended first-line ARV drug regimens. However, pre-conception ART may be associated with added risks related to both the outcomes of pregnancy and newborn morbidity. Over time, an increasing proportion of women living with HIV will already be on ART prior to conception. This provides an opportunity to understand the impact of this shift in the epidemic on rates of mother-to-child transmission as well as other pregnancy outcomes, including preterm delivery and low birth weight. The risk of congenital birth defects is likely to be low for the currently recommended first-line ARV drugs, but little is known about newer drugs and the possible effects on growth, development and organ maturation resulting from exposure to ART absorbed across the placenta and through breast milk.

5.4.1: Recommendations for family centered HIV care, treatment and support:

1. Offer HTC to all infants with unknown or uncertain HIV status as well as all children with a parent living with HIV.
2. Strengthen clinic-based data systems for identification, pro-actively pursue follow-up, DNA PCR testing and reporting of HIV-exposed infants until the end of breastfeeding.
4. Monitor congenital abnormalities, low births weights, prematurity among HIV-exposed infants.

(http://apps.who.int/iris/itstream/10665/70920/1/9789241503792_eng.pdf)
5.5: EMTCT data focus:

To qualify for Pre-elimination of MTCT Namibia has to demonstrate that a robust information system is in place such that coverage can be adequately estimated and the majority of cases of perinatal HIV can be identified. The absence of accurate and reliable data fundamentally weakens the surveillance system.

In the routinely collected data set of 2015, the accuracy of some of the data reported was questionable. From field visits and discussions with KIs, it was noted that the initial transfer of data from the individual clinic registers to the Monthly Summary Sheets was a major source of errors. In addition to training, support supervision, mentoring and simplified data collecting systems, there is need to ensure that data needs are perceived by front line clinic staff as intrinsically valuable in the management of their patients, and in the performance of their health care delivery.

To verify the accuracy of routinely collected data, there is need for data auditing and verification as indicated in the NSAP. In the NSAP it is planned that “Health Facilities and Hospitals would be visited on a quarterly basis to check the reported data against the individual records. These field visits would help to assess and verify the accuracy of service provision data and would be conducted by the HIS.” This needs to be strengthened and in addition to HIS personnel, it is essential to incorporate program officers and technical personnel in data auditing and verification.

In this evaluation, contradictions between modeling estimates and routinely collected programmatic data were noted. Mathematical models like Spectrum are useful in determining values that are difficult to measure directly. The limitation of a model is that it can be only as good as the data and assumptions entered into it. Models rely on data that have been collected in the national HIV surveillance system, such as HIV prevalence from antenatal clinic surveillance or from other surveillance systems. In addition, programme data from the national PMTCT and ART services are included in the model. These data need to be accurate and complete. If these data are not up-to-date or are biased, the resulting model will be inaccurate. It is because of these reasons that the World Health Organization recommends that a team of individuals with a good understanding of the national PMTCT programme should review the data used in Spectrum to ensure its accuracy and also review the estimates produced by the model.59

The number of new pediatric infections and the MTCT transmission rate are the key impact measurements for eMTCT. In this evaluation, both were determined using Spectrum modeling.

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The data and assumptions required to determine the number of new infections is shown in the figure below.

Figure 9: Estimating number of new child HIV-infections (Spectrum)\(^{60}\)

The number of new child HIV infections is the numerator for the MTCT transmission rate while the denominator is the number of HIV-exposed infants born (births of HIV positive women). The denominator is also determined by Spectrum mathematical modeling. The many assumptions required for estimation of both the numerator and denominator of the MTCT rate introduces additional uncertainty in the accuracy of the estimate of the MTCT rate. The uncertainty is often expressed as bounds around modeled estimates. Spectrum is available free of charge and therefore cheap to use but it is essential to ensure that the estimates are as accurate as possible. To find out the accuracy of values derived from models, comparison should be made with directly measured data on PMTCT impact. One important source of directly measured PMTCT impact data that is routinely available in Namibia is Early Infant Diagnosis (EID) data.

5.5.1: Analysis of EID data

EID data provides information on early postnatal transmission. Availability of HIV testing data from later ages (e.g. at the end of breastfeeding) could support estimation of the final MTCT rate. With careful interpretation of the data and the necessary adjustments, a population level MTCT rate can be estimated. EID coverage determines the usefulness of EID data. DNA PCR positivity rate approximates the national MTCT rate at 6-8 weeks if there is universal coverage for EID. Another factor that determines the quality of information from EID data analysis is that individual infants tested and not number of tests done should be analyzed. Many EID programmes have a policy of retesting infants whose first tests are positive. If the infant does not have a unique identifier, it may appear that there are two HIV-positive infants rather than

\(^{60}\)Mary Matry. UNAIDS.
one HIV-positive infant with two tests. Namibia fulfills most of the requirements for a good quality EID data base. According to MoHSS reporting, by 2013 Namibia had achieved universal coverage for EID testing (88%)\(^{61}\). The EID HIV testing data is centralized in an electronic database, a standardized EID/child HIV test requisition form is consistently used, a unique identifier allows data analysis by individual infants and to stratify data by age at first PCR test. Since the data are already routinely available centrally in the EID/child HIV testing database, there is no expense or burden of additional data collection. The analysis can be conducted quickly and repeatedly, making possible routine, systematic review and assessment of trends. One major challenge however, is the attrition in EID follow-up after the first PCR test and this limits the use of the EID database to estimate MTCT during breastfeeding after age 8 weeks.

Other than analysis of the EID data, directly measured PMTCT impact would be obtained by introduction of other approaches such as cohort monitoring or immunization clinic survey.

5.5.2: Cohort monitoring:
In Namibia, postpartum follow-up of mother-child pairs and final HIV testing to confirm the final HIV status and survival outcome of the HIV-exposed child is weak. Cohort monitoring applies strategies that improve care and retention until the final HIV status of HIV-exposed infant is known. Such efforts lead not only to more complete outcome data on mother-baby pairs but also better care. Efforts to ascertain PMTCT outcomes by following up a cohort of mother-child pairs can be conducted either prospectively or retrospectively. In a prospective follow-up, HIV positive pregnant women would be identified and followed up to determine the outcomes of all mother-child pairs—by linking records. Where the records are not linked, and, if there is significant attrition, by actively trying to find out the status of those lost to follow-up, rather than relying only on available data on facility clients. The value of the cohort approach depends on the capacity to minimize the proportion lost to follow-up and on the ability to estimate outcomes among those who, inevitably, are lost to follow up. While a national system would be ideal, one option may be to select representative sentinel sites to collect improved outcome data. If health facility records are missing for some mother-baby pairs, efforts can be made to find them with the help of community health workers. For Namibia, the major advantage with this approach is that there is near universal ANC attendance where identification of HIV positive women would start and the country is already implementing interventions to increase retention in care and to better follow up mother-baby pairs. Cohort data analysis would provide information on the MTCT rate in the cohort followed up (and with some assumptions and extrapolations, estimated MTCT at the population level); estimated number of new child HIV infections (from the cohort); estimated survival of mothers and children and the estimated HIV-free survival of children.

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5.5.3. Immunization clinic survey:
This method was developed and first evaluated in KwaZulu-Natal. Subsequently, South Africa and Rwanda have adopted a similar approach at the national level. In the survey, all children or a representative sample attending clinics for DPT1 immunization are tested to assess HIV exposure (antibody test) and early (around 6 weeks) infection/transmission (PCR test). A questionnaire can be used to collect information on intervention uptake to allow for further analysis and interpretation. Later, a follow-up of HIV-exposed children can provide data on later or final infection/transmission status. However, the validity of final transmission will depend on percentage of all children who can be tracked.

One major advantage of this approach is that it is relatively quick to undertake and can be repeated to provide trend data, especially if a modest amount of additional data is collected at the same time. It also provides results for children whose mothers did not attend antenatal clinic or receive PMTCT care. It would particularly feasible in the Namibian context because the country has a high DPT 1 coverage. However, it misses children who have died before immunization and an effort is required to minimize loss to follow-up if final transmission is to be assessed. In addition it can be expensive depending on scope and whether many extra staff must be employed.

As Namibia progresses closer towards eMTCT, there is need for a directly measured baseline data to validate the accuracy of available programmatic data or modeled estimates. It will also be used to make comparisons in future to assess progress on eMTCT. Namibia may select one of the approaches above depending on the comparative advantages.

5.5.4: Recommendations:

1. Provide regular training, support-supervision and mentoring on how to fill in mother-baby follow-up registers.
2. Integrate PMTCT services in the private sector into the national data base.
3. Conduct a data quality assessment for PMTCT
4. Establish a directly measured baseline measure of MTCT rate
5. Integrate MTCT of HIV and Syphilis.
6. To ensure equity, appropriate emphasis should be placed on districts/regions with increased risk for MTCT. Risk factors include high HIV prevalence, populations more vulnerable to HIV infection or poor PMTCT outcomes.

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6.0: Conclusion:

Namibia made remarkable progress towards eMTCT of HIV. Pre-elimination process targets have been achieved at a national level (except ANC in Omaheke; HTC and ART for PMTCT in Omaheke and Otjozondjupa regions) and the MTCT rate is less than 5% (4.1%) as planned in the NSAP and required for pre-elimination validation. However, the MTCT rate was determined using mathematical models and there were no directly measured data to compare with. One of the conditions required for Namibia to be validated for pre-elimination of eMTCT is a robust information system such that coverage can be adequately estimated and the majority of cases of perinatal HIV can be identified. Currently, this is not yet the case and needs to be put in place urgently. Still, Namibia had the potential for eMTCT of HIV. With the strong political leadership combined with substantial financial resources and health infrastructure, evidence-based programmatic focus, and a relatively modest HIV-infected population all give Namibia a unique opportunity to achieve this ambitious aspiration.

Finally, this evaluation was about eMTCT of HIV. Future evaluation need to consider integration of eMTCT for HIV and Syphilis. The similarity of the control interventions necessary to prevent transmission of HIV and syphilis in pregnancy adds to the feasibility of such an integrated approach to the elimination of MTCT of both diseases. Indeed, this integrated approach is necessary to improve the efficiency and quality of MCH services and to offer women more comprehensive primary care services. With syphilis prevalence of 1.7% and screening coverage of 93.8% during ANC it is likely that Namibia has virtually eliminated MTCT of syphilis. However this needs to be validated.

7.0: Limitations:

Routinely collected data were only available for 2015 and were inadequate on the follow-up of HIV-exposed infants. The contradictions in the data from different sources could not be resolved by this evaluation. Only data from health facilities in the public sector were available.

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### 8.0: APPENDICES

**Appendix i: Work schedule.**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 27th</td>
<td>Travel Day to Kavango</td>
</tr>
<tr>
<td>April 28th</td>
<td><strong>Work in Kavango East</strong>: MORNING: Report, Discuss with Regional PMTCT team. AFTERNOON: visit Rundu Intermediate Hospital ART clinic, and Primary Health Care (PHC) clinic.</td>
</tr>
<tr>
<td>April 29th</td>
<td><strong>Work in Kavango West</strong>: MORNING: Report, Discuss with Nankundu District PMTCT team. AFTERNOON: visit Nankundu District Hospital ART clinic, and PHC clinic.</td>
</tr>
<tr>
<td>April 30th</td>
<td>TRAVEL</td>
</tr>
<tr>
<td>May 1st</td>
<td>REST</td>
</tr>
<tr>
<td>May 2nd</td>
<td>HOLIDAY</td>
</tr>
<tr>
<td>May 3rd</td>
<td><strong>Work in Zambezi</strong>: MORNING: Report, Discuss with Katima PMTCT District team. AFTERNOON: Visit Katima District Hospital ART clinic and PHC clinic.</td>
</tr>
<tr>
<td>May 4th</td>
<td>TRAVEL</td>
</tr>
<tr>
<td>May 5th</td>
<td>Data validation</td>
</tr>
<tr>
<td>May 6th</td>
<td><strong>Work in Ohangwena</strong>: Report, visit health centers and clinics.</td>
</tr>
<tr>
<td>May 7th</td>
<td>TRAVEL &amp; REST</td>
</tr>
<tr>
<td>May 8th</td>
<td>REST</td>
</tr>
<tr>
<td>May 9th</td>
<td><strong>Work in Otjozondjupa</strong>: MORNING: Report, discuss with Otjiwarongo regional team. AFTERNOON: Visit Otjiwarongo District hospital ART clinic and PHC clinic.</td>
</tr>
<tr>
<td>May 10th</td>
<td>TRAVEL &amp; WORK (meeting with a women’s civil society organization)</td>
</tr>
<tr>
<td>May 11th</td>
<td><strong>Work in Khomas</strong>: Visit Katatura Health Centre ART clinic and Afternoon: visit Robert Mugabe Clinic.</td>
</tr>
</tbody>
</table>

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66 The regional or district teams were composed of MIS person, pharmacist, Hospital ART clinic in-charge, PMTCT focal person, PMTCT/ART mentor, civil society representative.
Appendix ii: Interview guide for Key Informants at National and Sub-national levels.

**(1): Leadership, advocacy and partnerships**

a) To what extent are PMTCT related issues addressed at the national level of government?
   - Executive, Legislature

b) What is the range of partners involved in PMTCT and what are the mechanisms for their consultation?
   - Public sector, Private sector, Non-governmental organizations, academia, development partners

c) What are the national-level advocacy coordination mechanisms?

d) National documents on leadership, advocacy and partnerships.

**(2): Resource mobilization**

a) Is the PMTCT program appropriately costed in line with current and projected requirements of the NSAP?
   - Total funding and funding by implementation strategies.

b) Were there revisions of existing cost projections to incorporate option B+?

c) What are the different mechanisms currently available for financing the national program?
   - Government revenues, major external sources, contributions from the domestic sector

d) Do financial resources for PMTCT programme meet current needs?
   - Actual funding received compared with planned funding, bottlenecks to planned funding, funding gap (nationally and for key interventions), and prioritization of funding away from planned interventions if any.

e) Do financial management systems meet national and international standards?
   - Disbursements are timely and there are regular financial reports

f) Has the use of funds represented the best value for money for the programme?
   - How do the financial inputs relate to the results achieved?

g) What are the challenges with resource mobilization and why?

h) Documents on resource mobilization.

**(3): MoHSS organization**

a) Is there closer collaboration between the relevant departments within MOHSS at the national level
   - Especially ART (special services) and PMTCT (PHC)

b) What are the challenges with MoHSS organization for PMTCT and why?

c) Documents on MoHSS organization

**(4): Human resource capacity building**

a) Is there a national human resource plan to support implementation of the Strategic Plan for PMTCT?

a) Have adequate human resources been available for health workforce for PMTCT related services as planned?
   - Type of Human resource necessary for effective and efficient PMTCT services (Doctors, nurses, midwives, lab technicians, CHWs, etc.) and their availability/shortages at national regional, district and community levels

b) Is there a national policy on task shifting for PMTCT and is this being implemented?
   - Policy, strategies, and plan on skill mix (task shifting and task sharing)

c) Have training and supervision of health workers been conducted to ensure access to PMTCT-related
services?

- Standard curricula for pre-service and in-service training on up-to-date PMTCT knowledge and skills
- Implementation of pre-service and in-service training programmes on up to-date PMTCT knowledge and skills
- Supportive supervision

d) Do measures exist to retain and motivate the workforce?
e) What are the challenges with human resources capacity building?
f) Documents on human resource capacity building

(5): Essential supplies, medicines, equipment and other supplies

a) Are there appropriate and sustainable procurement and supply management policy, strategies and plans?
- Use of ‘Global Fund-WHO Harmonized Country Pharmaceutical Profile’ when developing PSM policy and strategies
- Use of ‘Procurement and Supply Management Plan Template’ when developing a PMS plan

b) Is there any regulatory framework for commodity selection criteria?
- Acceptability of generic products.

c) Is procurement forecasting and planning evidence-based?
- Estimation of quantities of commodities necessary for expanded services from longer-term perspective

d) Are there stock-outs cases or losses of medicines?

f) What are the challenges with essential supplies, medicines and equipment and why?

g) National documents on essential medicines, medicines, equipment and other supplies

(6): Community engagement

a) Map community organizations engaged in PMTCT and what they do.
b) What are the efforts to strengthen community networks collaboration and partnerships for PMTCT?

c) Are there sufficient efforts to build capacity for staff of community based organizations and networks and for other community workers, such as community care workers and community leaders for PMTCT?
- Allocation and disbursement of funds for community activities
- Hiring, training motivating and retaining community workers
- Material resources – infrastructure, information and essential commodities

d) What are the platforms to share community knowledge and experiences for PMTCT?

e) Do community organizations engaged in PMTCT have sufficient capacity for monitoring and evaluation and evidence-building?
- M&E staff in community organizations
- Exchange visits and peer-to-peer learning and support on community M&E
- National plans, strategies and policies relevant to communities
- Community-level M&E and operational plans, including reporting systems,
- Regular supervision, mentoring and feedback to community actors and stakeholders
| f) | What are the challenges with community engagement and why? |
| g) | National documents on community engagement |
| (7): Information, knowledge generation and dissemination |
| a) | Is there a national M&E framework for PMTCT? |
| • | An appropriate indicator package |
| • | Consistency of indicators with priorities of the strategic and operational plans. |
| b) | Is there a national plan for HIV including PMTCT surveillance to monitor epidemic trends and identify optimal responses? |
| • | Prevalence and incidence (or proxy for incidence), age group, target populations etc. |
| c) | What are the administrative data sources that include HIV/PMTCT? |
| • | National database/roster of public and private sector health facilities |
| • | National database of health workforce |
| • | Service Availability and Readiness (SARA) Index |
| • | Health expenditure tracking |
| • | Finance: NASA (National Health account with HIV/AIDS subaccount) |
| d) | Is routine reporting and surveillance done? |
| • | Health facilities submitting weekly or monthly (or quarterly) reports on time |
| • | Facility assessments of service readiness |
| • | Regular schedule of sentinel surveillance |
| e) | What are the periodic nationally representative population-based surveys? |
| • | Demographic and health survey |
| • | Integrated Bio-Behavioral Survey |
| • | Modes of Transmission survey |
| • | AIDS indicator survey |
| • | Surveys for key populations |
| • | MTCT during EPI |
| f) | What are the vital registration data collected? |
| • | Reliable source of nationwide vital statistics by age and sex |
| • | Coverage of deaths, by age and sex |
| • | Reliable hospital data on cause of death |
| g) | Is there analysis and synthesis of routinely collected data? |
| • | Annual surveillance report produced and periodic program reviews conducted |
| • | Longitudinal ART patient cohorts monitoring |
| • | Model-based (EPP/Spectrum) estimations; |
| h) | At subnational levels (regions and districts) are there designated full-time health information officer positions and they are filled? |
| i) | Are there timely and appropriate training programme on information on HIV/ PMTCT? |
| • | Timely and appropriate training programme on information on PMTCT? |
| • | Adequately readily available tools and equipment for manage of PMTCT strategic information |
| • | Regular supportive supervisions on M&E |
j) Are the tools and equipment to manage of HIV strategic information readily available?

k) Are there regular supportive supervisions on M&E?

l) Are M&E reports compiled and disseminated regularly?

m) To what extent is strategic information used to inform policy, planning and implementation of HIV services?
   - Use of evidence for informed policy, strategies and plan on national HIV/AIDS programme
   - Use of data for estimating effectiveness and impacts of national HIV/AIDS

n) What are the challenges with strategic information, knowledge generation and dissemination?

o) National documents on information management, knowledge generation and dissemination

(8): Service delivery

a) What is the nature counseling provided (provider initiated, couple, group counseling etc.) in health facilities?

b) Is home-based HTC being implemented or planned?

c) Is HTC provided of the right quality?

d) To what extent is repeat HIV testing practiced?

e) To what extent are STIs being screened for and managed during pregnancy?

f) To what extent are condoms used during pregnancy?

g) What are the challenges with interventions for prevention of new infections among women of the reproductive age group and why?

h) Is the family planning service routinely offered and of the right quality (dual methods etc.)?

i) What are the challenges of routine family planning for women living with HIV and why?

j) Why are the reasons for women known to be HIV-infected getting pregnant?

k) How do you identify women with HIV who wish to get pregnant?

l) Where are pregnant and breastfeeding women with HIV lost to follow-up and why?

m) What is the performance of the linkages between MCH to ART clinic and vice-versa?

n) What is the contribution PMTCT to enrollment into the ART clinic?

o) What are the causes of poor adherence among pregnant and breastfeeding women living with HIV?

(9): Vulnerability

How are the key factors of vulnerability being addressed in service provision?

- Gender considerations (male partner engagement etc.)
- Human rights
- Equity
- Stigma and discrimination
Appendix iii: Narrative for the Theory of Change.

The government of the Republic of Namibia is committed to the elimination of new HIV Infections among children by 2020 and keeping their mothers alive. Four indicators will be used in the evaluation to measure achievement of this impact.

**Impact Indicators:**

To reduce:

1. The number of new pediatric HIV infections by 90%
2. The population level MTCT rate from 13% to less than 5%.
3. AIDS-related infant deaths by at least 50%.
4. AIDS-related maternal deaths by at least 50%.

To achieve this impact, the theory of change identifies four strategic outcomes that are required. The four outcomes articulated in the NSAP are derived from the World Health Organization (WHO)'s four strategic approaches for prevention of HIV-infection in infants. They are:

1. New HIV infections among women of child bearing age are reduced
2. Unintended pregnancies among women living with HIV are prevented
3. Mother-to-child transmission of HIV is prevented
4. Family centered HIV care, treatment and support is provided

**Outcome 1: New HIV infections among women of child bearing age are reduced.**

*Rationale:*
Preventing HIV infection in women of reproductive age is an important and efficient approach to preventing secondary transmission to infants and provides several other important benefits to families and the population at large. Modeling has demonstrated that elimination of mother-to-child transmission of HIV may not be possible without addressing primary prevention among women of reproductive age especially in high prevalence settings. Acute maternal HIV infection during pregnancy and breastfeeding is associated with very high rates of MTCT and serodiscordance among couples can be as high as 50%. HIV-negative women are at increased risk of infection during pregnancy and breastfeeding.

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Activities to achieve outcome.
Although this outcome is about women of child-bearing age, in the context of programmes for prevention of HIV infection in infants and children, the focus is on the pregnant and breast feeding women as well as their male partners. Activities outlined in the NSAP to prevent new HIV infections among women of child bearing age include:-

- Routine offer of provider-initiated HIV testing and counseling services to all pregnant and breast feeding women.
- Counseling and support to HIV negative pregnant and breast feeding mothers to enable them to remain un-infected throughout pregnancy and while breastfeeding;
- Routine offer of provider-initiated repeat testing and counseling during pregnancy at 36 weeks if tested negative three or more months earlier, and while breastfeeding for all HIV negative mothers;
- Couple counseling and testing for HIV as a strategy for enhancing disclosure of HIV status, family planning and addressing risk of transmission due to sero-discordance among couples.
- Screening for sexually transmitted infections during pregnancy and managing all the identified clients; and
- Provision of male and female condoms with accompanying education and skills building for negotiation and correct, consistent use especially during pregnancy and the lactating period to prevent HIV infection.

It is important to note that antiretroviral therapy (ART) of women and their partners contributes not only directly to preventing onward HIV transmission to infants (outcome 3) and keeping their mothers alive but also to primary prevention of HIV (outcome 1) within serodiscordant heterosexual relationships.

Indicators to be tracked by the evaluation.
The indicator for this outcome is new infections among women of reproductive age. It is determined using two approaches:-

1. HIV-prevalence among pregnant women (15-24 years of age) attending ANC (Source: Routinely collected data and Demographic and Health Surveys). HIV prevalence in this age group is a proxy for new infections.
2. HIV-incidence among all women (Source: Spectrum modeling estimates).

Process indicators:-

1. Percentage of pregnant women who know their HIV status (Source: Routinely collected data).
2. Percentage of male partners who know their HIV status (Source: Routinely collected data).
3. Percentage of facilities providing condom during antenatal care and postnatal care (Source: Routinely collected data).
4. Percentage of males and females aged 14-49 years who had more than one sexual partner in the last 12 months reporting the use of a condom during their last sexual intercourse (Source: Demographic and Health Surveys)

5. Percentage of women attending ANC at least once (Source: Demographic and Health Surveys (DHS)).

Outcome 2: Unintended pregnancies among women living with HIV are prevented

Rationale:
Fewer unintended pregnancies mean fewer infants born to mothers living with HIV, thus resulting in fewer potentially infected. Although the unmet need for family planning in Namibia is very low in the general population (12%) compared to the rest of sub-Saharan Africa, studies from Cote d’Ivoire, South Africa and Uganda suggest that the rates of unintended pregnancy among women living with HIV may be higher than in the general population. Unintended pregnancies contribute to maternal morbidity and mortality, which have a detrimental effect on the survival and well-being of both the women themselves and their children— the mother’s death can double the child’s risk of death.

Activities to achieve outcome.

- Routine offer of provider-initiated HTC counseling services to all women of child-bearing age who access MNCH and nutrition services from health facilities and outreach service delivery points, as a strategy to increase knowledge of HIV sero-status;
- Routine offer of counseling on, and provision of family planning services to all women of childbearing age who access maternal, newborn, child health and nutrition services from the health facilities and outreach service delivery points; and
- Routine offer of dual family planning methods (male or female condoms and another method) at all HIV prevention, care and treatment as well as family planning service delivery points.

This would include the assessment of women living with HIV who access services from the HIV clinics for their pregnancy status as well as intentions at each visit.

Indicators to be tracked for the evaluation.

Outcome indicator
1. Percentage of all women with unmet need for family planning (FP). (Source: DHS or other population based survey).

Process indicators
1. Percentage of women aged 14-49 who access family planning services (Source: Routinely collected data)

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2. Percentage of HIV-infected women who access family planning services (Source: Routinely collected data).

Outcome 3: Mother-to-child transmission of HIV is prevented

Rationale.

A package of specific interventions is used to prevent HIV transmission from an infected mother to her child. It includes antiretroviral therapy during pregnancy and breastfeeding, safer delivery practices, infant antiretroviral prophylaxis as well as infants and young children feeding counseling and support. Without these interventions, the background risk of HIV transmission is about approximately 35% in setting of prolonged breastfeeding. A key intervention for elimination of new pediatric infections was the adoption of the B+ strategy which requires immediate initiation of lifelong antiretroviral therapy (ART) for all HIV-positive women who are pregnant or breastfeeding regardless of CD4 cell count or clinical stage. Option B+ strategy provide the best chance for maternal viral load suppression. Maternal viral load is a strong independent predictor of the risk of transmission during pregnancy, labor and delivery or breastfeeding. Regardless of timing, transmission rates are extremely low when viral replication is fully suppressed.72

Activities to achieve outcome.

- Provision of ART for PMTCT to all HIV infected women during pregnancy and the breastfeeding period according to the national guidelines;
- Ensuring safe delivery practices that reduce risk of HIV transmission;
- Provision of antiretroviral drugs for PMTCT to all HIV exposed infants and young children according to the national guidelines; and
- Providing counseling and support on maternal nutrition as well as infant and young child feeding in preparation for optimal infant practices within the context of HIV infection.

Indicators to be tracked for the evaluation.

Outcome indicator:

1. Mother to child HIV transmission rates (Source: Spectrum modeling estimates).

Process indicators:

1. Percentage of women testing HIV-positive during pregnancy, labor and delivery and breastfeeding (Source: routinely collected and, population-based data).
2. Percentage of HIV positive pregnant and breastfeeding women started on ART (Source: Routinely collected and population-based data).

3. Percentage of HIV-exposed infants receiving ARV prophylaxis (Source: Routinely collected data).
4. Percentage of HIV-exposed infants tested with DNA PCR within 6 weeks (Source: Routinely collected data).
5. Percentage of HIV-exposed infants exclusively breastfed for first 6 months (Source: Routinely collected data).

Outcome 4: Family centered HIV care treatment and support is provided.

Rationale.
In Namibia, the coverage of HIV testing and counseling is much higher among pregnant women than in the general adult population. Testing for PMTCT could therefore be a key entry point for identifying family members who are also HIV-infected. After all, HIV/AIDS is a family disease. Couples and partners should be aware of and supported to use PMTCT services, including HIV prevention, treatment, and care, and routine health services. Both partners should participate in decisions that can prevent HIV transmission. Some people living in stable relationships are unaware of their partner’s status, and many people with an HIV-positive partner are not aware of their own status. Some people living with HIV may assume their partner is also infected and do not understand the potential for discordant results. Partner testing enhances early initiation and adherence to interventions for PMTCT, care and treatment of mothers and their partners and infants. Whenever a pregnant or breastfeeding woman is confirmed with HIV for the first time, it is important not only to test her sexual partner but also all her children. This is because she may have given birth to some or all her children while living with HIV. Some of them could be HIV infected. All family members living with HIV should be linked to care, treatment and support. This includes treatment of opportunistic infections and screening for tuberculosis; social support to enhance service utilization and prevent stigma, discrimination, and violence against women; adherence counseling and support to ensure return for clinic visits and adherence to medications. Family centered HIV care treatment and support ensures that the goal of PMTCT programs is not only to eliminate new pediatric HIV infections, but also to eliminate the excess mortality attributable to HIV and AIDS in children and pregnant and breastfeeding women.

Activities to achieve outcome.
- Provision of follow up support and counseling throughout the antenatal period, labor and delivery and breast feeding period while ensuring that the mother is receiving ART and the baby is receiving prophylaxis.
- Provision of cotrimoxazole prophylaxis to all HIV exposed infants from six weeks of age;
- Conducting of HIV tests on all the HIV exposed infants using the DNA-PCR methodology at about six to eight weeks of age. Additional HIV tests would be conducted after all breastfeeding has stopped, according to the national guidelines; and linkage of the identified HIV infected infants and young children to ART sites for initiation on treatment for their own health.
• Testing of family members (older children and partners) of a pregnant or breastfeeding woman living with HIV and for those testing positive, linkages to care and treatment.

**Indicators to be tracked for the evaluation.**

**Outcome indicators**
1. HIV-related infant mortality rate (Source: Research, modeling estimates, population-based data).
2. HIV-related maternal mortality rate (Source: Research, modeling estimates, population-based data).

**Process indicators**
1. Number and percentage of People living with HIV on ART enrolled through PMTCT (Source: Routinely collected data).
2. Number and percentage of children receiving ART disaggregated by age band including < 2 years (Source: Routinely collected data).
3. Number and percentage of children initiated on cotrimoxazole prophylaxis within 2 months of life (Source: Routinely collected data).

**Cross-cutting interventions:**

- **Policies, guidelines and related standards:** The policies, guidelines and related standards to be aligned with global standards. Information on this intervention will be obtained by review of national policies, guidelines and standards and comparison with global recommendations.

- **Program management and coordination:** Effective coordination between the directorates of Primary Health Care (PHC); Special Programmes (DSP); Policy, Planning and Human Resource Development (DP&HRD); as well as Tertiary Care and Clinical Support Services (THC&CSS) at national and sub-regional levels. Effective coordination will also be required between the public, private (for profit and not for profit) sectors and development partners. The evaluation will obtain information for this area mainly from interviews with key informants (KIs) and review of literature.

- **Human resource capacity for service delivery:** Building the human resource capacity for effective delivery of services requires strong collaboration between the MOHSS, the national training institutions and the professional councils to provide in-service and pre-services trainings in PMTCT as well as on-job mentoring and support supervision. This will be evaluated from routinely collected data on training, interviews with KIs and review of literature.

- **Advocacy, community education and social mobilization:** The Information Education and Communication (IEC) unit of the PHC directorate would, in close collaboration with key stakeholders, develop and implement a communication strategy that is aligned to
attainment of the eMTCT goal. This area will be evaluated using information from interviews with KIs and routinely collected data.

- **Essential PMTCT medicines, equipment, commodities and supplies.** The availability of reliable and adequate quantity as well as quality of medicines, related pharmaceutical supplies and equipment requires the collaborative effort of relevant directorates within MOHSS (PHC, DSP and THC&CSS); Central Medical Stores; and key stakeholders including the National Institute of Pathology (NIP) to ensure correct forecasting, quantification and timely availability of the essential items for PMTCT. This information will be provided by routinely collected data on stock outs, interviews with KIs and review of literature.

- **Management information system and operational research**
  The management information system ensures collection and analysis of data for the agreed eMTCT indicators. Data are collected by each health facility in the country on a monthly basis. The data are then sent through the district to the region and then to the national HIS unit where it is aggregated. To ensure high quality data, quarterly supportive supervision visits for data auditing are done. This includes checking the quality of raw data kept at the health facilities by examining daily records or registers used to complete the summary forms for a specific reporting period; and comparing the summary report form data against the raw data. Operational research studies will be conducted to provide better understanding on some of the key programme and policy related challenges.

**Assumptions, risks and mitigation.**

(1): **Political commitment and the accompanying resource allocation do not drop precipitously:**
The strong political commitment for eMTCT and accompanying resource allocation from the international and national sources has been critical for its success. However, recently there have been signs of plateauing of development assistance for HIV and AIDS. If political commitment were to disappear, progress would be set back dramatically, but this is unlikely.

*Key risks:*
A new issue (e.g., drought or political conflict) arises that diverts significant attention from HIV;

*Key mitigation measures:*
Advocating for the continued need to invest in the HIV response, including by highlighting the continued gaps in progress on areas in which proven interventions are available (e.g., the prevention of mother-to-child transmission of HIV); communicating with the general public and leaders about the possibilities of an AIDS-free generation, and the societal benefits of one.

(2): **Drug resistance to antiretroviral drugs does not spread rapidly and widely:**
Resistance to antiretroviral drugs occurs in all settings, but generally at relatively low levels that do not hamstring efforts to provide treatment. If this was to change suddenly and the current
set of antiretroviral drugs was rendered ineffective, it would be very difficult to achieve the outcome.

**Key risks:**
Adherence programmes are de-emphasized as a result of financial or human resources constraints or major disruptions to supply chains and delivery systems, leading to a major rise in intermittent drug-taking and thus resistance.

**Key mitigation measures:**
Strengthening health systems to ensure that governments and other partners have the capacity to administer and monitor ART; building capacity on supply chain management, including preparedness planning around it; advocating for continued investments in HIV to ensure adequate funding for ART and for adherence and drug resistance monitoring programmes.

**3): Unanticipated major adverse events due to ART do not develop.**

The recommended ART medications are largely safe with minor side effects and no evidence of teratogenicity; however there remain evidence gaps in the potential increased risk of toxicity associated with the long-term use of ARV drugs, the use of ARV drugs during pregnancy and in breastfeeding mothers, children and adolescents. The available evidence is limited to studies with limited sample size or short duration. If new evidence could emerge on negative adverse events associated with ART, this could cause major concern and stopping treatment.

**Key risks:**
Unexplained and unanticipated toxicities or teratogenicity as a result of long term use or in association with previously unrecognized environmental or medications or factor causing alarm and stoppages of ART.

**Mitigation:**
Implementing of continuous toxicity surveillance will provide the opportunity to produce evidence on specific types of toxicity, increase confidence in the use of the drugs, identify populations with risk factors and plan preventive strategies. The implementation of a pregnancy registry, including a surveillance programme for birth defects, is recommended.

**4): Increased survival and chronic care needs do not overstretch the health system and constrain service provision.**

PMTCTs services will increase identification and survival of women and partners living with HIV and more of these people living with HIV (PLWHIV) will have children. The PLWHIV and their HIV-exposed children require regular care, treatment and support using a chronic care model. Chronic care requires the availability of health providers, financial and human resources as well as infrastructure. Unless measures are taken this may limit achievement and maintenance of the required outcomes.
**Risks:**

The government does not anticipate an increase in required resources as a result of PMTCT and ensure their availability. PMTCT services may a strain on health systems leading to overwhelmed, exhausted workforce and poor quality services.

**Mitigation:**

Advocacy for the continued need to invest in the HIV response, highlighting the human and financial resource needs for PMTCT and the possible gaps developing over time. Implementation of task shifting strategies especially HIV-testing at the community level would help to militate against this challenge.
Appendix IV: Literature reviewed:

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33. MoHSS (2015). EPI Analysis of the Namibia AIDS Epidemic based on most recent epidemiological data.
37. NawaLife Trust. A rapid market research on male involvement in Namibian PMTCT program.
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44. WHO. (2013). Guide to conducting program reviews for the health sector response to HIV/AIDS.
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