CHAPTER TWO: HIV PREVENTION

2.1 HIV Combination Prevention

HIV prevention approach based solely on one element does not work and can hinder the HIV response. There is no single magic bullet for HIV prevention. Hence, use of a growing number of combination interventions have shown promise in effectively protecting against HIV transmission and acquisition. These include behavioral risk reduction, knowledge of Sero-status, Pre-Exposure Prophylaxis (PrEP), condoms, medical male circumcision, screening, and management of sexually transmitted infections, and use of antiretroviral medications. Therefore, it is recommended to use a mix of behavioral, biomedical, and structural HIV prevention actions and tactics which suit with the country's epidemic.

HIV Combination prevention is likely to be most effective when implemented at different points in the "transmission cycle", when the transmission rate is impeded, and structural barriers are addressed.

Core programmatic components

HIV Combination prevention approach includes three types of mutually reinforcing interventions:

1.Behavioral interventions include a range of social behavior change communication and demand creation programs that use various communication channels and platforms (e.g. mass media, community level, small group level and inter personal) to disseminate behavioral messages designed to encourage people to reduce behaviors that increase risk of transmission. Condom promotion is an essential component for the behavioral intervention.

2.Biomedical interventions are those that directly influence the biological system through which the virus infects a new host, such as condom use, PrEP, PEP, voluntary medical male circumcision, Screening and management of STIs, HTS and ART. Condoms effectively reduce sexual transmission of HIV, if used consistently and correctly. Voluntary medical male circumcision reduces acquisition of infection for men by up to 60% as compared to uncircumcised men.

3.Structural interventions address the critical social, legal, political, and environmental enablers that contribute to the national HIV response and measures to reduce stigma and discrimination, the promotion of gender equality and prevention of gender-based violence, economic empowerment, and access to education.

A package of combination HIV prevention intervention is recommended for KP to standardize the services (Refer Annex 1)

Recommended HIV Combination Prevention Interventions/Activities

Behavioral interventions/Activities

- SBCC intervention: Peer education sessions (small group and one to one), risk reduction counseling and preparation and Distribution of SBCC materials
- Scale-up comprehensive prevention interventions addressing key and priority populations.
  - Targeted outreach activities (like targeted mobilization and demand creation)
- Condom promotion: demand creation and skill building among KPPs and general populations.
- Harm reduction for people who inject drugs (PWID): needle and syringe programs through social marketing and CSO channels and opioid substitution therapy.
- Promotion of health care seeking behaviors through existing services like health education.
- Strengthen community-based HIV prevention interventions to address the general population through: -
  - Enhancement of adaptive community conversation (CC) and dialogue and integrate with existing community structures.
  - Develop and disseminate HIV prevention messages using print, social and electronic media.
- Strengthen workplace HIV prevention interventions through mainstreaming.
- Strengthen intra- and extracurricular school HIV education programs.
  - Conduct peer education programs in schools, higher education institutes and Technical, Vocational Education and Training (TVET).
  - Conduct life-skill education in schools, higher education institutes and TVET.
  - Integrate HIV/AIDS into school curriculum.
  - Train teachers on management of school HIV/AIDS programs.
  - Develop and disseminate targeted SBCC message in schools, higher education institutes and TVET.
  - Strengthen youth leadership development programs.
  - Develop an HIV intervention strategy for school and higher education.
  - Strengthen anti-AIDS clubs in schools, higher education institutes and TVETs.
- Strengthen out-of-school youth HIV prevention programs.
  - Life skill education, Peer Education, and youth dialogue to address children, adolescent, and youth
  - Strengthen Youth Center to provide comprehensive HIV SRH services

- Integration of HIV Prevention with Voluntarism
- Targeted outreach mobilization for prevention, testing, and linkage services

- Intensify HIV prevention in development schemes including new development corroders.
  - Map development corridors, mega project areas like industrial park, construction sites, military, refuges campus and private development schemes.
  - Integrate HIV prevention in the project proposals of development schemes.
  - Develop and disseminate targeted HIV/AIDS messages.
  - Conduct peer education, life skill education and canteen-based education targeting workers (permanent and seasonal).
  - Provide VCT, STI and ART/PMTCT services at worksite clinics or through outreach or referral and linkages with nearby health facilities.
  - Ensure the provision of HIV prevention services to the surrounding communities of development corroders.
- Scale-up HIV prevention among population groups with special needs.
  - Integrate SBCC interventions for people with disability in their service provision centers.
  - Develop and disseminate SBCC materials for people with disability.

Biomedical interventions/Activities

- Ensure availability, acceptability and affordability of quality condoms using the total marketing approach (free condoms, social marketing, and private sector)
  - Identify universal need of condom and forecasting condom quantity.
  - Ensure quality condom procurement, storage, and distribution.
  - Monitor appropriate storage, availability and accessibility of condoms.
  - Promote use of condom and build skill on correct and consistence use of condom.
  - Conduct targeted condom distribution, particularly for key and priority populations.
- Ensure access and enhance uptake of targeted HIV testing and counseling services to eligible clients and address the special need of people with disability.
- Strengthen Pre Exposure prophylaxis (PrEP) service for eligible population groups
- Ensure the provision of PEP service for the eligible population groups.
- Increase availability and utilization of STI prevention, screening and treatment services

- Create strong leadership for STI programs.
- Intensify health education to improve treatment seeking behavior and utilization of STI services.
- Promote and implement active STI partner notification system to identify and link those in the sexual network to STI management and HTS.
- Ensure availability of STIs kits/drugs in all health facilities.
- Train heath care workers on syndromic approaches STI case diagnosis and management with consideration of people with disability.

- Accelerate voluntary medical male circumcision in areas where needed.
- Ensure access and enhance uptake of PMTCT services.
- Treatment with ART and having undetectable viral load.

Structural interventions/Activities

- Strengthen Legal and policy environment (legal support system).
  - Revise the national HIV policy
  - Develop capacity for legal support system at different levels
- Strengthen partnership with concerned sectors and organization
- Strengthen community mobilization platforms including health extension program, family health team (FHT), CSOs, CBOs and FBOs.
- Improve access to health services through.
  - Decentralization of service provision
  - Provision of differentiated service delivery
  - Ensure affordability and acceptability of health care services
  - Ensure provision of user friendly services
- Address socio-cultural factors like address harmful traditional practices that fuel HIV/AIDS
- Address stigma and discrimination through:
  - Education, advocacy, and communication of the public through religious and community leaders.
  - Empowerment and engagement of PLHIV and their associations in advocacy and communication.
  - Empowerment of HIV Positive adolescents and youths using adolescent psychosocial support programs.
  - Engagement of media in communication and advocacy.
  - Monitoring and enforcement of anti-discriminatory laws and regulations.

- Reduce economic vulnerability:
  - Strengthen the provision of income generating activity (IGA) support to vulnerable women and high risk adolescent girls and young women.
  - Care and support program for OVCs and PLHIVs (for those who are less empowered in economy, psychosocial, education etc.)
- Promote gender equality and prevention and management of gender-based violence.
- Supportive interventions designed to enhance referrals, adherence, retention, and community mobilization.
- Mainstream HIV/AIDS prevention activities into sectors and workplaces.

2.2. Condom programing for KPP and general populations

For the achievement of HIV prevention and family planning services, condom programming has been playing a pivotal role. To address gaps in areas of program coordination, supply chain management and access to quality condoms, four major strategic objectives have been identified and should be implemented:

- Enhance supportive environment and leadership for the implementation of coordinated and sustainable condom programming.
- Ensure the availability and accessibility of quality condoms in sustainable manner.
- Increase demand and enhance correct and consistent use of condoms for different segments of population; and
- Generate strategic information and ensure an integrated, effective monitoring and evaluation system for condom programming.

2.3. Pre Exposure Prophylaxis

Pre-exposure prophylaxis (PrEP) of HIV is the use of ARV drugs by individuals who are not infected with HIV but at a substantial risk to block the acquisition of HIV. Substantial risk of HIV infection is provisionally defined as an incidence of HIV higher than 3 per 100 person-years in the absence of pre-exposure prophylaxis (PrEP) and risk behavior like inconsistence condom use. PrEP should be offered as an additional prevention choice for people at substantial risk of HIV infection.

The target beneficiaries for PrEP service in Ethiopia are HIV Negative FSWs and HIV negative partners of Sero- discordant couples. The nationally recommended PrEP drug is a fixed dose combination that contains Tenofovir 300mg and Lamivudine 300mg once daily for the identified target groups with substantial risk for HIV infection. In the context of COVID 19 pandemic, a three Multi Month Dispensing (3MMD) PrEP drugs for all clients is recommended. While taking PrEP, clients should have follow up facility visit for prescription refills, counseling on risk reduction, counseling on correct and consistent use of condoms; routine screening of STIs, family planning service HIV testing, and assessments of adherence and retention as part of combination HIV prevention package.

Nationally developed oral PrEP demand creation materials using flip chart, poster and brochures should be utilized both at facility and community levels through active engagements of PrEP service providers and peer service providers for improving PrEP service uptake and PrEP-retention.

WHO also recommended that the Dapivirine vaginal ring (DPV-VR) for women every 28 days and injectable PrEP every two months for all eligible clients at substantial risk of HIV infection, as part of combination prevention approaches.

The following are the criteria used to identify participants eligible for PrEP service among target populations

Table 2.1: Eligibility Criteria for PrEP

HIV Negative FSWs	HIV Negative Partners in Sero-Discordant Couples
■ HIV negative using a rapid antibody test as per the National HIV testing algorithm on the day of PrEP initiation. ■ No clinical suspicion of acute HIV infection. ■ Self- identifying FSWs. ■ No contraindications to PrEP medicines (TDF/3TC)	■ HIV negative using a rapid antibody test as per the National HIV testing algorithm on the day of PrEP initiation. ■ No clinical suspicion of acute HIV infection. ■ Substantial risk of HIV infection (any ONE of the following in the past six months): ■ Has a known HIV positive sexual partner(s) who is not on ART or ■ On ART less than six months, or not yet achieved undetectable viral load < 50 ml/copies or ■ No contraindications to PrEP medicines (TDF/3TC)

Exclusion criteria and contraindications for PrEP

- Finding of HIV infection (existing HIV infection should be ruled out by testing using the national algorithm on the same day of PrEP initiation).
- Finding of Signs/symptoms of acute HIV infection, with probable recent exposure to HIV.
- Estimated creatinine clearance of less than 60 ml/min (if known).
- Client reported allergy or there is contraindication to any medicine in the PrEP regimen.
- Known Hepatitis B infection.
- Unwillingness or not being ready to use PrEP as prescribed and/or give detail information required for monitoring.

When do we stop PrEP?

Starting PrEP does not mean staying on PrEP for life. At every follow up visit, review patient reported risk behavior and evaluate the need to continue PrEP as a component of HIV prevention. The following criteria are reasons to stop PrEP:

- HIV Sero-conversion while on PrEP
- Sustained elevation of creatinine clearance (eCRCL) < 60ml/min.
- Clients who have side effects from the medicine that interfere with quality of life.
- Finding of Hepatitis B infection (clients with HBsAg Positive test result)
- Clients with poor adherence for two consecutive months (Missing five and above pills per month) to the prescribed dosing regimen despite efforts to improve daily adherence.
- Clients on PrEP whose HIV positive partner achieved undetectable viral load while on ART.
- No longer at substantial risk (e.g., no longer engaged in sex work)

How to safely discontinue PrEP

Clients should be informed how to safely discontinue and restart PrEP. This includes the need to contact health care provider and to continue PrEP for 28 days post-high risk

behavior. Before discontinuing PrEP, the health care providers should conduct the following activities.

- Perform HIV test to confirm whether HIV infection has occurred.
- If HIV positive, establish linkage to HIV care & treatment.
- If negative, appoint the client after 12 weeks for HIV testing and ensure that the client continues to take PrEP for 28 days after the high-risk event.
- In addition, discuss with the clients on alternative methods to reduce the risk of acquiring HIV such as correct and consistent use of condoms, desired behavioral change to avoid risk.

How to safely restart PrEP

Any person who wishes to resume taking PrEP medications after having stopped should undergo all the same pre-prescription evaluation as a person being newly prescribed PrEP, including an HIV test to establish that they are still without HIV infection. In addition, an open discussion with clients is important to clarify the changed circumstances since discontinuing medication that indicate the need to resume medication, and the commitment to take it.

2.4. Prevention and management of Gender Based Violence (GBV)

Gender inequalities and gender based violence place girls and women particularly at increased risk of HIV infection. Young women with disabilities face even higher risks. The span and scope of addressing gender inequalities and gender-based violence is broader than just within the health sector. It requires multi-sectoral responses and investments and should include gender responsive programing and budgeting in the HIV response.

The following interventions will be addressed to prevent and manage GBV:

- Build capacity of health facilities to provide comprehensive GBV services including training of health workers, availing provider tools (Job aids, SOPs, etc.) and reporting tools at site level
- Provide comprehensive services in health facilities for survivors of GBV that includes screening and management of intimate partner violence, medico legal examination, HIV testing, STIs screening and management and pregnancy testing, PEP, emergency contraception, counseling, referral for social and legal services.
- Strengthen schoolgirls clubs, make youth centers and health clinics gender sensitive and girls' friendly. Provide integrated services including psychosocial support, HIV, SRH and GBV related services.

- Undertake community dialogue on promotion of gender equality and prevention of GBV by integrating into the health extension program.
- Ensure referral system is in place to medico legal services for survivors
- Strengthen youth friendly clinics at facility levels to provide comprehensive GBV services.

2.5. Post Exposure Management including Prophylaxis

2.5.1. Management of Occupational Exposure to HIV

- Health care workers and supporting staff have a low but measurable risk of HIV infection after accidental exposure to infected blood or body fluid.
- Compliance with infection prevention recommendations is the backbone in prevention of occupational HIV infection. The priorities therefore must be to train health personnel in infection prevention and provide them with necessary materials and protective equipment.
- Risk of HIV infection after a needle stick or cut exposure to HIV-infected blood is estimated to be 0.3% (3 in 1000). The risk of HIV infection after exposure of mucous membranes to HIV-infected blood is estimated to be 0.1% (1 in 1000). However, risk could vary depending on severity of injury and viral load in the source patient.
- Antiretroviral treatment immediately after exposure to HIV can reduce risk of infection by about 80%.

Support for post exposure management in health facilities

- Regular prevention education for employees (health workers, cleaners, and other staff) involved in institutional care for PLHIV.
- Ensure availability of control mechanisms for effective observation of standard precaution.
- Establish system for post exposure management to ensure urgent attention for victims who have sustained accidental blood exposure.

Minimum package for PEP sites/facilities

1. Assign one trained physician / Health Officer / nurse as PEP focal person for the facility.

2. The contact address of the facility PEP focal person and the facility ART nurse or any other second person assigned to coordinate PEP activities in the facility should be posted in all outpatient and inpatient departments within the heath facility.

3. PEP ARV drugs should be made available in designated sites inside the heath facility which may be accessible to all staff, 24 hours, and 7 days a week.

4. Provider support tools like algorithm for determination of the severity of exposure (Exposure Code) and PEP register should be available in the facility.

Steps to manage potential HIV exposed person

1. Treat the exposure site /immediate measures.

- Percutaneous injury or injury to non-intact skin:
  - Wash the exposed site with soap and water as soon as possible, without scrubbing.
  - Avoid using antiseptics.
  - Allow free bleeding but do not squeeze the wound.
- Exposed mucous membranes:
  - Irrigate copiously with clean water or saline.

2. Report the exposure:

- To the PEP focal person or the ART physician or nurse in the facility immediately.

3. The PEP focal person who needs to do:

a) Clinical evaluation, counseling and testing of the exposed person and complete the exposure reporting form.

b) Do risk assessment and determine the exposure code (EC) and source HIV status code (HIV SC) using the PEP algorithm.

c) Using the EC and HIVSC determine whether PEP is warranted for the exposed HCW.

d) If the HCW is warranted to take PEP: Choose appropriate PEP regimen, counsel about the ARVs and prescribe according to PEP algorithm.

e) Document properly on the PEP follow-up register.

f) Appoint the exposed person and follow.

g) Conduct follow up HIV testing at 6 weeks.

Assessment of exposure risk:

Low-risk exposure:

- Exposure to small volume of blood or blood contaminated fluids
- Following injury with a solid needle
- Asymptomatic source patient

High-risk exposure:

- Exposure to a large volume of blood or potentially infectious fluids.
- Exposure to blood or potentially infectious fluids from a patient with clinical AIDS or acute HIV infection or known positive with high viral load.
- Injury with a hollow needle.
- Needle used in source patient's artery or vein.
- Visible blood on device.
- Deep and extensive injury.

Table 2.2: Interpretation of exposure code (severity of exposure).

	Exposure Code	Type of exposure
1	EC 1	Is a minor muco-cutaneous exposure to small volume of blood for short period (few seconds to minutes)
2	EC 2	Is a major muco-cutaneous exposure to large volume of blood for longer duration (several minutes), or mild percutaneous exposure (with solid needle or superficial scratch or injury).
3	EC 3	Severe percutaneous exposure (large bore hollow needle, deep puncture, visible blood on devise, needle used in patient artery/vein).

Table 2.3: Interpretation of the HIV status of the source patient.

	HIV Source Code (SC)	The HIV status and severity of the illness in the source patients
1	HIV SC 1	The source patient is HIV positive but is asymptomatic and has reasonably good immune status.
2	HIV SC 2	The source patient is HIV positive and is symptomatic, may have AIDS or has other evidence of advanced illness (low CD4 or high viral load).
3	HIV SC unknown	The HIV status of the source patients is unknown (either the patient has refused HIV testing or died or discharged before HIV testing) or the source patient is unknown (e.g., unlabeled blood sample in a laboratory).

Table 2.4: Recommended PEP based on risk assessment.

Status code	Exposure code		
	EC 1	EC 2	EC 3
SC 1	Basic 2 drug PEP	Basic 2 drug PEP	Expanded 3 drug PEP
SC 2	Basic 2 drug PEP	Expanded 3 drug PEP	Expanded 3 drug PEP
SC unknown	Consider basic 2-drugs PEP.		
HIV negative	No PEP warranted	No PEP warranted	No PEP warranted

Table 2.5: Recommended ARVs for PEP and administration guide

Category	Regimen	ARV drug regimen	Dose	Frequency	Duration
Adults and adolescents	Two drug regimen	2-Drug Regimen: Tenofovir (TDF) + Lamivudine(3TC)	TDF 300mg 3TC 300mg	Once daily	28 days
	Three drug regimen	3-Drug Regimen: Triple FDC Tenofovir (TDF) + Lamivudine (3TC) + Dolutegravir (DTG) Or Tenofovir(TDF) + Lamivudine (3TC) + Efavirenz (EFV) OR Lopinavir/ritonavir (LPV/r) Or Atazanavir/ritonavir (ATV/r)	Triple FDC (TDF 300mg,3TC 300mg,DTG 50mg) (TDF300mg, 3TC300mg, EFV 600mg)	Once daily	
			LPV/r400mg /100mg	Twice daily	
			ATV/r300mg/100mg	Once daily	
children	Two drugs	Zidovudine (AZT) +3TC	Based on weight (refer dosing chart)	Twice daily	
	Three drugs	AZT +3TC +DTG or EFV or LPV/r Or ATV/r	Based on weight (refer dosing chart)	AZT+ 3TC and LPV/r Twice daily and For DTG /EFV/ ATV/r Once daily	28 days

Timing of initiation of prophylaxis:

To be effective, PEP should be initiated as soon as possible (within 1-2 hours). The maximum delay for initiation of treatment which would prevent infection is not known in humans. Do not consider PEP beyond 72 hours post exposure. Prophylaxis is to be given for 28 days.

Testing and monitoring after occupational exposure:

- Testing source: rapid HIV test is done after counseling and consent has been secured. If the source patient is negative, there is no need of further assessment of the exposed health care worker. If the result is positive the health care worker needs to be tested.

- Testing of health care worker: HIV testing should be performed immediately after exposure. If result is positive there is no need for PEP, but if negative you should administer PEP as soon as possible as outlined above and then repeat HIV testing at 6 weeks.

- Remember to initiate PEP immediately after exposure until test result confirms the HIV status of the victim. Stop PEP if the health worker is positive for HIV antibodies.

- Following HIV exposure there is a need for psychosocial support.

- Any health care workers presenting to a health facility with potential exposure to HIV should be strictly counseled and examined by trained health care worker about the potential risk of HIV infection and ensure there is no misuse of PEP.

2.5.2. Prevention of HIV Transmission after Sexual Assault

1. Any person presenting to a health facility after potential exposure to HIV during sexual assault should be strictly counseled and examined by trained health care worker about the potential risk of HIV infection and ensure there is no misuse of PEP.

2. Parents/guardian of traumatized children should be counseled and informed on the risk of HIV infection after sexual assault.

3. The following points should be covered in the counselling:

a) The exact risk of transmission is not known, but it exists.

b) It is important to know the victim's HIV status prior to any antiretroviral treatment.

Recommended regimen for PEP

Dolutegravir (DTG) 50 mg daily in combination with tenofovir disoproxil Lamivudine (3TC) 300 mg daily as the preferred regimen in healthy adults and adolescents for 28 days

Alternatively, AZT or TDF+3TC+EFV for 28 days or

Boosted Lopinavir OR boosted Atazanavir can substitute EFV.

DTG is approved for all children older than 4 weeks weighing more than 3kg and available with dispersible tablets that can be easily administered for all children weighting less than 20kg. For children weighting more than 20 kg, 50 mg adult film-coated tablets can be use.

PEP is not recommended.

a) If victim presents more than 72 hours after exposure.

b) Following condom leak or tear.

c) It is the patient's choice to have immediate HIV testing or, if s/he prefers, this can be delayed until 72 hours post examination visit.

d) PEP is not recommended after 72 hours following sexual assault. Patients should be counseled about risk of infection and the possibility of transmitting infection during sero-conversion. They should be instructed to return at 6 weeks post sexual assault for voluntary counseling and HIV testing.

4. It is strongly recommended that the implementation of post-rape prophylaxis should be carefully monitored and evaluated for:

- Pregnancy test
- Emergency contraceptives
- Psychosocial Support
- Legal support
- Screening for conventional STIs and follow-up management
- Drug side effects
- Sero-conversion

2.6. Undetectable=Untransmittable (U=U) (የ=የ)

When HIV positive person taking ART achieves undetectable viral load levels (<50 copies/ml) and maintained at least for 6 months, the risk of transmitting HIV through sex is significantly minimized. Globally, this concept is called Undetectable = Untransmittable (U=U) and Ethiopia has contextualized its naming in to "**የማይታይ መጠን = የተገታ መተላለፍ (የ=የ)**.

Creating dialogue for U=U/"**የ=የ"/** in clinical settings is vital because clients perceive their healthcare providers as a trusted source, and providers can improve client's understanding of this information.

Promoting U=U in clinical settings also gives healthcare providers an opportunity to reinforce and support adherence to antiretroviral medicines, ensure continuity of treatment and regular clinical monitoring, encourage viral load testing, and provide complimentary services such as sexual and reproductive health.

At a population level, U=U messages have the power to reduce HIV stigma and discrimination by sharing the robust scientific evidence that PLHIV with durably undetectable viral load prevents sexual transmission HIV. Therefore, appropriate U=U/**"የ=የ"** messages should be campaigned and communicated to the communities using various media outlets and community platforms.

2.7. Screening and treatment of Sexually Transmitted Infections

Active screening and treatment of STIs using syndrome approach will be provided to KPPs and their partners integrated through community and health facility level service delivery outlets. Currently, a syndromic approach is being used to screen and treat STIs although consideration for rapid and laboratory STI testing and same day/early treatment for individuals presenting with STIs may be considered in the future. There is a need to build the capacity of HCPs on syndromic management. The STIs program ownership, management and monitoring and evaluation need to be strengthened.

2.8. Voluntary Medical Male Circumcision (VMMC)

Voluntary Medical Male Circumcision (VMMC) services should be offered as part of a combination HIV prevention effort to reduce the incidence of HIV in high HIV and low Male Circumcision (MC) prevalence settings. MOH in collaboration with partners started implementing the VMMC service since 2009 in the Gambella host population, with the objective of reaching 90% among uncircumcised males aged between 10-49 years with a special focus on 15-29 years by 2022.

A minimum package of services, including targeted information and education on safer sex, condom promotion and distribution, offering HIV testing service and management of sexually transmitted infections, must be delivered along with the male circumcision procedure. However, the current national strategic plan includes some woredas of SNNP region at target areas for VMMC.

The national VMMC strategic document 2020-2022 has been developed with the aim of attaining this goal; MOH has identified the following four major strategic objectives:

- Improve communities' understanding on the benefits and risks of MC and build positive attitudes towards utilizing VMMC services.
- Expand the service delivery at all healthcare facilities to keep pace with the created demand of VMMC in specific population groups.
- Promote Early Infant Male Circumcision into health service delivery system.
- Strengthen program sustainability and ownership (develop sustainability strategy).

Moreover, roles and responsibilities have been assigned for key stakeholders and monitoring and evaluation system for VMMC has been incorporated.

2.9. Care of HIV Exposed Infants (HEI)

Infants born to HIV positive pregnant women by definition are HIV exposed and these infants can be infected with HIV during pregnancy, labor or after birth through breast feeding. All HEI will undergo through DNA-PCR antigen test at six weeks and repeat DNA-PCR test at 9 months for those who tested negative. While the child with HIV infection can often be identified during the two months of life, HIV infection often cannot be excluded until after 18 months of age particularly in breast feeding babies.

Pediatric HIV disease can progress very rapidly and may require treatment before a positive diagnosis can be confirmed. HIV infected infants are susceptible to many opportunistic infections including pneumocystis pneumonia (PCP), TB and other bacterial infections that are associated with high rates of mortality.

Components of clinical care for the HEI

1.History

2.Physical examination

3.Growth assessment

- Growth is the most sensitive clinical indicator of HIV infection in infants and young children.
- Children with HIV infection are at high risk for poor growth.
- Growth should be monitored closely for all HIV exposed and infected infants.

4.Developmental assessment: Use developmental check list to assess growth and development.

5.Infant feeding: Nutrition and feeding history should be assessed regularly. Ongoing counseling on infant feeding practice should be done, according to the national recommendation.

- Safer infant feeding practices, either exclusive breastfeeding for the first 6 months or exclusive replacement feeding for the first six months. Avoid mixed feeding.
- Introduce appropriate complementary food after six months and continue breastfeeding as the general population.

6.Immunization: All HEI should be immunized according to expanded program on immunization (EPI) recommendations. (Refer annex 2)

7. ARV prophylaxis for HIV exposed infants

Considering all HIV Exposed Infants (HEIs) as high-risk infants, enhanced postnatal prophylaxis (ePNP) is recommended for all of them. ePNP is providing NVP and AZT prophylaxis for the first 6weeks and continuing only NVP prophylaxis for an additional 6 weeks. Infant prophylaxis should begin within one hour at birth or as soon as HIV exposure is recognized postpartum.

- NVP and AZT Prophylaxis syrups shall be started within 1 hour of birth to the HEI up to 72hrs.
- For HIV exposed infants identified after birth (through infant or maternal HIV antibody testing)
- Infants on breastfeeding: - Initiate ART for the mother - Provide NVP and AZT for 6 weeks and continue only NVP for additional 6 weeks. - Collect specimen for DNA PCR testing at 6 weeks of age and repeat DNA PCR at 9 months of age for those who tested negative at 6 weeks of age.

- If the infant is brought within 72 hours of birth provide AZT and NVP prophylaxis for 6 weeks.

- Infant identified as HIV exposed after 72 hours after birth (through infant or maternal HIV antibody testing) and is NOT Breastfeeding ,
  - Initiate maternal ART
  - No prophylaxis needed
  - Do DNA PCR testing accordance with national recommendations on early infant diagnosis
  - Initiate treatment if the infant is infected

For babies delivered at home:

- If a mother is known to be HIV-positive, ARV prophylaxis should be administered to the newborn even if the mother did not receive ARVs during pregnancy or labor.

- If the mother's HIV status is unknown, offer HIV testing and counseling and, if the mother tests positive, give the baby NVP once daily and AZT twice daily; assess the mother, initiate ART and provide appropriate care.

Table 2.6: Dosage of AZT and NVP syrup for infant prophylaxis for different age groups

Infant age	NVP daily dosing (10mg/ml)		AZT daily dose (10mg/ml)	
	Dose in mg	Dose in ml	Dose in mg	Dose in ml
Birth to 6 weeks:				
Birth weight <2000g	2mg/kg, once daily	0.2ml/kg, once daily	4mg/kg per dose, twice daily	0.4 ml/kg per does, twice daily
Birth weight 2000-2499 g	10mg, once daily	1 ml, once daily	10mg, twice daily	1ml, twice daily
Birth weight >2500 g	15mg, once daily	1.5 ml, once daily	15 mg twice daily	1.5ml twice daily
> 6 weeks to 12 weeks				
	20mg, once daily	2 ml, once daily or half a 50 mg tablet, once daily	No dose established for prophylaxis for this age group	

Note:

- AZT and NVP concentration are 50mg/5ml.
- AZT and NVP syrups should be started at birth and provide for all HEI
- AZT and NVP syrups should be started at birth and provided for six weeks
- NVP alone should be continued for additional 6 weeks
- Follow the manufacturer's instruction for the duration of use following opening. The bottle should be labeled with the date on which it was 1stopened.
- NVP and AZT Infant doses: The oral syringe should not be placed directly into the bottle. Infant dose should be measured by pouring a small amount of syrup into a cup, and then draw the actual dose with oral syringe. Discard the leftover suspension in the cup.

8.Co-trimoxazole preventive therapy (CPT) Using pediatric co-trimoxazole in all HIV exposed infants significantly reduces the rate of PCP and other bacterial infections and in turn reduces infant morbidity and mortality rates. Start co-trimoxazole to all HEI from 6 weeks of age and continue until the child is confirmed not to have HIV infection using antibody test after 18 months of age.

Table 2.7: Dose of CTX for prevention of PCP in infants and children

Age	Suspension Per 5ml (200/40mg)	Pediatric tablet (100/20mg)	Single Strength adult tablet (400/80mg)	Double Strength adult tablet (800/160mg)
< 6mo	2.5ml	1 tablet	1/4 tablet	--
6 mo- 5yrs	5 ml	2 tablets	1/2 tablet	--
6-14 yrs	10 ml	4 tablets	1 tablet	1/2tablet
>14 yrs	--	--	2 tablets	1 tablet

9. TB risk assessment

At each visit the infant should be evaluated for Tuberculosis. We need to ask for household exposure with an adult who has tuberculosis and symptoms suggestive of the disease and chest radiography if clinically indicated.

10. Determination and evaluation of infection status

One of the goals of follow-up of HEI is to identify and treat the HIV infected ones early. All HEI should have DNA-PCR testing at 6 weeks of age and repeat DNA-PCR test at 9 months.

11. Current assessment and plan

At each visit based on the findings on history, physical examination (that includes growth and development assessment) and/or laboratory investigations, we need to have the assessment of the infant and we should plan our next steps in their management and follow-up.

Follow-up visits and schedule

Follow-up schedule: At birth, 6 weeks, then monthly for 6 months, then every 3 months until HIV infection is excluded. But also advise the mother to bring the infant at any time, if there are new signs and symptoms. HIV-exposed infants with health problems may need more frequent follow-up visits than other infants.

Table 2.9.3. Follow-up visit schedule for HIV exposed infants.

Age in weeks/months	at birth	6 wk	10 wk	14 wk	5 m	6 m	9 m	12 m	15 m	18 m
History	x	X	x	x	X	x	X	x	X	x
Physical exam	x	X	x	x	X	x	X	x	X	x
Growth Assessment	x	X	x	x	X	x	X	x	X	x
Developmental assessment	x	X	x	x	X	x	X	x	X	x
Infant feeding Counseling	x	X	x	x	X	x	X	x	X	x
Determination of HIV status		*DNA PCR	Do DNA PCR if the test is not done at 6 weeks** *Repeat DNA PCR at 9 months for all HEI DNA PCR negative at 6 weeks of age and Do DNA PCR test at any time if the child is sick (sign and symptoms suggestive of HIV infection) with negative test result at 6 weeks					Perform rapid antibody test at least 6 weeks after cessation of breastfeeding.		
AZT + NVP for the first 6 weeks	X									
NVP alone for additional 6 weeks		X	X							
CPT		X	Continue until HIV is excluded, and infant is no longer at risk from breastfeeding.							
TB Risk Assessment	At each visit									
Immunizations	x	x	x	x			x		x	x
Adherence counseling	x	x	x	x	x	x	x	x	x	x
Vitamin A						x		x		x
Note: This is the minimum; children should be seen more frequently if clinically indicated.										