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<th>Description</th>
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<tbody>
<tr>
<td>3TC</td>
<td>Lamivudine</td>
</tr>
<tr>
<td>AFASS</td>
<td>Acceptable, feasible, affordable, sustainable and safe</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired immune deficiency syndrome</td>
</tr>
<tr>
<td>ANC</td>
<td>Antenatal care</td>
</tr>
<tr>
<td>ARV</td>
<td>Antiretroviral</td>
</tr>
<tr>
<td>AZT</td>
<td>Azidothymidine, also known as zidovudine</td>
</tr>
<tr>
<td>BCG</td>
<td>Bacillus Calmette-Guérin</td>
</tr>
<tr>
<td>BD</td>
<td>Twice daily</td>
</tr>
<tr>
<td>CDC</td>
<td>US Centers for Disease Control and Prevention</td>
</tr>
<tr>
<td>CPT</td>
<td>Cotrimoxazole preventative therapy</td>
</tr>
<tr>
<td>CTC</td>
<td>Care and Treatment Clinic</td>
</tr>
<tr>
<td>d4T</td>
<td>Stavudine</td>
</tr>
<tr>
<td>ddI</td>
<td>Didanosine</td>
</tr>
<tr>
<td>DMO</td>
<td>District Medical Officer</td>
</tr>
<tr>
<td>DRCHco</td>
<td>District Reproductive and Child Health Coordinator</td>
</tr>
<tr>
<td>ELISA</td>
<td>Enzyme-linked immunosorbent assay</td>
</tr>
<tr>
<td>Efavirenz</td>
<td>Efavirenz</td>
</tr>
<tr>
<td>HIV</td>
<td>Human immunodeficiency virus</td>
</tr>
<tr>
<td>HLD</td>
<td>High-level disinfection</td>
</tr>
<tr>
<td>IEC</td>
<td>Information, communication and education</td>
</tr>
<tr>
<td>MSD</td>
<td>Medical Stores Department</td>
</tr>
<tr>
<td>MOHSW</td>
<td>Ministry of Health and Social Welfare</td>
</tr>
<tr>
<td>MTCT</td>
<td>Mother-to-child transmission of HIV</td>
</tr>
<tr>
<td>NACP</td>
<td>National AIDS Control Program</td>
</tr>
<tr>
<td>NGO</td>
<td>Nongovernmental organization</td>
</tr>
<tr>
<td>NNRTI</td>
<td>Non-nucleoside reverse transcriptase inhibitor</td>
</tr>
<tr>
<td>NRTI</td>
<td>Nucleoside reverse transcriptase inhibitor</td>
</tr>
<tr>
<td>NVP</td>
<td>Nevirapine</td>
</tr>
<tr>
<td>OI</td>
<td>Opportunistic infection</td>
</tr>
<tr>
<td>PCP</td>
<td><em>Pneumocystis</em> pneumonia</td>
</tr>
<tr>
<td>PCR</td>
<td>Polymerase chain reaction</td>
</tr>
<tr>
<td>PEP</td>
<td>Post-exposure prophylaxis</td>
</tr>
<tr>
<td>PI</td>
<td>Protease inhibitor</td>
</tr>
<tr>
<td>PLWHA</td>
<td>People living with HIV/AIDS</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td>PMTCT</td>
<td>Prevention of mother-to-child transmission of HIV</td>
</tr>
<tr>
<td>RCH</td>
<td>Reproductive and child health</td>
</tr>
<tr>
<td>sdNVP</td>
<td>Single-dose nevirapine</td>
</tr>
<tr>
<td>STI</td>
<td>Sexually transmitted infection</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children's Fund</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
<tr>
<td>ZDV</td>
<td>Zidovudine, the generic name for azidothymidine (AZT)</td>
</tr>
</tbody>
</table>
Acknowledgments

Tanzania’s National Guidelines on Prevention of Mother-to-Child Transmission of HIV (PMTCT) would not have been developed without the support and contributions of a large number of individuals and organisations. The Ministry of Health and Social Welfare gratefully acknowledges the sincere dedication and hard work of these numerous individuals and organisations in preparing the guidelines.

The Ministry of Health and Social Welfare wishes to express special thanks to the able leadership and guidance of the National AIDS Control Programme, through the PMTCT Technical Working Group, for providing direction to this effort. This document incorporates the most recent national policies, scientific knowledge and international standards relevant to PMTCT. The PMTCT Technical Working Group brought together a multidisciplinary team of experts who ensured the technical and clinical accuracy of these guidelines that will provide direction to the scale-up and continued provision of PMTCT services in Tanzania.

Funding was provided by the US Centers for Disease Control and Prevention (CDC). The Ministry of Health and Social Welfare is grateful to the CDC for its valuable assistance and unwavering support.

The Ministry of Health and Social Welfare and the National AIDS Control Programme would also like to extend particular thanks to the National PMTCT Coordinator, the PMTCT Training Coordinator and the team from the François-Xavier Bagnoud (FXB) Center, University of Medicine & Dentistry of New Jersey for their dedication in facilitating this effort.
Executive Summary

- PMTCT services provided in Tanzania’s PMTCT programme include routine HIV testing and counselling, antiretroviral (ARV) treatment and prophylaxis for mothers and children, safer delivery practices, counselling and support for safer infant feeding practices, long-term follow-up care for mother and child and family planning.

- All women of reproductive age should receive HIV counselling and testing as a routine procedure in reproductive and child health (RCH) services. Pregnant women should receive pretest HIV information at their first antenatal visit—or as soon as possible thereafter.

- Nationally, the diagnosis of HIV infection in adults is established by detecting HIV antibodies using simple rapid tests according to the national HIV rapid testing algorithm.

- Routine, provider-initiated HIV testing is the recommended strategy for HIV testing in Tanzanian RCH services. With this approach, women of unknown status should receive information about HIV as a part of normal care and should be given the opportunity to ask questions about this information. HIV testing should then be performed unless the woman refuses.

- All clients who are tested for HIV should receive post-test counselling regardless of their HIV status. The HIV test result should always be given in person.

- Antenatal care (ANC) for women infected with HIV includes the same basic services provided for all pregnant women. However, obstetric and medical care should be expanded to address the specific needs of women infected with HIV.

- Pregnant women who are HIV infected and eligible for ARV treatment for their own health should be offered combination ARV treatment in accordance with national guidelines.

- ARV treatment is recommended for HIV-infected women in the following situations:
  - World Health Organisation (WHO) Stage IV disease, regardless of CD4 count
  - WHO Stage III disease AND CD4 count less than 350 cells/mm3
  - All clients whose CD4 cell count is less than 200 cells/mm3

- ARV treatment can start at any point during a woman’s pregnancy. Treatment should start as soon as possible, even if she is in the first trimester. The first-line ARV treatment
for pregnant women is zidovudine (AZT) 300 mg twice daily (BD) + lamivudine (3TC) 150 mg BD + nevirapine (NVP) 200 mg.

- Pregnant women who do not need ARV treatment for their own health should be given combination ARV prophylaxis starting in ANC. Combination ARV prophylaxis regimens for the mother and child, which include the ARV medications NVP, AZT and 3TC, should be delivered by PMTCT programmes at sites that also initiate ARV treatment. PMTCT programmes at sites that do not have the capacity to deliver ARV treatment or do not have the ARV medications available should provide the minimum regimen of single-dose NVP (sdNVP) to mother and child.

- The recommended combination ARV prophylaxis regimen for women who present in ANC is AZT 300 mg BD from 28 weeks or anytime thereafter. Single-dose NVP 200 mg, AZT 300 mg and 3TC 150 mg is given at the onset of labour. AZT is continued every 3 hours and 3TC every 12 hours until delivery. During the postpartum period, AZT 300 mg BD and 3TC 150 mg BD is continued for 7 days. All infants receive sdNVP 2 mg/kg as soon as possible after delivery and AZT syrup 4 mg/kg BD for 4 weeks or 1 week (7 days) if a mother received at least 4 weeks of AZT during ANC.

- The minimum ARV prophylaxis regimen for women who present in ANC is sdNVP 200 mg at the onset of labour for the mother and sdNVP 2 mg/kg for the infant as soon as possible after delivery but within 72 hours.

- There are variations of these regimens available for women presenting during labour who test HIV positive and for those who test HIV positive after delivery.

- In addition to providing ARV prophylaxis, healthcare facilities should also practice safer obstetric practices that reduce the risk of MTCT. These include practicing Standard Precautions during all patient care, minimising vaginal examinations, avoiding prolonged labour, avoiding artificial rupture of membranes, avoiding unnecessary trauma during delivery, minimising the risk of postpartum haemorrhage and using safe transfusion practices.

- The infant feeding recommendation for HIV-infected women is exclusive breastfeeding for the first 6 months of life. Exclusive replacement feeding for the first 6 months of life with commercial infant formula or home-modified animal milk is recommended only when it is acceptable, feasible, affordable, sustainable and safe.

- Whenever possible, HIV-exposed infants and children should receive viral testing at 8 weeks postdelivery to determine their HIV status. When viral testing is not available, symptomatic children <18 months of age should receive antibody testing to confirm HIV
exposure. Healthcare workers can make a presumptive diagnosis of HIV infection based on a positive antibody test, the child’s clinical symptoms and, if available, the child’s CD4 percentage.

- For children older than 18 months, an antibody test should be used to confirm HIV infection.
- If the infant or child is breastfeeding, HIV testing should be repeated 6 weeks after the complete cessation of breastfeeding, regardless of the testing methodology that is used.
- Every infant born to an HIV-infected mother should receive cotrimoxazole preventive therapy (CPT) to prevent *Pneumocystis* pneumonia (PCP), beginning at 4 weeks of age or as soon as possible thereafter.
CHAPTER 1
Introduction

1.1 Development and use of the national PMTCT guidelines

The National Guidelines for the Prevention of Mother-to-Child Transmission of HIV summarise national recommendations for the delivery of prevention of mother-to-child transmission (PMTCT) programme services. The guidelines are based on national HIV/AIDS policies and were developed under the direction of the Ministry of Health and Social Welfare (MOHSW) and the National AIDS Control Program (NACP), and guided by the National PMTCT Technical Working Group. They replace the March 2004 national PMTCT guidelines.

The national PMTCT guidelines are intended to promote and support the delivery of quality HIV prevention, care, treatment and support services. They provide an important reference for PMTCT programme staff and healthcare workers. In addition to defining standards for patient care, the guidelines should be referred to when developing institutional policies and procedures, training and quality assurance initiatives for PMTCT programmes. The PMTCT guidelines focus on maternal, child and family health; they are intended to be used together with other relevant guidelines and protocols, including those for clinical management of HIV and AIDS, tuberculosis (TB) and malaria, as well as for HIV counselling and testing and infant feeding.

1.2 The national HIV/AIDS epidemic

HIV/AIDS has affected every level of society in Tanzania. There are currently an estimated 1.8 million people living with HIV nationally, most of them adults in their most productive years. The national HIV prevalence rate among adults 15-49 years of age is 7%. Rates of AIDS-related morbidity and mortality are increasing steadily among adults, particularly women, as is AIDS-related mortality in children less than 5 years of age. HIV has orphaned approximately 1 million children in the country.
There are marked regional and gender disparities in the HIV prevalence in Tanzania. HIV prevalence rates are significantly higher in urban settings than in rural areas (11% vs. 5%) and prevalence rates are higher among women (7.7%) than among men (6.3%). Women are most vulnerable to HIV infection between the ages of 15 and 24.

1.3 Gender and HIV

Both men and women are vulnerable to HIV infection. However, unlike women in other regions of the world, African women are at least 1.3 times more likely than men to be infected with HIV. Biological and cultural factors contribute to the higher rates of HIV infection among women. For example, biologically, HIV is more easily transmitted from men to women than from women to men. Furthermore, sexual debut often occurs earlier for young women than for young men, and women tend to have sexual partners who are older than they are. These men are more likely than younger men to be HIV infected.

Other cultural, traditional and social factors that increase women’s risk of becoming infected with HIV include:
- Early marriages
- Multiple sex partners
- Lack of sex education
- Traditional male attitudes about sex
- Coercion by men who have multiple sex partners
- Failure to seek treatment for sexually transmitted infections (STIs)
- Lack of comfort with and knowledge about the healthcare system
- Peer pressure for young women to engage in unsafe sexual practices
- Inability of women to negotiate safer sex because of economic dependence or powerlessness in their relationships

Youth—both boys and girls—are particularly vulnerable to HIV infection because they lack HIV knowledge and risk-reduction skills, and they have limited access to health services such as HIV counselling and testing and treatment for STIs.
CHAPTER 2
Overview of HIV Prevention in Mothers and Families

2.1 Basic facts about mother-to-child transmission of HIV

Mother-to-child transmission (MTCT) of HIV refers to the transmission of HIV infection from HIV-infected mothers to their infants. MTCT can occur during pregnancy, labour and delivery and breastfeeding. Without intervention, the overall risk of MTCT is approximately 25-45%.

Figure 2.1 Estimated HIV outcomes for infants born to HIV-infected women

There are multiple risk factors that increase the chance that a mother will transmit HIV to her child. The various viral, maternal, obstetric and neonatal risk factors that increase this risk of MTCT are outlined in Table 2.1.
Table 2.1. Viral factors, maternal conditions, and obstetric interventions that may increase the risk of HIV transmission

<table>
<thead>
<tr>
<th>Pregnancy</th>
<th>Labour and delivery</th>
<th>Breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>High maternal viral load and low CD4 count (new infection or advanced AIDS)</td>
<td>High maternal viral load and low CD4 count (new infection or advanced AIDS)</td>
<td>High maternal viral load and low CD4 count (new infection or advanced AIDS)</td>
</tr>
<tr>
<td>Viral, bacterial or parasitic placental infections (eg, malaria)</td>
<td>Rupture of membranes for more than 4 hours before delivery</td>
<td>Duration of breastfeeding</td>
</tr>
<tr>
<td>STIs</td>
<td>Invasive delivery procedures that increase contact with mother's infected blood or body fluids (eg, episiotomy, artificial rupture of membranes, vacuum extraction delivery)</td>
<td>Mixed feeding (ie, breastfeeding combined with other foods or fluids) before 6 months of age</td>
</tr>
<tr>
<td></td>
<td>Complicated deliveries (eg, breech delivery and first infant in multiple births)</td>
<td>Oral disease in the infant (eg, thrush or mouth sores)</td>
</tr>
<tr>
<td></td>
<td>Chorioamnionitis (from untreated STIs or other infections)</td>
<td>Breast abscesses, nipple fissures, and mastitis</td>
</tr>
</tbody>
</table>

1 Studies have found that there is an increased rate of HIV transmission after a mother’s membranes have been ruptured for more than 4 hours before delivery. However, the key point is that the longer the membranes are ruptured, the higher the risk of HIV transmission.

In general, high maternal viral load and low CD4 count, which occur in new infection with HIV and in advanced HIV disease (AIDS), increase the risk of MTCT. Viral subtypes and strains may also affect HIV transmission rates; for example, MTCT rates are higher with HIV-1 infection than with HIV-2 infection.

2.2 Goal of Tanzania’s PMTCT programme

The PMTCT programme targets pregnant women and those of reproductive age and their sexual partners, children, families and communities. The goals of the programme are to reduce MTCT of HIV and to improve care for infected parents and children by introducing and scaling up comprehensive PMTCT services within all RCH facilities. The PMTCT programme aims to prevent HIV infection in children, giving babies the chance to be healthy and HIV free, and to provide women and their families with access to HIV prevention, testing, care, treatment and support.

The NACP and the MOHSW operate the PMTCT programme with guidance from the National PMTCT Technical subcommittee of the National HIV/AIDS Steering Committee.
PMTCT services are being implemented at various sites in the country, including regional and district hospitals, health centres and dispensaries. For more information on the structure and goals of the PMTCT programme, see Chapter 9: *Organisation and Systems for PMTCT Programme Management, Monitoring, Supervision and Logistics*.

### 2.3 Four elements of a comprehensive approach to PMTCT

<table>
<thead>
<tr>
<th>Four elements of a comprehensive approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>A comprehensive approach to PMTCT consists of 4 elements that are discussed in the following chapters of these guidelines:</td>
</tr>
<tr>
<td>▪ Primary prevention of HIV among women of childbearing age and their partners</td>
</tr>
<tr>
<td>▪ Prevention of unintended pregnancies among women infected with HIV</td>
</tr>
<tr>
<td>▪ Prevention of HIV transmission from mothers to their infants</td>
</tr>
<tr>
<td>▪ Provision of treatment, care and support to women infected with HIV and their partners, infants and families</td>
</tr>
</tbody>
</table>

**Primary prevention of HIV among women and their partners**

Because there is no cure for HIV infection, primary prevention of infection is the most effective means to control the spread of HIV and minimise its impact on individuals, families and communities. Preventing HIV infection in women of childbearing age is the best way to prevent MTCT.

**Practice Point**

- Sexually active women and men should be encouraged to use safer sex practices, including barrier methods such as condom use, and to reduce the number of sexual partners, staying faithful to their sexual partner.
- Healthcare workers at RCH facilities should encourage all women of childbearing age and their partners to be tested for HIV in order to learn of their HIV status.

The prevention and treatment of STIs is an important HIV prevention intervention. Co-infection with an STI increases HIV acquisition significantly. All national healthcare services should emphasise the early diagnosis and treatment of STIs in their practice.
Another basic HIV prevention intervention involves taking actions to prevent the spread of HIV in healthcare facilities. All facilities in Tanzania should use Standard Precautions to prevent blood-to-blood transmission of HIV. Specific guidance in methods of reducing HIV transmission in the workplace is given in Chapter 8, *Safe and Supportive Care in the Work Setting*.

Young people should be provided with information about and access to HIV prevention services and should be encouraged to abstain from sexual activity until they can make responsible decisions.

**Prevention of unintended pregnancies among women infected with HIV**

Family planning is part of a comprehensive public health strategy to prevent MTCT. All HIV-infected women and their partners should receive family planning counselling and should be provided with access to effective contraceptive methods in order to avoid *unintended* pregnancies. A woman’s choice of contraceptive methods should be based on her health status, socioeconomic situation and personal preference.

Dual protection is the use of one or more method of contraception that prevents STIs, (including HIV) *and* unintended pregnancy. For example, birth control pills would provide single protection; the use of birth control pills and male condoms would provide dual protection. For more information on contraceptive devices and methods available nationally, see Appendix 2-A, *Contraceptive Methods*.

**Practice Point**

- Dual protection is the recommended form of contraception for HIV-infected women.
- All pregnant women and their partners (HIV infected and uninfected) should be encouraged to use condoms during pregnancy to prevent STIs and HIV infection or re-infection.

**Interventions to prevent HIV transmission from mothers to their infants**

For women who are already infected and pregnant, PMTCT programmes offer a range of services and interventions that reduce the risk of MTCT. These include routine HIV education, counselling and testing for pregnant women and their partners, ARV treatment and prophylaxis, safer delivery practices and counselling on safer infant feeding. These interventions are discussed in detail in subsequent chapters of these guidelines.
Treatment, care and support for HIV-infected women and their families

Providing HIV treatment, care and support is critical for enabling HIV-infected women to address their health needs and ensure the well-being of their children and families. PMTCT programmes should develop coordinated referral systems to ensure that women and their families have access to comprehensive HIV care services.

Access to ARV treatment is expanding nationally. All women diagnosed with HIV infection should be evaluated for eligibility to receive ARV treatment. More information on ARV treatment can be found in Chapter 5, Specific Interventions to Prevent MTCT, and Chapter 7, Comprehensive Care and Support for Mothers and Families with HIV Infection.

Infants born to HIV-infected mothers require close follow-up care for the monitoring of nutritional developmental and growth status, the provision of appropriate immunizations and nutritional supplements and the delivery of HIV care and treatment services. These services are discussed further in Chapter 7, Comprehensive Care and Support for Mothers and Families with HIV Infection.

Table 2.2. Services that contribute to a comprehensive approach to PMTCT

<table>
<thead>
<tr>
<th>PMTCT services</th>
<th>How these services contribute to a comprehensive approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Routine HIV counselling and testing</td>
<td>Identifies women with HIV so that they can receive PMTCT services and HIV care, treatment and support</td>
</tr>
<tr>
<td>▪ Comprehensive ANC care</td>
<td>Diagnoses and treats STIs and anaemia, prevents malaria and TB, educates mother on good nutrition</td>
</tr>
<tr>
<td>▪ ARV treatment and prophylaxis</td>
<td>Reduces maternal viral load, which in turn reduces infant exposure to the virus</td>
</tr>
<tr>
<td>▪ Safer delivery practices</td>
<td>Reduces infant exposure to the virus during labour and delivery</td>
</tr>
<tr>
<td>▪ Counselling for safer infant feeding practices</td>
<td>Reduces infant exposure to the virus through safer feeding options; prevents and treats breast problems during breastfeeding</td>
</tr>
<tr>
<td>▪ Postpartum care for mother</td>
<td>Supports mother’s health and nutrition status.</td>
</tr>
<tr>
<td>▪ Infant follow-up</td>
<td>Monitors and manages signs and symptoms of infection in children exposed to HIV; ensures cotrimoxazole prophylaxis for infants starting at 4 weeks of age</td>
</tr>
<tr>
<td>▪ Partner and family involvement</td>
<td>Identifies the partner who is HIV infected, children and other family members to receive HIV care, treatment and support</td>
</tr>
<tr>
<td>▪ Family planning</td>
<td>Reduces risk of unintended pregnancy by giving proper counselling to both partners on family planning and dual protection</td>
</tr>
</tbody>
</table>
CHAPTER 3
Stigma and Discrimination Associated with HIV/AIDS

3.1 HIV-related stigma and discrimination

Stigma and discrimination play an important role in fueling the HIV epidemic in Tanzania. Reducing HIV-related stigma is essential to effectively fighting Tanzania’s epidemic and caring for persons infected and affected by HIV.

HIV-related stigma has many negative consequences. Stigmatized individuals experience physical and social isolation and are subject to gossip, rumour and name-calling. The stigma associated with HIV can lead those who are infected to develop feelings of guilt, inferiority, self-blame and despair. Those living or working with HIV-infected people, such as healthcare workers, may also be stigmatized by association.

HIV-related stigma can also lead to serious discrimination as when people living with HIV/AIDS (PLWHA) are denied access to resources such as housing and employment. The loss of fundamental human rights, social status and decision-making power in the household and community can be devastating for those affected.

Although stigma is widespread, PLWHA also often find empathy, understanding, and support from family members, friends and their communities.

**Stigma:** Stigmatisation is the act of attributing undesirable qualities to someone who is perceived as being different from the social ideal or norm. HIV-related stigma refers to the unfavourable attitudes and beliefs held about PLWHA and those thought to be infected with HIV.

**Discrimination:** Discrimination is any distinction, exclusion, restriction or preference which has the purpose or effect of limiting the equal recognition, enjoyment or exercise of rights and freedoms by all persons.

**Denial:** Denial describes the refusal of individuals (and communities) to acknowledge that they may be at risk of HIV infection or be already infected or affected. This disownment of responsibility and disassociation from the truth often stems from an unwillingness to face the stigma associated with HIV infection.

**Stigmatisation** reflects an attitude.
**Discrimination** is an act or behaviour.
Stigma, gender and PMTCT programmes

Women are usually the first of the two partners in a couple to be tested for HIV. If they are found to be infected, their partners often blame them unfairly for introducing HIV into the family. As a consequence of HIV-related stigma, women may experience violence, loss of shelter and economic support, and ostracism from their larger family and community. Fear of social stigma; abandonment by family, friends and community; and extreme feelings of isolation and loneliness, as well as the perceived and very real threat of violence, may cause women to keep their HIV status a secret.

This fear of “disclosing” their HIV status (or of learning it) deters women from seeking PMTCT services and results in poor adherence to PMTCT interventions, in particular safer infant-feeding decisions. Being open about one’s HIV status is one of the most powerful ways to reduce HIV-related stigma. Disclosing one’s status also has other benefits. It can encourage partners to be tested for HIV and prevent the spread of HIV by allowing those infected to openly take appropriate prevention steps. Disclosure also allows individuals to receive support from partners, family and friends. Disclosure is stressful for clients and requires counselling support and assistance from healthcare workers.

Healthcare workers and stigma

When healthcare workers deliver PMTCT services, they need to be aware of the scope and intensity of stigma suffered by women and their families. More importantly, they should be acutely aware of their own stigmatising attitudes and behaviours towards PLWHA. Healthcare workers, family members and community members may simultaneously express both sympathetic and stigmatising attitudes towards PLWHA. Often, it is healthcare workers’ concerns about acquiring HIV through occupational exposure, or being stigmatized by their association with HIV-infected clients, that cause the negative attitudes that healthcare workers direct at PLWHA.

3.2 Actions to reduce stigma in PMTCT programmes

The National PMTCT programme recognises the importance of taking action to reduce stigma. Healthcare workers should be encouraged to take the lead in challenging negative attitudes and behavior, both in their work settings and in the community.
Role of PMTCT programme managers in reducing stigma

It is the responsibility of PMTCT programme managers to ensure that policies and procedures are in place to protect individuals from discrimination and stigmatisation in healthcare facilities. Managers can reduce stigma and discrimination by developing and maintaining policies to safeguard patient confidentiality and to guarantee them equal treatment regardless of HIV status. Policies against discriminatory recruitment and employment should also be developed, and facilities should have procedures in place for reporting discrimination and disciplining healthcare workers who breach these policies.

By ensuring that all healthcare workers follow Standard Precautions, programme managers can help to reduce the stigma associated with fear of infection. For more information on implementing Standard Precautions, see Chapter 8, Safe and Supportive Care in the Work Setting.

The healthcare facility’s antidiscrimination policies should be promoted to healthcare workers and clients. Clients should be notified that they may file a complaint if they feel they have been the target of discrimination.

In addition to establishing policies and procedures, it is also important to provide training for healthcare workers about HIV transmission risks and to offer ongoing activities that combat stigma. Training should address employee attitudes towards PLWHA, correct misinformation and assess skills of healthcare workers to create a nonstigmatising environment.

Strategies for reducing HIV-related stigma in PMTCT programmes

- Integrate PMTCT interventions into existing traditionally acceptable RCH services.
- Develop ways to encourage the participation of male partners in PMTCT services.
- Offer HIV education to all women and their partners in RCH services.
- Apply Standard Precautions to all clients regardless of assumed or established HIV status.
- Get to know the local community in order to identify and address local HIV-related stereotypes and rumours.
- Reach out to community service organisations that work with HIV-infected clients.
- Advocate for and inform women of their legal right to challenge discrimination and stigmatisation.
- Invite PLWHA to participate in PMTCT initiatives and awareness campaigns.
CHAPTER 4
Counselling and Testing

4.1 Introduction

HIV counselling and testing is a vital part of HIV/AIDS care and a fundamental part of good clinical management. *HIV counselling and testing should be accessible to all women of childbearing age.*

**Benefits and risks of HIV testing for women**

The primary advantage of HIV counselling and testing is that it helps people to learn of their HIV status and to make appropriate decisions based on this knowledge.

For women who test HIV negative, HIV counselling and testing provides an opportunity to receive information and support to remain uninfected.

For women who test HIV positive, counselling and testing may help them to:

- Receive appropriate and timely interventions to reduce MTCT if they are pregnant
- Receive information and counselling about the prevention of HIV transmission to others
- Obtain referrals for follow-up and ongoing health care including ARV treatment, care and support for themselves and their families
- Make informed decisions about future behaviour

The main risk or drawback of HIV testing is the mental distress caused by fear of confidentiality breeches, stigma, domestic violence and knowing one’s status.

**When does counselling and testing occur?**

HIV counselling and testing in PMTCT may occur during all stages of ANC, labour, delivery and postpartum care. Counselling and testing should involve not only pregnant women but also their partners and families.
Ongoing counselling is critical for ensuring the long-term treatment, care and support for HIV-infected mothers, their families and their newborn children.

### 4.2 Guiding principles of counselling and testing

#### Confidentiality

HIV test results and information that is shared between healthcare workers and clients during healthcare sessions must be kept private. This confidentiality is essential in establishing and maintaining client trust. All healthcare workers and healthcare facility staff are responsible for maintaining confidentiality and all should receive training about procedures to carry out this responsibility.

**Practice Point**

- The healthcare workers should inform clients that personal and medical information, including HIV test results, is private and will not be shared without permission. Clients should also know that, although medical information and HIV test results may be provided to other healthcare workers for the purpose of ensuring that the client receives the appropriate medical care, only those healthcare workers who are directly involved in the client's care will have access to the client's records, and only on a “need-to-know” basis.

- All medical records and registers should be kept confidential and stored in a safe, secure place, whether or not they include HIV-related information.

- In registers used to record client services, registration numbers should be used to identify clients instead of names.

- Whenever possible, the same healthcare worker should provide pre-test information and post-test counselling.

#### Informed consent

Informed consent is the process during which clients receive clear and accurate information about HIV testing, including its risks and benefits, to ensure they understand that they have the right and the opportunity to refuse testing.
Practice Point

*Written informed consent for HIV testing is not required.* However, it is the responsibility of healthcare workers to make certain that the elements of informed consent are included in their HIV counselling and testing services. Clients should never be pressured or coerced into being tested.

Healthcare workers should:

- Ensure that clients understand the purpose and benefits of testing, counselling and PMTCT services
- Ensure that clients understand the counselling and testing process
- Respect the client’s decision about being tested for HIV

Post-test counselling

A guiding principle of HIV counselling and testing is that *all* clients should receive post-test counselling regardless of their HIV status. The HIV test result always should be given in person, not over the phone. During the post-test counselling session, the PMTCT counsellor should inform clients about follow-up treatment, care and support services that are recommended and available and should offer support to help clients disclose their status when such support is needed. Further recommendations on post-test counselling are given later in this chapter and in Appendix 4-B, *Post-test Counselling Checklist*.

4.3 HIV counselling and testing strategy

Provider-initiated HIV testing

The provider-initiated approach (also known as “routine” or opt-out testing) is the recommended national strategy for HIV counselling and testing in RCH settings. With this approach, HIV testing is offered as a routine part of standard care, and all women receive HIV counselling and testing unless they specifically refuse to be tested or, in other words, opt out.

Provider-initiated testing helps make HIV testing a more “normal”, routine part of ANC. This approach has been proven to significantly increase the number of women who test for HIV and who receive PMTCT services. Although this approach varies from past voluntary
counselling and testing models in which clients had to explicitly request testing, it still adheres to the guiding principles of HIV testing (confidentiality, informed consent, post-test counselling).

**Table 4.1. Differences between provider and client-initiated HIV counselling and testing services**

<table>
<thead>
<tr>
<th>Provider Initiated/Routine</th>
<th>Client Initiated/VCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Individual is seeking medical care.</td>
<td>- Individual chooses to seek HIV counselling and testing.</td>
</tr>
<tr>
<td>- Client receives information about HIV testing in PMTCT (either in a group or on an individual basis).</td>
<td>- Client receives information about HIV testing in PMTCT (either in a group or on an individual basis).</td>
</tr>
<tr>
<td>- Client is given the opportunity to ask questions and the healthcare worker ensures that the client understands HIV testing in the context of PMTCT.</td>
<td>- Client is given the opportunity to ask questions and the healthcare worker ensures that the client understands HIV testing in the context of PMTCT.</td>
</tr>
<tr>
<td>- <strong>Unless client refuses, HIV test is performed.</strong></td>
<td>- Client specifically requests the HIV test and gives verbal or written consent.</td>
</tr>
</tbody>
</table>


**Practice Point**

- All women of reproductive age should receive HIV counselling and testing as a routine procedure in RCH services.
- Under the recommended routine, provider-initiated approach, women of unknown status should receive information about HIV as a part of normal care and should be given the opportunity to ask questions about this information. HIV testing should then be performed unless the woman refuses.
- Procedures that make women wait in special queues in order to receive testing (ie, procedures that force women to actively opt into testing) should be avoided.

### 4.4 Pre-test HIV information

The purposes of pre-test information are to increase women's knowledge and awareness of HIV and to support informed decision-making about HIV testing and PMTCT services. Pre-test information can be given during ANC, labour and delivery, postpartum visits or when a
mother accompanies her child to an Under-Five clinic, depending upon when a woman presents to RCH services. It is recommended that HIV pre-test information be given in a group information session. Individual pre-test HIV counselling is not required.

**Group pre-test information sessions in ANC**

All pregnant women should participate in a group information session about HIV *at their first ANC visit*—or as soon as possible thereafter. If a group cannot be convened, this information and discussion should be provided on an individual basis. During these sessions, healthcare workers should share information with clients, yet be careful to refrain from dominating the session and to ensure that all participants have the opportunity to speak and ask questions. Healthcare workers conducting these sessions should have the basic counselling skills necessary to encourage clients to be open and participatory and should be able to cope effectively with any emotional distress that occurs in the group.

<table>
<thead>
<tr>
<th>Suggested steps in providing HIV pre-test information in the ANC setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Assess the clients’ knowledge of HIV/AIDS and MTCT.</td>
</tr>
<tr>
<td>▪ Share information on benefits for counselling and testing in PMTCT.</td>
</tr>
<tr>
<td>▪ Provide information about HIV infection in pregnancy and the risk of MTCT.</td>
</tr>
<tr>
<td>▪ Discuss the meaning of HIV testing and the possible implications of negative and positive results.</td>
</tr>
<tr>
<td>▪ Discuss the window period and the possibility of repeat HIV testing later in pregnancy</td>
</tr>
<tr>
<td>▪ Talk about the benefits and possible disadvantages of sharing the HIV test results with sexual partners.</td>
</tr>
<tr>
<td>▪ Discuss the persons with whom clients should share HIV test results (eg, mother, sister, in-laws).</td>
</tr>
<tr>
<td>▪ Discuss the interventions available to prevent MTCT and care for the mother and child if the test results are positive.</td>
</tr>
<tr>
<td>▪ Provide information about how to prevent HIV infection, including safer sex practices.</td>
</tr>
<tr>
<td>▪ Explain when the test results will be available.</td>
</tr>
<tr>
<td>▪ At the end of the session, allow enough time for questions and clarifications.</td>
</tr>
<tr>
<td>▪ Encourage and support clients to ask questions.</td>
</tr>
</tbody>
</table>

Information presented in group sessions should be repeated as necessary and reinforced at subsequent follow-up visits. Attendance in group information sessions and post-test counselling should be carefully documented on the appropriate forms.
When clients refuse HIV testing

Clients who refuse HIV testing should be reassured that this refusal will not affect their access to ANC, delivery, postnatal or related services. If possible, the healthcare worker should explore the reasons for refusal and address the client’s specific questions and concerns. Clients should be informed that, if they change their mind, HIV testing can always be provided during a later visit. The client’s refusal should be documented as a reminder to offer HIV counselling and testing at future visits. Healthcare workers should not pressure clients to be tested.

4.5 Post-test counselling and support

Individual post-test counselling should be provided to all women, both those who test HIV positive and those who test HIV negative, as soon as their test results are available. HIV test results should always be given in person and counselling should take place in a private setting, separate from other clients and healthcare workers. Key post–test-counselling messages according to a client’s HIV test result are summarized in Appendix 4-B, Post-test Counselling Checklist.

Post-test activities for all clients

<table>
<thead>
<tr>
<th>The following post-test counselling activities should be performed for all clients:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ask the client if she has any questions and address them if you can.</td>
</tr>
<tr>
<td>2. Provide the HIV test result and assess the client’s understanding of the meaning of the result.</td>
</tr>
<tr>
<td>3. Discuss partner HIV testing and the issue of discordance—the fact that her partner’s HIV status may be different from her own.</td>
</tr>
<tr>
<td>4. Explore and encourage disclosure and partner testing, if such disclosure is safe and appropriate.</td>
</tr>
<tr>
<td>6. Provide the appropriate PMTCT essential messages according to the client’s HIV status.</td>
</tr>
<tr>
<td>7. Offer appropriate information and referral according to women’s HIV status.</td>
</tr>
<tr>
<td>8. Encourage and support follow-up ANC visits. These visits provide the opportunity to reinforce key PMTCT messages, provide follow-up counselling and make referrals for HIV treatment, care and support as necessary.</td>
</tr>
</tbody>
</table>
When the client is HIV negative
Post-test counselling provides an opportunity for a client who is uninfected to learn how to remain uninfected. The post-test counselling session also offers an opportunity to encourage exclusive breastfeeding. Women should be informed that, if they become infected during pregnancy or during the time they are breastfeeding, they face an increased risk of MTCT. Healthcare workers should also discuss family planning and safer sex, the issue of discordance and the desirability of partner testing. Women should be counselled about the need for repeat HIV testing 3 months after the initial test, in case the test was performed during the window period or in the event additional risk of exposure has occurred.

When the client is HIV-infected
Post-test counselling for women testing HIV positive should include counselling and support to help them accept their test result and cope with feelings of shock and loss on learning they are HIV infected. Pregnant women who test HIV positive and women who already know that they are HIV infected should receive education about PMTCT. During counselling sessions, healthcare workers should:

- Discuss and support ARV prophylaxis or ARV treatment.
- Provide infant-feeding counselling and support infant feeding decisions.
- Provide information about the importance of delivering in a PMTCT setting where ARV prophylaxis, Standard Precautions and safer obstetric practices are implemented.

HIV-infected women will also require information and counselling on the prevention of HIV transmission to others, including safer sex practices and family planning. They should be supported to disclose their test results safely and appropriately to partners, family members and others. All women testing HIV positive should be given referrals for ongoing follow-up HIV care and treatment for themselves, their partners, their HIV-exposed infants and other family members. This includes referrals for assessment of eligibility for ARV treatment.
4.6 Counselling couples

The participation of male partners in PMTCT programmes has been shown to be an important factor in the success and acceptance of a PMTCT programme within a community. Men have much to offer as fathers, husbands, brothers and sons in assuming a greater role in PMTCT and care and treatment programmes. The support of male partners can encourage women to adhere to PMTCT interventions and infant feeding choices. PMTCT healthcare workers should support the involvement of men in PMTCT services by providing and encouraging couples counselling that includes the key PMTCT counselling messages.

Considerations in counselling couples

In counselling couples, it is important to establish a relationship with each partner. Counsellors should pay equal attention to the questions and concerns of each individual in the couple and be careful not to allow one person to dominate the conversation.

Before starting the session, healthcare workers should assure the couple of confidentiality, confirm the partners’ willingness and mutual consent to be tested, and make sure they are aware that they are expected to disclose their test results to each other.

Counselling sessions should begin with an assessment of each person's understanding of HIV/AIDS. If possible, it is preferable to perform risk assessments for each individual separately during pre-test counselling. This will permit each person to assess his or her own behaviour alone with the healthcare worker.

During counselling the healthcare workers:

- Ask whether the couple would prefer to receive the results separately or together. Most experts recommend receiving results together as a precondition for couple counselling.
- Mention the possibility of discordant results (when one partner is infected but the other is not), and prepare them for this possibility.
- Provide information on available PMTCT interventions (eg, ARV prophylaxis).
- Confirm the benefits of knowing one’s HIV status and discuss concerns about the possible risk of such knowledge.
- Ask who else may be affected by the test results.
- Be prepared to refer the couple for further counselling, if indicated.
- Be prepared to refer the couple for HIV care and treatment, when appropriate.
If the couple chooses to have the test results given separately, the healthcare worker should be prepared to facilitate a discussion between the couple in disclosing the results. After disclosure, the healthcare worker should continue delivering post-test information (as outlined in Appendix 4-B, *Post-test Counselling Checklists*).

### 4.7 Referrals

Referrals for community services and support are an important part of HIV post-test counselling for HIV-infected women. Healthcare workers should actively work to ensure that PMTCT services become part of the existing network of services relevant to HIV/AIDS in order to build and maintain strong referral systems.

PMTCT healthcare workers should be familiar with additional follow-up services available in their communities. They should work with the counselling coordinator to develop and regularly update a directory of relevant HIV services available in their area. During counselling, healthcare workers should confirm that clients agree to referral and understand the necessity of the suggested service. Clients should be given the location, time, contact name and agency to which they are being referred.

### 4.8 Counselling pregnant women with special needs

Some women are more vulnerable to becoming HIV infected. Adolescents, house servants, substance users and sex workers are at greater risk of becoming HIV infected than women in the general population. In addition to providing standard pre-test counselling information, individual post-test counselling should address the special needs of youth and women who are especially vulnerable to HIV infection. In counselling these women, the healthcare worker should:

- Provide counselling about risk assessment and risk-reduction strategies appropriate to each youth’s or woman’s situation.
- Counsel about behaviours that increase risk of HIV acquisition such as injecting drug use.
- Explore support systems and provide appropriate referrals.
- Refer adolescents to youth support groups or NGOs.
Women who are substance users should be referred to drug rehabilitation programmes and appropriate NGOs. Women who are sex workers should be referred to NGOs for alternative income-generating activities.

### 4.9 Counselling and testing for women of unknown HIV status at the time of labour and delivery

Although it may be difficult to offer counselling or obtain informed consent during labour, the provider-initiated approach to testing should be used offer HIV counselling and testing to women of unknown HIV status in the labour ward when it is feasible to do so. Healthcare workers should use clinical judgment regarding when to provide HIV counselling and testing to women in labour. Detailed post-test counselling should be provided to women after delivery.

**Practice Point**

- When a woman presents in early labour, provide information about HIV testing and perform the test unless she refuses. When appropriate, offer ARV prophylaxis to mother and infant to prevent MTCT.

- When a woman presents in late labour (active phase), defer counselling and testing until after delivery. After delivery, provide information about PMTCT, offer counselling and perform the test unless the woman refuses. If the result is HIV positive, offer ARV prophylaxis for the infant.

- Women who receive HIV counselling and testing during labour should receive post-test counselling during the postpartum period before discharge.

- Neither women nor their infants should be provided with ARV prophylaxis if the mother has not been tested for HIV and been found to be infected.
4.10 HIV testing background

There are two types of tests used for diagnosing HIV infection:

- Antibody-detecting tests
- Antigen and viral tests

Antibody-detecting tests

HIV antibody tests detect HIV antibodies as an indirect measure of the presence of the HIV infection. Typically, a person makes antibodies between 3 weeks to 6 weeks after infection, but occasionally the process takes as long as 3 months. The time between exposure to the virus and the time when antibodies are detectable is referred to as the “window period.”

Rapid HIV antibody tests

Rapid HIV tests are antibody tests that use a specimen of whole blood or serum, usually collected from a fingerprick or venipuncture. Rapid HIV tests give accurate results in less than 30 minutes, are highly accurate when performed properly and do not require special equipment or highly trained staff.

Nationally, it is recommended that the diagnosis of HIV infection in adults be established by detecting HIV antibodies using simple rapid tests according to the national HIV rapid testing algorithm (see Figure 4.1). All healthcare workers who will be performing rapid tests need to be trained in the specific protocols for the rapid HIV tests.

ELISA (enzyme-linked immunosorbent assay) tests

ELISA tests are antibody tests that are used nationally in laboratories for confirmation of discordant HIV test results when results from rapid tests are inconclusive. ELISA tests are highly sensitive, very specific and reliable.

Performing ELISA tests requires electricity and highly skilled laboratory personnel. It can take several days to obtain results. For these reasons, rapid tests are more economical and practical to use in RCH settings.
Antigen and viral tests
Virologic and antigen tests detect the presence of HIV in the blood instead of detecting the presence of HIV antibodies. Examples of viral tests include HIV DNA and RNA polymerase chain reaction (PCR). Some RCH facilities have access to viral testing methods, and they should be used when available and appropriate. Viral tests are recommended for diagnosing infants under the age of 18 months when they are available. See Chapter 7, Comprehensive Care and Support for Mothers and Families with HIV Infection, for more information on infant diagnosis.

Practice Point
Rapid HIV tests are recommended for diagnosis of HIV in adults and pregnant women because of their accuracy, speed, cost-effectiveness and acceptability.

4.11 National recommendations for HIV testing in PMTCT programmes

Serial testing
In serial testing, if the initial rapid HIV test yields a negative result, then the client is counselled as uninfected. However an initial positive (or “reactive”) rapid HIV test result has to be confirmed by a different rapid HIV test on the same blood sample. If the results of those two tests differ, a third round of testing is conducted using a different rapid test as a tiebreaker.

Practice Point
Nationally, a serial testing strategy is recommended in PMTCT settings because it is less costly and time consuming than other strategies. In serial testing, only one test is performed initially, and a second test is performed only if the first result is positive.
**HIV testing procedures**

HIV tests should be performed by *trained* healthcare workers or laboratory technicians who should know how to interpret results and understand the testing procedure, including how to correctly dispose of all testing materials.

In performing HIV testing, healthcare workers should follow infection control procedures and Standard Precautions. Proper specimen collection procedures, including quality phlebotomy techniques, should be used and all samples should be labelled *carefully and accurately*. Tests should be conducted according to test kit instructions and special care should be taken to avoid the contamination of testing reagents. All HIV tests results should be recorded on the Mother’s Health Card and on the appropriate PMTCT programme registers.

**Algorithm for serial HIV testing**

The algorithm for serial HIV testing that should be used nationally is shown in Figure 4.1 and is described below.

1. A sample (serum, plasma or whole blood) is tested with the first rapid test (Bioline™) per the national testing algorithm.

2. If this first test is nonreactive (negative), the client is considered HIV antibody negative.
   a) For most clients, a nonreactive rapid HIV test means they are not HIV infected.
   b) In the first 3 months (window period) after a client becomes HIV infected, the rapid HIV test results may be nonreactive (negative) even though the client is HIV infected.

3. If this first test is reactive (positive), the same sample is tested again with a second, different rapid HIV test (Determine®).
   a) If the second test is also reactive, the client is considered HIV antibody positive.
      Reactive (positive) results on two different types of rapid HIV tests mean the client is HIV infected.

4. If the first test is reactive (positive) but the sample is nonreactive (negative) on the second test (an indeterminate result), the sample should be retested using a third, different rapid HIV test (Uni-gold™).
   a) If the third test is reactive (positive), the client is considered HIV antibody positive.
      Reactive (positive) results on two different types of rapid HIV tests mean the client is HIV infected.
b) If the third test is nonreactive (negative), the client is considered HIV antibody negative.

5. Clients who test HIV negative on their first test, but may be in the window period (the 3-month period after becoming HIV infected—see 2b above), should be told to come back for repeat testing. These clients should be retested 3 months after the possible exposure to HIV.
   a) If the second test is negative, the client is considered HIV antibody negative—not HIV infected.
   b) If the second test is positive, follow the steps described above for serial testing (see 3 and 4 above).

**Figure 4.1 HIV Diagnosis Serial Testing Algorithm for Women in ANC**
4.12 Laboratory diagnosis of HIV infection in children

Children born to HIV-infected women may test HIV positive up to 18 months of age because of the persistence of maternal antibodies transferred across the placenta. Maternal antibodies are usually cleared between 9-15 months of age, with almost all uninfected children testing HIV negative by 18 months. Viral tests should therefore be used to diagnose HIV-exposed infants/children before 18 months of age when such testing is available. Viral testing is highly recommended for testing symptomatic infants. For more information on HIV testing of infants and young children, see Chapter 7, *Comprehensive Care and Support for Mothers and Families with HIV Infection*.

4.13 Quality assurance and control

Assuring quality in HIV testing
In order for PMTCT counsellors to carry out HIV testing correctly and professionally, a sound quality assurance program should be in place. Quality checks should be part of any test procedure to ensure that counsellors’ results are always reliable and dependable. As a rule, a counsellor should not issue results if quality control measures have not been taken.

Quality assurance
Quality assurance consists of the planned and systematic activities put in place to provide adequate confidence that requirements for quality are met. Establishing standard procedures for specimen collection, defining criteria for acceptable specimens or specimen rejection, and client exit interviews, are a few examples of quality assurance activities.

Quality control
Quality control refers to the operational techniques and activities used to fulfill requirements for quality (eg, incorporating known quality control specimens in the run to validate test results). Quality control, therefore, is part of quality assurance.

Tips for maintaining quality in HIV testing
- Perform testing according to the manufacturer’s instructions as detailed in the text protocol included in the kit.
- Do not use test kit content beyond expiry date.
- Record test results immediately after testing.
Quality assurance measures at testing sites

- Testing should be conducted according to the manufacturer's instructions as detailed in the protocol text included in the test kit.
- Test kit content should not be used beyond expiry date.
- Test results should be recorded immediately after testing.
- Laboratory technicians at healthcare facilities offering PMTCT services have supervisory roles in all matters relating to HIV testing at ANC clinics. They should monitor the performance of HIV testing at the facility and conduct quality assurance exercises locally per National HIV Quality Assurance Guidelines (e.g., retesting every tenth specimen and all indeterminate specimens in the laboratory and conducting proficiency testing). Results of all of these tests should be documented.
- A checklist for supportive supervision should be developed and used to supervise testing.
- If poor performance is reported, the persons in charge of the laboratory should recommend remedial measures including retraining or change of staff.

General procedure for HIV testing

HIV tests should be performed by trained healthcare workers or laboratory technicians who should:

- Follow infection prevention procedures and Standard Precautions
- Practise proper specimen collection using quality phlebotomy technique for blood draws
- Label specimens carefully and accurately
- Conduct tests according to manufacturer’s instructions
- Avoid contamination of test reagents
- Practice proper record-keeping; recording all HIV tests results on the Mother’s Health Card and on the appropriate PMTCT program registers using agreed abbreviations (PMTCT 1 for reactive tests and PMTCT 2 for nonreactive tests)
CHAPTER 5: Specific Interventions to Prevent MTCT

5.1 PMTCT services during ANC

ANC improves the general health and well-being of mothers and their infants. The ANC setting is an important source of healthcare for women of childbearing age. Given the rapid spread of HIV infection worldwide and in Tanzania, all pregnant women should be considered at risk of acquiring HIV infection. By integrating PMTCT services into essential ANC services, national healthcare programmes improve care and pregnancy outcomes for all their clients.

ANC for women infected with HIV includes the same basic services provided for all pregnant women. However, obstetric and medical care should be expanded to address the specific needs of women infected with HIV (see Table 5.1).

Practice Point

There is no need to increase the number of antenatal visits for HIV-infected women unless there are complications of HIV infection. However, additional counselling time, evaluation and referrals will be required for HIV-infected women.
5.2 Essential ANC for women with HIV infection

HIV-infected women should receive comprehensive ANC services, which are summarised in Table 5.1.

**Table 5.1. Essential package of integrated ANC services for HIV-infected women**

<table>
<thead>
<tr>
<th>Service Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient history:</strong> Collected routine information, including medical and obstetric history. Take the patient’s medication history. Find out about allergies and use of traditional medicines such as herbal products.</td>
</tr>
<tr>
<td><strong>Physical examination and vital signs:</strong> Include visual and hands-on examination to assess for current signs or symptoms of illness including AIDS, TB, malaria and STIs. Stage patient according to WHO Clinical Staging system.</td>
</tr>
<tr>
<td><strong>Abdominal examination:</strong> Conduct abdominal examination; include sterile speculum examination when indicated.</td>
</tr>
<tr>
<td><strong>Lab diagnostics:</strong> In accordance with national guidelines, perform or refer for routine tests including anaemia, syphilis, confirmatory HIV testing if indicated, urine analysis and full blood picture (FBP). For HIV-infected clients, conduct CD4 count, liver and renal function tests before referral to a care and treatment clinic (CTC).</td>
</tr>
<tr>
<td><strong>Tetanus toxoid immunisations:</strong> Administer when appropriate.</td>
</tr>
<tr>
<td><strong>Nutritional assessment, counselling and support:</strong> Monitor for anaemia and caloric and nutrient intake. Check to confirm that the pregnant woman is getting enough nutritious food and recommend realistic diet changes when needed, based on local resources. Give routine iron, folate and multivitamin supplements according to national guidelines.</td>
</tr>
<tr>
<td><strong>STI treatment:</strong> Assess risk for STIs. Diagnose and treat STIs early, according to national guidelines. Counsel and educate about signs and symptoms of STIs, and increased risk of HIV transmission. Educate to avoid transmission or re-infection. Recommend condom use during pregnancy.</td>
</tr>
<tr>
<td><strong>HIV-related infections:</strong> Assess for signs and symptoms of common infections in pregnancy: urinary tract, respiratory infections and vaginal candidiasis. Treat promptly according to national guidelines.</td>
</tr>
<tr>
<td><strong>Opportunistic infection (OI) prophylaxis:</strong> Provide prophylaxis for PCP and other OIs according to national guidelines.</td>
</tr>
<tr>
<td><strong>Antimalarials:</strong> Malaria is a major cause of high maternal and infant morbidity and mortality. Administer sulfadoxine pyrimethamine as prophylaxis at 20-24 weeks and again at 28-32 weeks (always 1 month apart).</td>
</tr>
<tr>
<td><strong>Screening, prevention and treatment of TB:</strong> Screen all women presenting to ANC who have had a cough for more than 2-3 weeks. Treatment should follow national guidelines.</td>
</tr>
<tr>
<td><strong>ARV prophylaxis:</strong> Provide ARV prophylaxis according to these national PMTCT guidelines.</td>
</tr>
<tr>
<td><strong>ARV treatment during pregnancy:</strong> Determine eligibility for treatment through clinical staging or CD4 count where available. If ARV treatment is not available through the PMTCT programme, refer patient to a CTC.</td>
</tr>
<tr>
<td><strong>Counselling on infant feeding:</strong> All women require infant feeding counselling and support. When women do not know their HIV status, exclusive breastfeeding should be promoted and supported. Women infected with HIV should exclusively breastfeeding for 6 months or longer, unless they meet specific criteria for...</td>
</tr>
</tbody>
</table>
Table 5.1. Essential package of integrated ANC services for HIV-infected women

<table>
<thead>
<tr>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>replacement feeding (see Chapter 6, <em>Infant Feeding in the Context of HIV Infection</em>).</td>
</tr>
</tbody>
</table>

**Counselling on birth preparedness:** Teach about the importance of delivering in a safe environment with healthcare workers who are knowledgeable and skilled in safer delivery practices, Standard Precautions, and the administration of ARV treatment and prophylaxis for mother and child.

**Counselling on pregnancy danger signs:** Provide women with information and instructions on seeking early care for pregnancy complications such as bleeding, fever and symptoms of pre-eclampsia: swelling, sudden weight gain, headaches and changes in vision.

**Counselling on HIV/AIDS danger signs:** Provide women with information and instructions on seeking health care for symptoms of HIV disease progression, such as frequent and recurrent illnesses, chronic persistent diarrhoea, candidiasis, fever, severe weight loss or signs of any OI. Refer to a CTC when appropriate.

**Partners and family:** Providing psychological and social support is critical to a healthy pregnancy and a healthy family. Refer women, partners and families to community-based support clubs or organisations where possible. Encourage partners to undergo testing and counsel them on disclosure. Assess need to test siblings.

**Effective family planning and safer sex:** Counsel about consistent use of condoms during pregnancy and throughout postpartum and breastfeeding periods to avoid new HIV infection, re-infection and further transmission. Include long-term family planning with partner involvement when possible. Discuss dual protection methods.

**HIV testing**

Determining a woman’s HIV status is the first step in providing appropriate ANC services. Women should receive HIV counselling and testing at the first antenatal visit. Partner HIV counselling and testing should also be encouraged, supported and recorded in the Provider-initiated Testing and Counselling Register.

In some situations, because of a lack of accessible testing services or because a woman refuses to be tested, her HIV status may remain unknown. Women with unknown HIV status should be considered at risk of MTCT. They should be made aware that testing is available at later ANC visits and reminded of the benefits of knowing their HIV status. *They should not be given ARV prophylaxis until they have been tested and confirmed positive.*
Screening for ARV treatment eligibility

If a woman tests positive for HIV, she should be evaluated for eligibility to start ARV treatment during her pregnancy. This evaluation consists of clinical staging according to the WHO Clinical Staging system and conducting the following tests:

- CD4 count
- Full blood picture
- Renal and liver function tests

Evaluation for ARV treatment eligibility should be conducted at ANC facilities that have the laboratory capacity or at CTCs if there is no capacity within ANC. See Section 5.3 of this chapter for ARV eligibility criteria.

Nutritional assessment, counselling and support

All women need advice on a healthy diet, but HIV-infected pregnant women require special assessment for nutritional problems and should receive nutritional counselling throughout the antenatal period.

- Nutritional status and weight should be monitored and recorded at each ANC visit.
- Education and nutritional counselling should be an integral part of each visit.
- Healthcare workers should discuss specific dietary choices that make up a healthy diet for mother and her infant.
- The nutritional supplements, iron, folate and multivitamins should also be given according to national guidelines.

ANC counselling tips:

- Use effective communication and counselling techniques to develop a trusting relationship.
- Assess women’s understanding of the information they receive about HIV.
- Help women to verbalise their questions and concerns.
- Reinforce information from previous education and counselling sessions.
- Provide tailored support for attending all ANC, postpartum and follow-up care and treatment appointments.

Psychosocial and community support

The healthcare worker should assess a pregnant woman’s family and social support networks and refer those in need to AIDS support organisations, faith-based organisations and clubs.
Additional education, counselling and support needs for the HIV-infected pregnant women

HIV-infected pregnant women have additional education, counselling and support needs that should be assessed and met during ANC care. An HIV-infected pregnant woman’s need for counselling and support is ongoing, and will continue into the postpartum period and beyond. HIV-infected pregnant women require specific counselling and education on the following topics:

- Safer infant feeding options and support for infant feeding decisions
- The benefits of disclosure to partners, family and friends
- Education on potential side effects of ARV treatment and prophylaxis and their management
- Safer sex during pregnancy, including the use of condoms
- The availability of HIV testing, treatment and care services for the infant
- Importance of keeping all ANC, postpartum and ongoing comprehensive care appointments for both mother and child

Healthcare workers caring for HIV-infected women should pay special attention to signs and symptoms of common OIs, such as PCP and TB, and follow national guidelines for screening, prevention and treatment. Opportunistic infections in pregnant women usually indicate HIV disease progression and require referral to a CTC.

5.3 ARV treatment for PMTCT

ARV medications decrease HIV viral load in the mother, which reduces an infant’s exposure to HIV. ARV medications also provide prophylaxis or protection for the infant during and after exposure to HIV. ARV medications are effective for both treating HIV infection in the pregnant woman and reducing MTCT. They do not cure HIV or eliminate the virus from the body.

**ARV treatment:** Long-term use of ARV medications to treat maternal HIV infection in order to improve health and slow progression of the disease. ARV treatment also reduces HIV transmission from mother to infant.

**ARV prophylaxis:** Short-term use of ARV medications to reduce HIV transmission from mother to infant.
**ARV treatment during pregnancy**

Pregnant women who are HIV infected and eligible for ARV treatment for their own health should be offered combination ARV treatment in accordance with national guidelines.

Women who are diagnosed with HIV during pregnancy and are eligible for ARV treatment should start treatment as soon as possible. A woman’s eligibility for ARV treatment can be determined by clinical staging or laboratory measures. If a woman is on ARV treatment during her pregnancy, the regular dosing schedule should continue throughout labour and delivery, as well as the postpartum period.

**Eligibility criteria for ARV treatment**

<table>
<thead>
<tr>
<th>Practice Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARV treatment is recommended for HIV-infected women in the following situations:</td>
</tr>
<tr>
<td>- WHO Stage IV disease, regardless of CD4 count</td>
</tr>
<tr>
<td>- WHO Stage III disease AND CD4 count less than 350 cells/mm³</td>
</tr>
<tr>
<td>- All clients whose CD4 cell count is less than 200 cells/mm³</td>
</tr>
</tbody>
</table>

*ARV treatment can start at any point during pregnancy.* Treatment should start as soon as possible, even if a woman is in the first trimester of pregnancy. In some circumstances, delaying the start of treatment may be desirable for a woman in the first trimester of pregnancy. However, if her clinical or immune status suggests that she is severely ill, and the benefits of ARV treatment clearly outweigh any risk to the foetus, initiation of treatment should not be delayed.

**ARV treatment regimens for pregnant women**

<table>
<thead>
<tr>
<th>Practice Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>The first-line ARV treatment for pregnant women is:</td>
</tr>
<tr>
<td>- AZT 300 mg BD + 3TC 150 mg BD + NVP 200 mg</td>
</tr>
<tr>
<td>- NVP requires a dosage increase after initiation. The initial dosage of NVP is 200 mg per day for the first 14 days, then 200 mg BD. Gradually increasing the dosage decreases the frequency of rash.</td>
</tr>
</tbody>
</table>
Special considerations:

- AZT has been shown to cause anaemia. Severe anaemia should be ruled out before starting the first-line regimen of AZT + 3TC + NVP. Women who have a haemoglobin of <7.5 should not be started on regimens containing AZT.
- Efavirenz (EFV), an ARV medication used nationally, should be avoided for use by women of childbearing potential unless effective contraception can be ensured, because it may cause birth defects if taken during the first trimester.
- For women who are co-infected with TB, additional drug treatment and clinical management are required to minimise side effects that may occur when ARV medications are co-administered with TB treatment.

Adverse events

PMTCT healthcare workers whose clients are receiving an ARV treatment regimen containing NVP must evaluate their clients for the following side effects and potential adverse events:

- **Rash:** Rash is a common side effect of NVP that usually occurs in the first 6 weeks of treatment. All rashes require evaluation in order to rule out a potentially dangerous adverse reaction known as Stevens-Johnson syndrome.
- **Hepatotoxicity:** Hepatotoxicity is an important adverse event related to NVP that can be life-threatening. It is more common in treatment-naïve women with CD4 counts greater than 250 cells/mm³. Healthcare workers should assess for and teach their clients about the signs and symptoms of hepatotoxicity, especially jaundice, nausea and fatigue.

**Practice Point**

If a patient shows signs of hepatotoxicity or has a severe rash with bleeding or peeling of the mucosa, the patient should be referred immediately to the CTC for further evaluation.

ARV treatment and ARV prophylaxis

- Women who are receiving effective ARV treatment should *not* be given ARV prophylaxis.
- All infants born to HIV-infected women receiving ARV treatment should receive ARV prophylaxis.
5.4 ARV prophylaxis for PMTCT

HIV-infected women who are not eligible for ARV treatment for their own health should receive ARV prophylaxis to prevent MTCT.

There are two recommended ARV prophylaxis regimens for preventing MTCT in Tanzania:

1) A combination regimen for use at all health facilities that have the capacity to initiate ARV treatment and have the ARV medications available; and

2) A minimum single-drug regimen that can be used at non-ARV treatment sites.

As the capacity and infrastructure of non-ARV treatment sites improves, so will their ability to provide the more effective combination ARV prophylaxis regimens. Within each healthcare facility, the ARV prophylaxis regimen used should be consistent. For a table of the national ARV prophylaxis regimens, see Appendix 5-A.

Regardless of which ARV prophylaxis regimen is used, HIV-infected women should be strongly encouraged to deliver at a healthcare facility where they and their children can benefit from safer delivery practices and have access to healthcare workers who are knowledgeable about interventions that reduce the risk of transmission.

Table 5.2. Properties of ARV medications used for PMTCT

<table>
<thead>
<tr>
<th>Nevirapine (NVP)</th>
<th>Class of ARV medications known as non-nucleoside reverse transcriptase inhibitors (NNRTIs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NNRTIs stop HIV from reproducing</td>
</tr>
<tr>
<td></td>
<td>Absorbed quickly after being taken by mouth</td>
</tr>
<tr>
<td></td>
<td>Cross the placenta quickly to protect the infant</td>
</tr>
<tr>
<td></td>
<td>Long half-life benefits the infant</td>
</tr>
<tr>
<td></td>
<td>May be taken with or without food</td>
</tr>
<tr>
<td></td>
<td>Can be given as a single dose for mother and a single dose for the infant</td>
</tr>
<tr>
<td></td>
<td>Side effects and adverse events, severe rash and hepatotoxicity sometimes occur when used for ARV treatment</td>
</tr>
<tr>
<td></td>
<td>Can cause hepatotoxicity in women with higher CD4 counts or in those for whom no CD4 count is available (This does not apply to the use of a single dose of NVP for PMTCT.)</td>
</tr>
<tr>
<td></td>
<td>Can cause viral resistance even after 1 dose</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zidovudine (ZDV, AZT)</th>
<th>Class of ARV medications known as nucleoside reverse transcriptase inhibitors (NRTIs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absorbed quickly after being taken by mouth</td>
</tr>
<tr>
<td></td>
<td>Prenatal and neonatal exposure to AZT is generally well tolerated</td>
</tr>
<tr>
<td></td>
<td>May be taken with or without food</td>
</tr>
<tr>
<td></td>
<td>Mild anaemia may occur but usually resolves when the medication is stopped and is less likely to occur when used short-term as prophylaxis for PMTCT</td>
</tr>
</tbody>
</table>
Lamivudine (3TC)

- Class of ARV medications known as nucleoside reverse transcriptase inhibitors (NRTIs)
- Absorbed quickly after taken by mouth
- May be taken with or without food
- Major side effects can include headache and nausea

Recommended prophylaxis regimens at sites where ARV treatment and combination ARV medications are available

**Practice Point**

**Women testing HIV positive during ANC who are not eligible for ARV treatment**

Pregnant women who do not need ARV treatment for their own health should be given combination ARV prophylaxis starting in ANC.

- During **ANC**: Start AZT 300 mg BD from 28 weeks or anytime thereafter.
- During **labour**: Give sdNVP 200 mg at the onset of labour. Give AZT 300 mg and 3TC 150 mg at the onset of labour. Continue AZT every 3 hours and 3TC every 12 hours until delivery.
- During the **postpartum** period: Continue AZT 300 mg BD and 3TC 150 mg BD for 7 days.
- All infants receive sdNVP 2 mg/kg as soon as possible after delivery and AZT syrup 4 mg/kg BD for 4 weeks or 1 week (7 days) if a mother received at least 4 weeks of AZT during ANC.

**Pregnant women presenting during labour who test HIV positive**

- During **labour**: Give sdNVP 200 mg at the onset of labour. Give AZT 300 mg and 3TC 150 mg at the onset of labour. Continue AZT every 3 hours and 3TC every 12 hours until delivery.
- During the **postpartum** period: Continue AZT 300 mg BD and 3TC 150 mg BD for 7 days.
- All infants receive sdNVP 2 mg/kg as soon as possible after delivery and AZT syrup 4 mg/kg BD for 4 weeks.

**Mothers who test HIV positive after delivery**

- All infants receive sdNVP 2 mg/kg immediately after birth and AZT syrup 4 mg/kg BD for 4 weeks.
- ARV prophylaxis should be started for the infant as soon as he or she can tolerate oral feedings and within 12 hours of delivery.
Recommended prophylaxis regimens at sites where ARV treatment and combination ARV medications are *NOT* available

**Practice Point**

**Women testing HIV positive during ANC who *are not* eligible for ARV treatment**

- During ANC, dispense sdNVP at the 28-week visit or anytime thereafter.
- Educate mother about when to take the sdNVP.
- Encourage mother to deliver at a healthcare facility.
- All infants receive sdNVP as soon as possible after delivery but within 72 hours.

**Pregnant women presenting during labour who test HIV positive**

- Give sdNVP 200 mg to the mother at the onset of labour.
- All infants receive sdNVP as soon as possible after delivery but within 72 hours.

**Mothers who test HIV positive after delivery**

- All infants receive sdNVP 2 mg/kg immediately after birth but within 72 hours.

**ARV prophylaxis for HIV-exposed infants**

The choice of prophylaxis regimen given to the infant will also depend on the type of facility. All facilities should provide the basic regimen of sdNVP to HIV-exposed infants. ARV treatment-initiating facilities should supplement this basic regimen with the more efficacious, longer-term AZT prophylaxis regimen.

**Practice Point**

**Infant ARV prophylaxis**

- A single dose of NVP syrup (2mg/kg) should be given to all infants born to HIV-infected mothers as soon as possible after birth, and within 72 hours of delivery.

  **AND**

- For ARV treatment-initiating sites, AZT syrup (4 mg/kg) should be given to HIV-exposed infants twice a day for 4 weeks.

  - If a mother received at least 4 weeks of AZT as a part of her ARV treatment or prophylaxis regimen, then the duration of AZT prophylaxis for the infant can be shortened to 1 week (7 days).
Practice Point

- Both AZT and NVP have proven safe to give to newborns and can be administered simultaneously.

- The sooner the infant dose of ARV prophylaxis is given, the greater its protective effect. Administering ARV prophylaxis regimens to the infant immediately after birth is preferable.

- If a mother has not received any prophylaxis during pregnancy or labour and delivery, the single dose of NVP and AZT should be given to the infant as soon as he or she can tolerate oral feedings but within 12 hours of delivery. If the AZT is given to the infant 48 hours or more after delivery, it is unlikely to have any benefit.

- If an HIV-infected mother delivers at home, she can take her infant to the healthcare facility to receive ARV prophylaxis up to 72 hours after the birth. After 72 hours, NVP will no longer be effective in preventing MTCT.

Healthcare workers should be careful when using different formulations of NVP and AZT syrup, as the dosing will change according to the strength of the syrup available.

**Table 5.3 Infant ARV prophylaxis dosing**

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Dose (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5-1.7</td>
<td>0.3</td>
</tr>
<tr>
<td>1.8-2.2</td>
<td>0.4</td>
</tr>
<tr>
<td>2.3-2.7</td>
<td>0.5</td>
</tr>
<tr>
<td>2.8-3.2</td>
<td>0.6</td>
</tr>
<tr>
<td>3.3-3.7</td>
<td>0.7</td>
</tr>
<tr>
<td>3.8-4.2</td>
<td>0.8</td>
</tr>
<tr>
<td>4.3-4.5</td>
<td>0.9</td>
</tr>
</tbody>
</table>
Table 5.3 Infant ARV prophylaxis dosing (continued)

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>AZT mg/kg</th>
<th>Total mg</th>
<th>Dose in ml using AZT 10 mg/mL</th>
<th>Recommended dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3</td>
<td>4</td>
<td>9.2</td>
<td>0.92</td>
<td>0.9 mL</td>
</tr>
<tr>
<td>2.4</td>
<td>4</td>
<td>9.6</td>
<td>0.96</td>
<td>1.0 mL</td>
</tr>
<tr>
<td>2.5</td>
<td>4</td>
<td>10</td>
<td>1</td>
<td>1.0 mL</td>
</tr>
<tr>
<td>2.6</td>
<td>4</td>
<td>10.4</td>
<td>1.04</td>
<td>1.0 mL</td>
</tr>
<tr>
<td>2.7</td>
<td>4</td>
<td>10.8</td>
<td>1.08</td>
<td>1.1 mL</td>
</tr>
<tr>
<td>2.8</td>
<td>4</td>
<td>11.2</td>
<td>1.12</td>
<td>1.1 mL</td>
</tr>
<tr>
<td>2.9</td>
<td>4</td>
<td>11.6</td>
<td>1.16</td>
<td>1.2 mL</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>12</td>
<td>1.2</td>
<td>1.2 mL</td>
</tr>
<tr>
<td>3.1</td>
<td>4</td>
<td>12.4</td>
<td>1.24</td>
<td>1.2 mL</td>
</tr>
<tr>
<td>3.2</td>
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<td>12.8</td>
<td>1.28</td>
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<td>1.32</td>
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<tr>
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<td>1.36</td>
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<td>17.6</td>
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<tr>
<td>4.9</td>
<td>4</td>
<td>19.6</td>
<td>1.96</td>
<td>2.0 mL</td>
</tr>
</tbody>
</table>

Note: AZT dosing for premature infants = 2 mg per kg of body weight (oral) every 12 hours [1.5 mg per kg of body weight (intravenous)], increased to every 8 hours at 2 weeks of age (neonates ≥ 30 weeks gestational age) or at 4 weeks of age (neonates< 30 weeks gestational age)

Preventing NVP resistance when giving ARV prophylaxis

When NVP is used alone as prophylaxis to prevent PMTCT, resistance may develop. Healthcare workers should avoid providing repeat doses of NVP prophylaxis to the mother unless it is necessary. Healthcare workers should also educate mothers about how to tell the difference between true and false labour so that they are better informed about when to take their NVP dose.
**Practice Point**

To prevent NVP resistance, healthcare workers should:

- Document NVP administration clearly on medical records to avoid accidental repeat administration.
- Avoid repeating the maternal NVP dose if given during false labour at any point in time.
- Educate the mother to be able to distinguish true labour from false labour. Mothers should be instructed to take the NVP only at the onset of true labour.
- Repeat the dose of NVP for the mother after vomiting ONLY if it occurs within 30 minutes of NVP administration. No additional dose is required if the vomiting occurs after 30 minutes.
- Provide combination ARV prophylaxis whenever possible because it is more effective than sdNVP in preventing MTCT. Combination ARV prophylaxis also reduces the chance that a mother will develop resistance to NVP.

**Dispensing ARV prophylaxis**

AZT and NVP for the pregnant women should be dispensed at 28 weeks' gestation. Pregnant women should start taking AZT at 28 weeks, and they should be taught how to take the NVP tablet at the onset of labour. They also need to be taught how to recognize true labour. For facilities providing only sdNVP, the NVP tablet can be given to a pregnant woman at any point during her ANC care. It is usually provided when a woman first tests positive for HIV.

**Prescribing ARV medications for treatment or prophylaxis**

ARV medications can be prescribed by Medical Officers, Assistant Medical Officers and Clinical Officers at ANC and labour and delivery facilities. If a mother presents at an ANC facility for a refill, an ANC nurse can renew an exiting prescription written by a doctor and dispense the medication.
5.5 Care of HIV-infected women during labour and delivery

All labour and delivery services should include interventions to prevent MTCT. These include:

- HIV testing for women whose HIV status is unknown
- Administration of ARV treatment or ARV prophylaxis according to national guidelines
- Implementation of safer obstetric practices

Determine women’s HIV status

A woman may present to a healthcare facility in labour without knowing her HIV status. In these circumstances, healthcare workers should try to determine the woman’s status as soon as possible so she can receive appropriate care.

Women of unknown HIV status should receive routine pre-test education and rapid HIV testing so that sdNVP can be administered before delivery. HIV counselling, testing and administration of ARV prophylaxis are guided by the stage of labour in which the woman presents. See section 4.9 of Chapter 4, *Counselling and Testing*, for guidance on HIV counselling and testing during labour and delivery.

Administering ARV treatment and prophylaxis during labour

Practice Point

- HIV-infected women who are already receiving ARV treatment should continue taking ARV medication during labour according to their regular dosing schedule.
- Women on ARV treatment should not be given sdNVP.
- When a women has been on ARV prophylaxis with AZT during pregnancy, she will continue receiving AZT during labour, but it should be administered every 3 hours. She should also be started on 3TC every 12 hours until delivery.
- If sdNVP is the only ARV prophylaxis regimen available, it should be administered at the onset of true labour and documented accordingly.
Modify labour and delivery care

Labour management should follow obstetrical best practices and all healthcare workers must use Standard Precautions during labour and delivery. However, many routine obstetrical practices during labour and delivery can increase MTCT. Healthcare workers should follow safer obstetric practices to reduce MTCT. These are outlined in Table 5.2.

Safer obstetrical practices to reduce MTCT

<table>
<thead>
<tr>
<th>Use Standard Precautions (good infection prevention practices) for all patient care.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Use protective gear, safely use and dispose of sharps, sterilise equipment and safely dispose of contaminated materials (see Chapter 8 for more details).</td>
</tr>
</tbody>
</table>

Minimise vaginal examinations.

| • Perform vaginal examinations only when necessary, using sterile technique. |

Avoid prolonged labour.

| • Consider use of oxytocic drugs to shorten labour when appropriate. |
| • Use non-invasive foetal monitoring to assess need for early intervention. |

Avoid artificial rupture of membranes.

| • Use a partogram to measure the progress of labour, and indicate all medications used during labour, including ARV prophylaxis. |
| • Avoid early rupture of membranes (before 7 cm dilation) unless necessary. |

Avoid unnecessary trauma during delivery.

| • Avoid invasive procedures, including scalp electrodes or scalp sampling. |
| • Avoid routine episiotomy. |
| • Minimise the use of instrumental vaginal delivery. |

Minimise the risk of postpartum haemorrhage.

| • Carefully manage all stages of labour to prevent infection and avoid prolonged labour. |
| • Actively manage the third stage of labour, by using oxytocic drugs and controlled cord traction. |
| • Perform uterine massage. |
| • Repair genital tract lacerations. |
| • Carefully remove all products of conception. |

Use safe transfusion practices.

| • Minimise the use of blood transfusions. |
| • Use only blood screened for HIV, hepatitis B and C and, when available, syphilis and malaria. |
Provide support and reassurance

- Emotional support during labour is important particularly for HIV-infected women.
- Whenever possible HIV-infected women should have the companions of their choice during labour, preferably companions who know about their HIV status.

5.6 Special labour and delivery considerations

Obstetric care in the home delivery setting
Healthcare workers should strongly urge all women to give birth at facilities where skilled healthcare workers can address potential complications and provide care that will reduce the risk of MTCT. Despite efforts to encourage women to give birth in a healthcare facility, many will deliver outside health institutions under the assistance of a home birth attendant. In the interest of women who choose to give birth at home, pregnant women and home birth attendants can be trained to deliver basic PMTCT interventions. All pregnant women benefit when home birth attendants are knowledgeable about the signs and symptoms of complications during birth and know when and how to refer women to healthcare facilities. Home birth attendants should receive information on:

- How HIV is transmitted from mother to child and risk factors for transmission
- Their own risk of infection and how to protect themselves
- Basic skills to deliver PMTCT interventions, including safer delivery practices
- Standard Precautions

Considerations regarding mode of delivery
Caesarean section, when performed before the onset of labour or membrane rupture, has been associated with reduced MTCT. However, in Tanzania, the risks associated with caesarean section for MTCT outweigh the benefits of HIV transmission reduction.

Practice Point
Caesarean section is indicated only for obstetric reasons; it is not recommended for the purpose of reducing MTCT in Tanzania.
Care after a spontaneous abortion (miscarriage)
HIV-infected women are more likely than other women to have a spontaneous abortion. In most cases of spontaneous abortion, the HIV status of the woman will not be known.

Practice Point
For women who have a spontaneous abortion, healthcare workers should:

- Provide HIV counselling and testing
- Assess the woman for the signs and symptoms of advanced HIV infection
- Consider using antibiotics after uterine evacuation, if performed, for HIV-infected women
- Conduct family planning counselling

5.7 Immediate postdelivery care of HIV-exposed infants

The immediate care of the newborn exposed to HIV follows Standard Precautions. Regardless of the mother’s HIV status, all infants should be kept warm after birth, dried and handled with gloved hands until maternal blood and secretions have been washed off. In caring for newborns, healthcare workers should observe Standard Precautions.

Safer delivery practices for infants
The goal of safer delivery practices for HIV-exposed infants is to minimise trauma to the newborn and reduce the time that the newborn is exposed to the mother’s blood and bodily secretions.
Practice Point

- Clamp the cord immediately after birth, and avoid milking the cord (squeezing it towards the infant). Cover the cord with gloved hand or gauze before cutting to avoid splash of cord blood.
- Use suction only when the infant shows signs of distress or aspiration. Use either mechanical suction at less than 100 mm Hg pressure or bulb suction, rather than mouth-operation suction.
- Determine the mother’s feeding choice. If she is breastfeeding, place the infant on the mother’s breast. If she is using replacement feeding, place the infant on her body for skin-to-skin contact and provide help with the first feed.
- Administer ARV prophylaxis as soon as possible following birth.
- Administer bacillus Calmette-Guérin (BCG) and polio vaccines according to national guidelines.
- Breastfed infants will receive vitamin A 100,000 IUs starting at 9 months. For non-breastfed infants, administer vitamin A 50,000 IUs at birth or within 6 months. See Appendix 7-C, *Vitamin A Supplementation*, for the complete schedule of vitamin A administration.

5.8 Management of HIV-infected women and their infants in the immediate postpartum period

**Immediate postdelivery care:** Healthcare workers should use Standard Precautions when assessing vaginal bleeding and should dispose of blood-stained linens and pads safely.

**HIV counselling and testing:** Women who received HIV testing during labour and delivery should receive additional HIV post-test counselling postpartum. Women of unknown HIV status should receive pre-test information, counselling and HIV testing, unless they decline, so that their infants can receive ARV prophylaxis if needed. Partners of HIV-infected women who desire HIV testing should receive pre-test information, counselling and HIV testing.
Counselling about safer infant feeding: All women, regardless of HIV status, should receive infant feeding counselling during postpartum care according to the national guidelines. National guidelines are outlined in Chapter 6, *Infant Feeding in the Context of HIV Infection*. Mothers should receive support to select and implement their choice for safer infant feeding.

- Healthcare workers should provide counselling about different infant feeding options to women and ensure that they choose an infant-feeding option before they leave the facility or hospital.

- Mothers should receive basic training on their chosen infant feeding technique and healthcare workers should observe the mother implementing proper feeding technique before discharge.

- Healthcare workers should discuss with the mother how she will cope with possible stigmatisation if she chooses not to breastfeed and advise her on the suppression of lactation.

**ARV prophylaxis for mother and infant:** All HIV-infected mothers need to be taught the importance of and the correct way to administer ARV prophylaxis to their infants and to themselves. When combination ARV prophylaxis is used, healthcare workers should teach and then observe a mother administering AZT syrup to her infant in the correct manner and dosage before discharge.

**Vitamin A supplementation:** Before discharge, healthcare workers should administer vitamin A 200,000 IUs to the mother.
General postpartum education

Regardless of HIV status, the mother will need to be educated before discharge about:

- Accessing help in the event of postpartum haemorrhage
- How to dispose of potentially infectious materials, such as lochia and blood-stained sanitary pads
- Perineal and breast care
- Care of the infant’s umbilicus
- Proper hygiene: changing diapers and washing the infant
- Recognising signs and symptoms of infant illness and HIV infection (See Chapter 7, Comprehensive Care and Support for Mothers and Families with HIV Infection)
- Recognising signs and symptoms of postpartum infection. These include: burning with urination, fever or increased heart rate; foul smelling lochia, redness, pain, pus or discharge from incision or episiotomy site; cough, sputum or shortness of breath and severe lower abdominal tenderness
- Dual protection for family planning and HIV infection prevention. Women should have access to the chosen method within 6 weeks after delivery to avoid unintended pregnancy or the risk of new infection

Education about and scheduling of comprehensive care visits for the mother and infant

HIV-infected mothers and their families will need additional ongoing HIV care, treatment and support services. The postpartum period is the time to implement the follow-up plan to connect mothers and their families with medical and support services. Healthcare workers should facilitate referrals and linkages to HIV treatment, care and support services. Healthcare workers are responsible for ensuring that the mother knows the time, location, contact person and purpose of all follow-up appointments. These essential follow-up services are outlined in Chapter 7, Comprehensive Care and Support for Mothers and Families with HIV Infection.
Practice Point

- All postpartum follow-up appointments for the mother and infant, including immunisations, should be scheduled before discharge.

- HIV-infected women should return for postpartum care at 7, 28 and 42 days postpartum. They should be referred back to HIV care and treatment follow-up at the CTC at their 42-day visit.

- All infants born to mothers with HIV infection should have their HIV exposure status recorded on their immunisation cards and should be followed monthly at Under-Five clinics.

- HIV-infected mothers should be made aware of the need for the infant to start CPT at 4 weeks of age or as soon as possible thereafter to protect against PCP.
CHAPTER 6
Infant Feeding in the Context of HIV Infection

6.1 Transmission of HIV through breastmilk

ARV prophylaxis for MTCT does not reduce HIV transmission during the breastfeeding period. Research about the duration of protective long-term ARV treatment for breastfeeding mothers and their infants is ongoing.

Without intervention, 5-20% of infants breastfed by their mothers become infected with HIV. Factors that increase the risk of transmitting HIV during breastfeeding include mastitis, cracked or bleeding nipples, breast abscesses, candidal infection of the breasts, oral ulcers or sores in the infant’s mouth, mixed feeding and high maternal viral load, which usually occurs with recent HIV infection or advanced HIV disease (AIDS).

6.2 Risks associated with mixed feeding before 6 months of age

In the first 6 months of life, infants who are mixed fed (ie, those who are fed breastmilk and other liquids and food) are significantly more likely to acquire HIV infection than infants who

Definitions

Exclusive breastfeeding (EBF): Feeding infant ONLY breastmilk and no other liquids or solids, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines prescribed by a healthcare worker.

Replacement feeding (RF): Feeding infant something OTHER THAN breastmilk.

Mixed feeding (MF): Feeding both breastmilk and other liquids (such as water, tea, formula, animal milk) or foods (such as porridge or rice).

Complementary foods: Any food, whether manufactured or locally prepared, that is added to a child’s diet when the child reaches 6 months of age. Complementary foods are needed because breastmilk or replacement foods alone do not satisfy the child’s nutritional requirements after this age.
are exclusively breastfed or exclusively replacement fed. It is thought that this increased risk of HIV transmission occurs because foods and liquids irritate the infant’s intestinal mucosa, permitting passage of the HIV virus into the gut. In addition to facing an increased risk of HIV acquisition, mixed fed infants also have increased risk of diarrhoeal illnesses and risk malnutrition because of decreased nutritional intake from formulas or animal milks. Exclusively breastfed babies have fewer episodes of bacterial infection compared with babies who are mixed fed.

6.3 National recommendations for safer infant feeding

The importance of infant feeding counselling

Malnutrition is the underlying cause of death in approximately 60% of children younger than 5 years of age in Tanzania and in about 50% of children that age in Africa as a whole. Poor feeding practices are a major cause of low weight, illness and death in children. Counselling and support for infant feeding can improve feeding practices, help to prevent malnutrition and reduce the risk of death in children.

All women, regardless of HIV status, should receive counselling on safer infant feeding practices. For HIV-infected mothers, counselling and support may lead to improved infant-feeding practices that may also help prevent MTCT. Safer infant feeding counselling should include information that assists women and their families in making informed decisions about what to feed their children.

Recommendations for uninfected women and those whose HIV status is unknown

Breastfeeding has definite benefits for the infant, mother and community. For women who are not infected with HIV and those of unknown HIV status, exclusive breastfeeding for the first 6 months of life is the recommended infant feeding option.

Women who are not infected with HIV or who do not know their HIV status should receive information on the benefits and advantages of exclusive breastfeeding. They will also require counselling on safer sex practices and the risks of becoming infected with HIV later in pregnancy or during breastfeeding. Women with unknown HIV status should be encouraged to be tested for HIV.
Practice Point

The national recommendation for uninfected women whose HIV status is unknown is to breastfeed exclusively for the first 6 months of life and to continue giving the child breastmilk until he or she is at least 2 years old. After the infant reaches 6 months of age, nutritious complementary foods should be introduced.

Recommendations for women who are HIV infected

The national recommendation for HIV-infected women is to breastfeed their infants exclusively for the first 6 months of life, followed by the addition of complementary foods after 6 months. Mothers should continue to give their infants breastmilk until they can wean them safely.

Mothers who wish to reduce the risk of transmitting HIV to their infants may choose to replacement feed their infants exclusively for the first 6 months of life. However, exclusive replacement feeding is recommended only when it is acceptable, feasible, affordable, sustainable and safe (AFASS).

Recommendations for safer infant feeding according to HIV status are summarised in Table 6.1. For additional information on the advantages and disadvantages of each option, see Appendix 6-A, Advantages and Disadvantages of Infant Feeding Options for HIV-Infected Mothers.

Definitions

AFASS: An acronym that standard for acceptable, feasible, affordable, sustainable and safe.

Acceptable: The mother perceives no significant barrier(s) to choosing a feeding option for cultural or social reasons or for fear of stigma and discrimination.

Feasible: The mother (or other family member) has adequate time, knowledge, skills and other resources to prepare feeds and to feed the infant, and has support to cope with family, community and social pressures.

Affordable: The mother and family, with available community and health system support, can pay for the costs of the replacement feeds—including all ingredients, fuel and clean water—without compromising the family's health and nutrition spending.

Sustainable: The mother has access to a continuous and uninterrupted supply of all ingredients and products needed to implement the feeding option safely for as long as the infant needs it.

Safe: Replacement foods are correctly and hygienically stored, prepared and fed in nutritionally adequate quantities; infants are fed with clean hands using clean utensils, preferably by cups.
Table 6.1. National infant feeding recommendations according to HIV status

<table>
<thead>
<tr>
<th>Client situation</th>
<th>Feeding recommended for the first 6 months</th>
<th>Feeding recommended beyond 6 months of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-negative woman</td>
<td>Exclusive breastfeeding</td>
<td>Breastfeeding and complementary foods until 2 years and beyond</td>
</tr>
<tr>
<td>HIV-infected woman</td>
<td>Exclusive breastfeeding</td>
<td>Breastfeeding feeding and complementary foods until 2 years and beyond</td>
</tr>
<tr>
<td>HIV-infected woman for whom replacement feeding is AFASS</td>
<td>Replacement feeding</td>
<td>Replacement feeding and complementary foods until 2 years and beyond</td>
</tr>
<tr>
<td>Woman of unknown HIV status</td>
<td>Exclusive breastfeeding</td>
<td>Breastfeeding and complementary foods until 2 years and beyond</td>
</tr>
</tbody>
</table>

Mixed feeding during the first 6 months of life is never recommended and should be avoided by all women, regardless of HIV status.

1 Exclusive breastfeeding means that there are no added foods or liquids, not even water. Vitamin or mineral supplements should be provided only when medically appropriate.

2 If replacement feeding meets the AFASS standard, then an HIV-infected woman may stop breastfeeding after 6 months to reduce HIV exposure to the infant.

6.4 Counselling for safer infant feeding

Women who are HIV infected have the right to choose how and what to feed their infants after being given information on different recommended infant feeding options. HIV-infected women should receive information and counselling that helps them make an infant feeding choice appropriate to their needs and resources. Such infant feeding counselling should include the following:

- Information about the risk of HIV transmission through breastfeeding
- Information about the dangers of mixed feeding
- Information on the advantages and disadvantages of each available feeding option
- Respect for local customs, practices and beliefs when helping a mother make infant feeding choices
- Guidance on selecting the option most likely to be suitable for their situation

**Timing of infant feeding counselling**

Infant feeding counselling should start in ANC with HIV-infected women receiving counselling over the course of several sessions, when possible. Infant feeding counselling should not take place immediately after the mother learns of her test results unless she is unlikely to return to ANC, in which case she should be provided with all essential infant feeding information during the first visit. Infant feeding counselling should resume after delivery, with continuing counselling occurring within 1 week of delivery and during RCH and Under-Five clinic visits.

**Infant feeding counselling steps in the ANC setting**

<table>
<thead>
<tr>
<th>The steps in safer infant feeding counselling for HIV-infected women are as follows:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Explain the risks of MTCT.</td>
</tr>
<tr>
<td>2. Explain the advantages and disadvantages of different feeding options, starting with the mother’s initial preference (see Appendix 6-A, <em>Advantages and Disadvantages of Infant Feeding Options for HIV-Infected Mothers</em>).</td>
</tr>
<tr>
<td>3. Explore with the mother her home and family situation. Offer to discuss infant feeding with her partner before she decides on an infant feeding option. Acknowledge her right to change her infant feeding decision.</td>
</tr>
<tr>
<td>4. Help the mother choose an appropriate feeding option.</td>
</tr>
<tr>
<td>5. Demonstrate how to practise the chosen feeding option and have the mother provide a return demonstration.</td>
</tr>
<tr>
<td>6. Provide follow-up counselling and support.</td>
</tr>
</tbody>
</table>

It may not be possible to cover all of the counselling steps in one session and it may be appropriate to spread the counselling over two or more sessions. The counselling process should be repeated if the mother changes her original infant feeding choice. Healthcare workers should encourage the inclusion of the client’s partner or family member at each stage of counselling.
Infant feeding counselling in postpartum settings

When infant feeding counselling takes place during the postpartum period, the focus will likely be on steps 5 and 6 of the counselling process. In addition, infant feeding counselling at this stage should include an assessment of the child. During these visits, healthcare workers should monitor infant growth, look for signs of illness in the mother and infant, check to see that the infant is receiving enough milk and assess feeding practices to determine whether any change is desirable.

Mothers may assume that an infant is being fed adequately when he or she gains weight, urinates 6-8 times in a 24-hour period and has least 2-5 bowel motions in a 24-hour period (note that there is substantial variability in infants’ bowel movements). Additional counselling about feeding is needed when a child is sick or a mother returns to work or changes her feeding methods.

It is important that healthcare workers begin discussing feeding for infants 6-24 months of age during early postpartum visits so that mothers have adequate time to plan the transition to complementary foods. Healthcare workers should work with mothers who chose to stop breastfeeding after 6 months to plan ways to wean safely. Guidelines for promoting safer infant feeding are summarised in Figure 6.1.
Figure 6.1 Guidelines for promoting safer infant feeding

**INFANT FEEDING COUNSELLING**

- Inform about the benefits of breastfeeding
- Prevent or manage breastfeeding problems
- Discuss appropriate complementary feeding
- Promote good maternal nutrition and self-care
- Provide iron and folic acid
- Counsel on child spacing
- Treat infections promptly
- Give information on HIV testing
- Counsel to reduce risk of HIV infection in mother

**ALL MOTHERS**

- Promote and support exclusive breastfeeding for the first 6 months of life
- Reinforce HIV risk reduction

**HIV-UNINFECTED MOTHERS**

- Give information on safer infant-feeding options
- Supply information on advantages and disadvantages of options
- Inform and teach skills on how to reduce or avoid MTCT
- Support the mother and partner in making an informed infant feeding decision

**HIV-INFECTED MOTHERS**

- Support and encourage exclusive breastfeeding for the first 6 months of life
- Provide information on early cessation of breastfeeding after 6 months
- Prevent or manage breastfeeding problems
- Discourage breastfeeding in the presence of cracked nipples, mastitis or abscess

**MOTHERS NOT TESTED**

- Promote and support exclusive breastfeeding for the first 6 months of life
- Reinforce HIV risk reduction
- Continue to make information available about HIV counselling and testing and encourage it

**HIV-INFECTED MOTHERS WHO CHOOSE TO BREASTFEED**

- Demonstrate safe preparation and storage of chosen replacement feed
- Demonstrate cup feeding
- Counsel on the care of the breasts to avoid engorgement

**HIV-INFECTED MOTHERS WHO CHOOSE NOT TO BREASTFEED**

- Demonstrate safe preparation and storage of chosen replacement feed
- Demonstrate cup feeding
- Counsel on the care of the breasts to avoid engorgement
6.5 Exclusive breastfeeding for the HIV-infected mother

Breast problems such as mastitis, cracked nipples and breast abscesses facilitate HIV transmission from mother to child through breastmilk. Instruction in good breastfeeding technique can help mothers to avoid these problems, and can prevent pain, damage to the nipples, engorgement and poor milk supply. Prevention and early management of breast conditions can ensure a more successful breastfeeding experience and help mothers adhere to exclusive breastfeeding. Frequent feedings during which each breast is emptied reduces breast problems such as mastitis and breast abscesses.

Practice Point

- During infant feeding counselling, mothers who choose to breastfeed should receive instruction in good breastfeeding technique, including correct positioning and attachment.
- Mothers should understand that exclusive breastfeeding requires feeding on demand.
- Mothers should be assessed for mastitis at each follow-up visit. Healthcare workers should also monitor HIV-infected women for other breast conditions such as thrush and herpes simplexvirus (HSV), which can be passed from infant to mother.

The Baby-Friendly Hospital Initiative’s “Ten Steps to Successful Breastfeeding” provides additional important guidance to support breastfeeding. These steps are listed in Appendix 6-B, Baby-Friendly Hospital Initiative: Ten Steps to Successful Breastfeeding).

Exclusive breastfeeding with early cessation

The national recommendation is for HIV-infected women who chose to breastfeed to do so for the first 6 months of the infant’s life, after which time complementary foods should be added to an infant’s diet. After 6 months, the recommendation is to continue to breastfeed until replacement feeding is AFASS for mothers and their infants. If replacement feeding does not meet these criteria, women should continue to breastfeed.

Breastfeeding mothers who wish to minimise their infant’s exposure to HIV may stop breastfeeding at 6 months if the AFASS criteria are met. Women will have to consider their individual situations, local circumstances and the risks of replacement feeding in making the decision about whether to stop breastfeeding.
Practice Point

Recent studies have suggested that, in resource-poor countries, the risks associated with cessation of breastfeeding before 6 months of life outweigh the benefits in HIV transmission reduction. Weaning before 6 months of age, therefore, is no longer promoted in Tanzania as a safe infant feeding option for HIV-infected mothers.

If an infant has been diagnosed with HIV by viral tests or presumptive diagnosis, mothers should continue breastfeeding early.

Transiting from breastmilk to formula milks

The transition from breastmilk to infant formula can take a few days to 2 weeks. Before stopping breastfeeding, the mother should introduce the infant to cup feeding, by feeding the infant expressed breastmilk in a cup. Preferably, this would be done when the infant is not very hungry. Mothers should increase the frequency of cup feeding and reduce the frequency of breastfeeding until the infant has become accustomed to receiving breastmilk from a cup. The breastmilk can then be gradually replaced with the replacement milks. If the mother is transitioning before the infant is 6 months old, she should pasteurise her breastmilk to kill the HIV in her milk and reduce the risk of HIV transmission from mixed feeding.

During the transition, mothers should check to determine that the infant is passing enough urine and should express enough milk to keep breasts comfortable and healthy until the milk production stops.

Expressing and pasteurising breastmilk

Pasteurising breastmilk kills HIV while maintaining most of the milk’s nutrients. Pasteurising breastmilk can be a strategy to help a mother transition from breastfeeding to replacement feeding. It can also be used when a women has a breast infection or is ill, situations in which there is a high risk of transmitting HIV through breastmilk. For more information on the steps in expressing and pasteurising breastmilk, see Appendix 6-C, *Steps to Express and Pasteurise Breastmilk.*
Practice Point
Because breastmilk expression and pasteurisation can be expensive (it requires fuel and proper containers) and time consuming it is not practical for most women in Tanzania. It is not recommended as a long-term feeding option for HIV-infected women.

6.6 Replacement feeding options for the HIV-infected mother

Replacement feeding means providing infants with milk feeds that are not breastmilk. There are several kinds of replacement feeds available. During the first 6 months of life, replacement feeding should involve a suitable breastmilk substitute, either commercial infant formula or home-modified animal milk with micronutrient supplements. An infant should not receive any other food or liquid besides replacement milks until 6 months of age. The advantages and disadvantages of these replacement feeds are listed in Appendix 6-A, *Advantages and Disadvantages of Infant Feeding Options for HIV-Infected Mother*.

Practice Point
An infant who is being fed formula milks should neither breastfeed nor be given any other food, water or other types of liquids except for multivitamins or medicines when indicated.

Commercial infant formula
Of replacement milks, commercial infant formula is the closest in nutrient composition to breastmilk. However, it lacks essential fatty acids needed for a child’s development and protective antibodies that are abundant in breastmilk. Commercial formula is usually a powder that is be reconstituted with water. It is usually adequately fortified with micronutrients, including iron. It is available in two formulations, one for infants 0 to 6 months old, and the other for infants 6 months and older (usually known as “follow-up formulas”). It is very important that the appropriate formula is used according to the age of the child. For information about the amount of formula required to feed infants, see Appendix 6-E, *Commercial Infant Formula Requirements*. 
Home-modified animal milk

Animal milks are relatively low in iron, zinc, vitamin A, vitamin C and folic acid. Infants who are fed home-modified animal milks must receive daily micronutrient supplements to help prevent anaemia and other forms of malnutrition. Home-modified animal milks also need to be diluted with clean boiled water and fortified with sugar to increase the number of calories for the first 6 months of feeding. After 6 months, animal milks do not need dilution.

Practice Point
- Home-modified animal milk should be considered as an option only when commercial formula is not available or affordable.
- Home-modified animal milk is not a suitable infant feeding choice for HIV-infected mothers if micronutrient supplements are not available.

Home-modified animal milks can be made with the following:
- Fresh animal milk--cow milk is the most readily available animal milk nationally
- Full-cream milk powder
- Evaporated milk

The following milks and liquids are not suitable for home-modified animal milk:
- Fresh animal milk already diluted by an unknown amount
- Skim-milk or low-fat milk powder
- Sweetened or condensed milk
- Thin cereal-based gruels and porridge
- Fruit juice, teas, sugar drinks and sodas
- Flavoured milk drinks and coconut milk

6.7 General guidelines for counselling mothers on replacement feeding

Mothers who choose to replacement feed will need detailed instruction on how to prepare the milk feeds correctly. When a mother prepares replacement feeds, whether commercial formula or home-modified animal milk, it is crucial that she observe the strictest hygiene, mix the milk and water in the correct amounts consistently and add sugar and micronutrients to the feeds if needed. Small mistakes in the feed preparation may not have an immediate effect but may make an infant ill or malnourished if repeated.
Because poor preparation practices can have serious effects, it is important that healthcare workers know how to demonstrate preparation of commercial and home-modified animal milk infant formulas in their clinical settings. Counselling and demonstrations about replacement feeding should be held in a private one-to-one session, out of view of other mothers, so that replacement feeding messages do not spill over into the general RCH population, where breastfeeding is the recommended infant-feeding option.

General guidance on replacement counselling feeding

- If possible, the woman should bring the containers that she usually uses for preparing food to an infant feeding counselling session.
- The counsellor should demonstrate how to prepare formula with these containers and mark them to show how much water and milk will be needed to prepare formula.
- Mothers who plan to use commercial formula should bring a tin of the formula they plan to use.
- In the demonstration, the counsellor should translate millilitres and grams into locally available household measures such as teaspoons and cups.
- For the return demonstration, counsellors should let the mother prepare the formula herself, monitoring her actions and correcting any mistakes.

**General replacement feeding preparation guidelines**

- Mothers should be sure to wash their hands as well as all utensils, feeding cups and containers with soap and clean water before beginning to prepare formula.
- All water for replacement feeds should be clean to start. It should then be boiled vigorously for 1-2 seconds before use.
- The formula milk should be fed to the infant as soon as it has cooled and should be given from an open cup, not a bottle or a cup with a teat because these carry a higher risk of contamination.
- If the mother has no refrigerator, she should only prepare enough formula milk for one feed at a time, and use the prepared milk within 1 hour. If the milk is not used within 1 hour, it should be discarded.
- Leftover formula milk should not be stored without refrigeration because it becomes contaminated easily. Mothers who do not want to waste leftover milk, can give it to an older child, drink it themselves or add it to cooked food.
- Warm prepared feedings should not be stored in a thermos because bacteria will grow.
- If the mother has a refrigerator, replacement feeds can be made once a day and stored cold in the refrigerator in a container that has been cleaned by boiling.
- Counsellors should make sure that mothers who cannot read are able to recall instructions and amounts for preparing replacement feeds.

- Before the end of a demonstration session, counsellors should check to determine that the mother knows steps to avoid contamination, understands how to administer the micronutrient supplements if she is using home-modified animal milk and knows that water should always be boiled before use. Counsellors should also verify that the mother is prepared to proceed with replacement feeding and is aware of the cost and time commitment required.

- The mother should be encouraged to come back whenever she encounters a problem in preparing replacement feeds, or when she wants to change her mode of feeding the infant.

**Feeding bottles**

Feeding bottles are not necessary, and they should not be used in most situations. Cup feeding is recommended instead. The use of feeding bottles and artificial teats should be actively discouraged because bottles need to be thoroughly cleaned with a brush and then boiled for sterilisation in order to avoid contamination. This takes time and fuel. Because they are easily contaminated, feeding bottles can increase the infant's risk of diarrhoea and ear infections. Bottles are also more expensive than cups and are less readily available. For instructions on how to cup feed infants, see Appendix 6-D, *How to Feed an Infant from a Cup*.

If a woman decides to bottle feed, she should be shown how to clean bottles using boiling water and soap. The teat should be cleaned using a brush. Both the bottle and the teat should be immersed in boiling water for 10 minutes before use.

**Preparing commercial infant formula**

When demonstrating the preparation of commercial formula, healthcare workers should review the instructions on the formula tin with the mother, making sure she understands them. The manufacturers' instructions for mixing the formula need to be followed exactly, except for cases in which the manufacturer gives instructions to bottle feed the infant. Healthcare workers should help the mother to make the necessary calculations for feeding her infant and, in the demonstration, follow each step on the formula tin carefully (eg, boiling water and cleaning utensils so the mother can see how long the preparation will take and what procedures are involved).
Women who are replacement feeding with formula should be counselled not to breastfeed or dilute formula to make it last longer if they run out of formula and cannot afford to buy more. Instead, they should feed their infants home-modified animal milk until more commercial formula can be obtained.

**Preparation of home-modified animal milk in the first 6 months of life**

Mothers should follow these steps when preparing modified animal milk for their infants in the first months of life:

*Give the infant micronutrient supplements every day.*

**For fresh cow’s milk (or other animal milk):**
- In general, the following proportions apply: 10 parts milk + 5 parts water + 1 part sugar (see tables 6.3 and 6.4 for exact measurements).
- Put the clean water, sugar and milk together in a small pot and bring them to a boil.
- As soon as they reach the boiling point, remove the pot from the heat and stand it in a larger pot of cool water to let it cool.

**For powdered full-cream milk:**
- Full-cream powdered and evaporated milks can be reconstituted with water to the strength of whole fresh milk by following the directions on the container. It can then be prepared in the same manner as fresh milk by adding water and exacts amount of sugar and boiling.

### Table 6.2. Amounts needed to prepare formula using cow’s milk

<table>
<thead>
<tr>
<th>Age of infant</th>
<th>Amount of milk</th>
<th>Amount of water</th>
<th>Amount of sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 month</td>
<td>40 mL</td>
<td>20 mL</td>
<td>4 g (approx 1 level tsp.)</td>
</tr>
<tr>
<td>2 months</td>
<td>60 mL</td>
<td>30 mL</td>
<td>6 g (approx 1 rounded tsp.)</td>
</tr>
<tr>
<td>3-4 months</td>
<td>80 mL</td>
<td>40 mL</td>
<td>8 g (approx 1 heaping tsp.)</td>
</tr>
<tr>
<td>5-6 months</td>
<td>100 mL</td>
<td>50 mL</td>
<td>10 g (2 level tsp.)</td>
</tr>
</tbody>
</table>

### Table 6.3. Amounts needed to prepare formula using evaporated milk*

<table>
<thead>
<tr>
<th>Age of infant</th>
<th>Amount of milk</th>
<th>Amount of water</th>
<th>Amount of sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 month</td>
<td>16 mL</td>
<td>44 mL</td>
<td>4 g (approx 1 level tsp.)</td>
</tr>
<tr>
<td>2 months</td>
<td>24 mL</td>
<td>66 mL</td>
<td>6 g (approx 1 rounded tsp.)</td>
</tr>
<tr>
<td>3-4 months</td>
<td>32 mL</td>
<td>88 mL</td>
<td>8 g (approx 1 heaping tsp.)</td>
</tr>
<tr>
<td>5-6 months</td>
<td>40 mL</td>
<td>110 mL</td>
<td>10 g (2 level tsp.)</td>
</tr>
</tbody>
</table>

* The dilution may vary according to the brand. Check the label for the appropriate dilution to prepare full-cream milk.
Table 6.4. Amounts needed to prepare formula using powdered full-cream milk

<table>
<thead>
<tr>
<th>Age of infant</th>
<th>Amount of milk</th>
<th>Amount of water</th>
<th>Amount of sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 month</td>
<td>5 g</td>
<td>60 mL</td>
<td>4 g (approx 1 level tsp.)</td>
</tr>
<tr>
<td>2 months</td>
<td>7.5 g</td>
<td>90 mL</td>
<td>6 g (approx 1 rounded tsp.)</td>
</tr>
<tr>
<td>3-4 months</td>
<td>10 g</td>
<td>120 mL</td>
<td>8 g (approx 1 heaping tsp.)</td>
</tr>
<tr>
<td>5-6 months</td>
<td>12.5 g</td>
<td>150 mL</td>
<td>10 g (2 level tsp.)</td>
</tr>
</tbody>
</table>

Home-modified animal milk for the infant older than 6 months of age

Infants older than 6 months of age should continue to receive some kind of milk. Animal milk for an infant older than 6 months does not have to be diluted. Beginning at 6 months of age, additional foods should be added to the diet.

Table 6.5. Approximate amounts of replacement feeding needed according to age

<table>
<thead>
<tr>
<th>Age</th>
<th>Approximate amount per feed</th>
<th>Approximate amount per 24 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>60-90 mL every 2-3 hours</td>
<td>400-800 mL</td>
</tr>
<tr>
<td>1 month</td>
<td>90-120 mL every 3-4 hours</td>
<td>400-800 mL</td>
</tr>
<tr>
<td>2-6 months</td>
<td>120-180 mL every 4 hours</td>
<td>700-1,000 mL</td>
</tr>
<tr>
<td>6 months and older</td>
<td>180-220 mL every 6 hours</td>
<td>1,000 mL, decreasing to about 600 mL around 12 months of age</td>
</tr>
</tbody>
</table>

6.8 Prevention and treatment of breast problems

Mastitis

Mastitis is an inflammation of the breast tissue surrounding the milk ducts usually caused by blocked ducts or engorgement. It can also be caused by bacteria entering a cracked nipple. Women should be informed about the signs and symptoms of mastitis. These include:

- Sudden, unilateral, localised tenderness and soreness
- Heat and swelling
- Fever
- Chills, body aches and fatigue
HIV-infected women should be informed that mastitis increases the risk of transmitting HIV to their infants through breastfeeding. Women with mastitis should avoid breastfeeding from the affected breast while mastitis is present. Milk from affected breasts should be expressed and discarded frequently to prevent the mastitis from becoming worse, help breasts recover and maintain milk production.

If only one breast is affected, the mother should continue to breastfeed from the healthy breast. If the milk from the healthy breast is not enough to fulfill the infant’s needs, she may express and pasteurise milk from the affected breast and give it to the infant. (See Appendix 6-C for instructions on how to express and pasteurise breastmilk). If both breasts are affected, the woman should consider cessation of breastfeeding (while expressing breastmilk frequently) until the mastitis is healed. The counsellor should help her choose an alternative feeding method for this period.

Women should receive information about the CARESS model for management of mastitis.

- **C** – Compresses (hot and cold)
- **A** – Antibiotics (if necessary)
- **R** – Rest
- **E** – Effective, gentle and frequent removal of breastmilk
- **S** – Stress identification and management
- **S** – Support and follow-up

### Table 6.6. Management of common breast conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engorgement</td>
<td>- Pump or manually express some breastmilk to reduce engorgement</td>
</tr>
<tr>
<td></td>
<td>- Support the breasts but avoid binding</td>
</tr>
<tr>
<td></td>
<td>- Alternate warm showers with cold and warm compresses for pain relief</td>
</tr>
<tr>
<td></td>
<td>- Relieve pain with paracetamol</td>
</tr>
<tr>
<td></td>
<td>- For ongoing prevention, consider increasing the frequency of feedings,</td>
</tr>
<tr>
<td></td>
<td>up to every 3 hours</td>
</tr>
<tr>
<td>Sore or cracked nipples</td>
<td>The main causes of sore or cracked nipples are poor attachment and poor</td>
</tr>
<tr>
<td></td>
<td>positioning. Tips for mothers in managing and preventing sore nipples</td>
</tr>
<tr>
<td></td>
<td>include the following:</td>
</tr>
<tr>
<td></td>
<td>- Check positioning and encourage the infants to open the mouth wide</td>
</tr>
<tr>
<td></td>
<td>when latching on</td>
</tr>
<tr>
<td></td>
<td>- Offer the infant short, frequent feedings to encourage less vigorous</td>
</tr>
<tr>
<td></td>
<td>sucking</td>
</tr>
</tbody>
</table>

CHAPTER 6: Infant Feeding in the Context of HIV Infection
6.9 Feeding after 6 months of age

All infants, including infants who continue to be breastfed, require nutritious foods beginning at 6 months of age. Recommendations for complementary feeding should be based on locally available foods and feeding practices.

Caregivers should begin introducing complementary foods in small amounts at 6 months of age, gradually increasing the amount and variety foods as the infant gets older, adapting to the infant's nutritional requirements and physical abilities.

Infants should continue to receive breastmilk or replacement milks into the second year of life. For non-breastfed children receiving other sources of animal proteins, animal milk requirements after 6 months are about 250 mL (1 cup). Non-breastfed children require 2 cups of milk per day if milk is their only source of animal protein. Animal milks do not have to be diluted for infants older than 6 months of age. However, fresh animal milk should still be boiled to kill germs and improve digestibility. Milk may also be given as sour milk or yoghurt.

Sick children may need more food than healthy children because of the metabolic effects of infections. Energy requirements also are higher for children who are severely malnourished and undergoing nutritional rehabilitation.
Table 6.7. Age-appropriate complementary foods and their characteristics

<table>
<thead>
<tr>
<th>Age</th>
<th>Texture</th>
<th>Frequency</th>
<th>Amount at each meal</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 months</td>
<td>Soft porridge; well-mashed vegetable, meat or fruit</td>
<td>2 times a day plus frequent milk feeds</td>
<td>2-3 tablespoons</td>
</tr>
<tr>
<td>7-8 months</td>
<td>Mashed foods</td>
<td>3 times a day plus frequent milk feeds</td>
<td>2/3 cup*</td>
</tr>
<tr>
<td>9-11 months</td>
<td>Finely chopped or mashed foods, and foods that the infant can pick up</td>
<td>3 meals plus 1 snack between meals plus milk feeds</td>
<td>2/3 cup*</td>
</tr>
<tr>
<td>12-24 months</td>
<td>Family foods, chopped or mashed if necessary</td>
<td>3 meals plus 2 snacks between meals plus milk feeds</td>
<td>1 full cup*</td>
</tr>
</tbody>
</table>

If child is not breastfed, give in addition: 1-2 cups of milk per day, and 1-2 extra meals per day.

* One cup = 250 mL

### 6.10 Nutritional requirements for the lactating mother

**Maternal nutrition and lactation**

Women use energy for lactation. Breastfeeding women need an additional 500 kcal every day. This is the equivalent of one extra meal a day. Breastfeeding women can meet these requirements by increasing their nutritional intake and decreasing their physical activity. When mothers do not get enough nutritious food, milk production declines. Micronutrient requirements increase during pregnancy and lactation and can affect the overall health of a pregnant or lactating woman.

**Supporting nutritional needs of the mother**

Cultural beliefs about food influence what a woman eats. There are many locally available nutritious foods that might be forbidden or discouraged for use in pregnant and lactating women because of cultural beliefs. Healthcare workers should be conscious of local food beliefs and traditions and be prepared to address them with their clients.

**Practice Point**

It is essential that healthcare workers counsel women on eating a balanced diet based on their economic situation.
Danger signs of malnutrition in lactating women

Signs of severe malnutrition in breastfeeding women include the following:

- **Weight**: Weight loss, reduced muscle mass, weakness
- **Bones**: Painful bones and joints, osteopenia, and distortions in the shape or size of bones
- **Skin**: Severe dryness or scale, atrophy, petechiae (small red spots on the skin that usually indicate a low platelet count) and ecchymoses
- **Mouth**: Angular stomatitis, glossitis, swollen or bleeding gums, and decayed teeth
- **Hair/Nails**: Reddish, rusty coloured hair (loss of pigmentation of the hair), brittle and malformed (spooned) nails
- **Neurologic**: Disorientation, an abnormal gait, altered reflexes and sensory or motor neuron abnormalities

**Practice Point**

HIV-infected women who show signs or symptoms of malnourishment should be referred to the CTC or a feeding programme.
CHAPTER 7
Comprehensive Care and Support for Mothers and Families with HIV Infection

7.1 Comprehensive care, treatment and support

Providing family-centred HIV treatment, care and support for women infected with HIV, their infants and families is an important part of the comprehensive approach to PMTCT. Services should be provided directly by RCH facilities or arranged by strategic and coordinated referrals.

Comprehensive care, treatment and support services

<table>
<thead>
<tr>
<th>Mother and partner</th>
<th>Child</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Postpartum assessment of healing and routine physical assessment for primary care needs</td>
<td>▪ Monitoring growth and development</td>
<td>▪ Education and support for child follow-up care</td>
</tr>
<tr>
<td>▪ Prevention and treatment of malaria</td>
<td>▪ Immunisations and nutritional supplementation</td>
<td>▪ Family planning counselling, including contraceptive options</td>
</tr>
<tr>
<td>▪ Prevention and treatment of OIs</td>
<td>▪ Prevention and treatment of OIs</td>
<td>▪ Assessment and referral for ARV treatment</td>
</tr>
<tr>
<td>▪ Sexual and reproductive health care, including family planning</td>
<td>▪ HIV testing or clinical presumptive diagnosis of HIV testing</td>
<td>▪ Referral and linkage to community service organisations and agencies to promote continuity of care</td>
</tr>
<tr>
<td>▪ Psychological and social support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Counselling about safer sex for HIV-positive and HIV-discordant couples</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Nutritional counselling care and support</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
For a descriptive algorithm of a women’s typical path through a PMTCT programme, please see Appendix 7-A, *Comprehensive Care for Prevention of Mother-to-Child Transmission of HIV.*

**Integration of PMTCT and RCH services**

PMTCT services should be fully integrated into all aspects of RCH, including ANC services. How this integration occurs will depend upon the capacity and scope of services offered by the various facilities. Whether a healthcare facility delivers ARV treatment, combination ARV prophylaxis, or the minimum ARV prophylaxis regimen of sdNVP will depend upon the resources at the facility.

**Table 7.1. PMTCT-related RCH services and types of facilities**

<table>
<thead>
<tr>
<th>Type of facility</th>
<th>Services provided to HIV-infected pregnant women</th>
</tr>
</thead>
</table>
| ARV treatment initiating sites | - HIV testing  
  - HIV clinical and immunological staging and other relevant investigations for determining ARV treatment eligibility  
  - Provision of combination ARV prophylaxis  
  - Referral to CTC for women eligible for ARV treatment, or treatment at RCH if capacity allows |
| Non ARV-initiating sites: medium capacity | - HIV testing  
  - HIV clinical and immunological staging and other relevant investigations for determining ARV treatment eligibility  
  - Referral to nearby CTC for HIV-infected clients who are eligible for ARV treatment  
  - Provision of the minimum OR combination ARV prophylaxis regimens depending on the facility’s capacity  
  - Postpartum care at the RCH facility until 42-day visit, when referral is made to CTC for comprehensive care and treatment |
| Non ARV-initiating sites: low capacity | - HIV testing  
  - Referral to CTC for HIV clinical and immunological staging and other relevant investigations for determining ARV treatment eligibility  
  - Provision of the minimum ARV prophylaxis regimens for women who are not eligible for ARV treatment  
  - Postpartum care at the RCH facility until 42-day visit, when referral is made to CTC for comprehensive care and treatment |
All pregnant women should be counselled and tested for HIV in RCH clinics at their first ANC visit. Pregnant HIV-infected women should receive a standard package of RCH services in addition to HIV-specific ANC and should be evaluated for ARV treatment eligibility after testing positive, preferably at the RCH facility.

Women who are eligible to receive ARV treatment for their own health will begin treatment as soon as possible. In most cases, ARV treatment will be initiated and monitored at a CTC through a referral from the RCH facility. Certain RCH facilities may have the capacity to initiate and manage ARV treatment. Basic ANC will always take place at the RCH facility. All RCH facilities will refer women back to CTCs at the woman’s 42-day postpartum visit to ensure that she accesses ongoing care and treatment for herself and her family.

HIV-exposed infants will be seen at the RCH clinics (Under-Five clinics) for follow-up, growth and development monitoring, immunisations, HIV testing and cotrimoxazole prophylaxis. To facilitate this follow-up, their HIV-exposure status (exposed or not exposed) will be recorded in their Road to Health card. Those who test positive with PCR (where available) or show signs or symptoms of HIV infection according to WHO criteria will be staged at Under-Five clinics, and investigations will be performed there. Children with confirmed or suspected HIV infection (through clinical or immunological staging) will be referred to a CTC for further care and treatment services.

Regardless of which institution performs the follow-up tasks, there will need to be effective communication and coordination of patient care among PMTCT programmes, CTC facilities and all healthcare workers involved.

### 7.2 Postpartum care and support

Healthcare workers and facility managers in ANC, labour and delivery wards and postpartum clinics should develop standard procedures to link women to postpartum services. Procedures should be developed to support and confirm that women follow through with these referrals. Referrals should include the time, location and contact information for the appointment.

The client’s first postpartum appointment should be within 1 week (7 days) of delivery. Additional appointments should take place 28 days and 42 days after delivery. At the 42-day appointment, women should be referred back to HIV treatment services at a CTC.
Assessment of healing and routine physical assessment during postpartum visits

Practice Point

During the mother’s postpartum visits, healthcare workers should conduct the following activities to monitor the mother’s healing:

- Measure blood pressure and temperature.
- Monitor uterine involution (shrinking).
- Check healing of any repaired genital/perineal lacerations.
- Examine the vulva and perineum for signs of infection, redness, tears, swelling or pus.
- Confirm cessation of postpartum bleeding (check sanitary pad for the amount of bleeding).
- Check for signs of infection.
- Check for signs of anaemia (eg, pallor) and ask about fatigue.

Family planning and safer sex counselling

During postpartum visits, healthcare workers should counsel the patient about the various family planning methods, relating them to the patient’s particular situation and needs. This information should be offered in an accurate and unbiased manner. Partners should be involved in family planning counselling whenever possible.

During the counselling session, healthcare workers should:

- Discuss condom use as dual protection against HIV, other STIs and unplanned pregnancy.
- Discuss the importance of safer sex to prevent the spread of HIV and other STIs.
- Support the mother’s choice of contraceptive method.
- Give the mother advice on how to recognise STI symptoms and where to go for STI assessment and treatment.
- Answer any questions the woman may have about safer sex behaviours.
Practice Point

All mothers should be counselled to start using some form of contraception within 6 weeks of delivery.

**Nutritional counselling, care and support**

Nutritional counselling is an important part of postpartum care, and nutrition should be monitored and discussed during all postpartum visits. During these visits, healthcare workers should review the mother’s nutritional requirements, asking whether she is getting enough food and liquids and counselling her about nutritious, locally available foods. The importance of cleanliness during food preparation and storage for the prevention of bacterial infections should be emphasised, and women should be encouraged to abstain from harmful habits such as smoking, alcohol and drug use. HIV-infected women receiving ARV and other medications may need additional nutritional counselling to manage side effects and avoid nutrition-related complications. During the postpartum visits, healthcare workers should assess the extent of family support for the chosen infant feeding option and monitor how well infant feeding is progressing.

**Psychological and social support services**

HIV-infected women may require ongoing psychological and social support services. Because people with HIV face stigma in many communities, HIV-infected women are often reluctant to disclose their HIV status to partners, family members or friends. Moreover, a woman who has learned of her HIV status during antenatal HIV testing may still be adjusting to her HIV-positive status. During the postpartum period, women are also dealing with anxieties about their child’s health.

Regular monitoring of mental health and psychological support needs is critical at all stages of HIV infection. The following services should be offered to HIV-infected women directly or by referral:

- Support and counselling to help women come to terms with their diagnoses and to disclose their HIV status to their partners and families
- Peer group counselling and support from health agencies or NGOs
- Counselling and support for the mother and family to help them cope with the uncertainty of their child’s HIV status
Community support, including referrals to community-based and faith-based programmes

7.3 Prevention of OIs in adults

As HIV progresses, the immune function weakens and a person infected with HIV may develop OIs. Healthcare workers in RCH settings should be able to assess and recognise early the signs and symptoms of the following common OIs so that they can refer clients to appropriate care:

- TB
- PCP
- Candidiasis
- Herpes zoster
- Kaposi sarcoma
- Toxoplasmosis
- Cryptococcal meningitis

Practice Point

A patient of unknown HIV status who exhibits signs and symptoms of an OI should be tested for HIV as soon as possible and assessed for ARV treatment eligibility if found to be infected.

HIV-infected women should receive information about ways to prevent OIs and other common HIV-related infections. Such measures include the following:

- Maintaining good hygiene in the preparation and storage of food
- Taking drugs that prevent infections such as sulfadoxine-pyrimethamine to prevent malaria for pregnant women and CPT to prevent PCP, toxoplasmosis and some bacterial infections
- Cleaning the body well to avoid skin infections
- Maintaining good oral care and hygiene
- Using condoms, which can help prevent the spread of HIV and other STIs
- Getting enough rest
TB
TB and HIV are overlapping epidemics. A person infected with HIV is 10 times more likely than a person who is HIV negative to develop TB. Healthcare workers should carefully assess HIV-infected clients for the signs and symptoms TB infection.

Practice Point

- Clients who have symptoms suggestive of TB should be referred for a chest x-ray, clinical evaluation and sputum examination.
- HIV-infected pregnant women who have TB should be referred immediately for TB treatment and HIV care and treatment assessment at a CTC.
- The prevention of TB and the treatment of confirmed active TB should follow national guidelines.

Malaria
Pregnant women are at particular risk for malarial infection. Preventing malaria is very important, because malarial infection has negative consequences on the health of mothers and infants. Malaria is a major cause of anaemia in pregnant women nationally and increases the risk of severe illness and maternal death. Infants born to women with HIV and malaria are more likely to have low birth weight and more likely to die during infancy. Malarial infection is often asymptomatic, however, clients may have symptomatic periods that resolve and then reoccur.

Practice Point

Referral for evaluation of malaria should be considered in any patient presenting with symptoms:

- Fever
- Muscle aches or joint pains
- Chills
- Enlarged spleen
- Mental confusion
- Abdominal pain
- Diarrhoea, nausea and vomiting
- Loss of appetite
All pregnant women should receive information about the following malaria prevention methods:

- Intermittent presumptive treatment for malaria with sulfadoxine-pyrimethamine.
- Use of insecticide-treated bednets
- Eliminating possible mosquito breeding places in and around the home

Women should be educated about using ferrous sulphate and folic acid to prevent anaemia, and about the importance of regular screening for malaria.

**PCP**

To prevent PCP and toxoplasmosis, women should receive CPT according to the *National Guidelines for the Clinical Management of HIV and AIDS (2005).*

<table>
<thead>
<tr>
<th>Practice Point</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eligibility for CPT</strong></td>
</tr>
<tr>
<td>CPT should be prescribed for:</td>
</tr>
<tr>
<td>- All adults with symptomatic HIV (WHO stages 3 and 4)</td>
</tr>
<tr>
<td>- Asymptomatic HIV-infected adults with CD4 counts of &lt;200 cells/mm$^3$</td>
</tr>
</tbody>
</table>

CPT should be continued for life for HIV-infected adults who are not receiving ARV treatment.

**Adult CPT regimen**

The dose of cotrimoxazole is 960 mg daily, administered as 1 double-strength tablet (trimethoprim/sulfamethoxazole 160/800 mg) or 2 single-strength tablets (trimethoprim/sulfamethoxazole 80/400 mg) daily.

**Pregnancy and CPT**

- Women receiving CPT who become pregnant should continue CPT throughout pregnancy. However, caution should be exercised when initiating CPT in women in the first trimester of pregnancy and with women who may not have access to good nutrition, because cotrimoxazole can cause a deficiency in folic acid.
- *Pregnant women who are receiving CPT do not need intermittent presumptive treatment for malaria.*
Managing side effects

- Cotrimoxazole should not be administered to clients with a history of allergy to sulfal-containing drugs.
- Healthcare workers should monitor clients receiving CPT closely for side effects and for rare adverse events such as severe skin reactions (severe rash or Stevens-Johnson syndrome), renal and hepatic insufficiency and hematologic toxicity.
- CPT should be stopped if the patient develops significant side effects and replaced with dapsone 100 mg.

7.4 Care and support of HIV-exposed and HIV-infected infants and children

Overview

PMTCT interventions reduce, but do not eliminate, the risk of HIV transmission from mother to infant. HIV infection can progress extremely rapidly in children. Healthcare workers must be prepared to provide appropriate care and treatment for children who may be infected.

HIV disease can progress very rapidly in children. Many HIV-infected children will die from their disease before they are diagnosed, unless they are carefully followed up. It is therefore important that healthcare workers strongly encourage HIV-infected mothers to keep all infant follow-up appointments and to seek medical help when the child becomes ill or the she suspects a problem.
Practice Point

In order to ensure proper follow-up of infants, it is crucial that their HIV-exposed status be recorded on their Road to Health card.

The HIV-exposed newborn should be seen in the healthcare facility or at home within 1 week of delivery or sooner to monitor feeding progress. Follow-up visits for all infants should be scheduled to coincide with the recommended immunisation schedule indicated on the Road to Health card.

- At birth (for infants delivered at home)
- At ages 4, 8 and 12 weeks
- Once a month from 12 weeks to 1 year, then every 3 months to 2 years
- At 18 months for confirmatory HIV testing with antibody tests, if diagnosis has not been established (see section 7.6)

Follow-up visits for HIV-exposed and HIV-infected infants and children should include the following activities:

- Assessment of HIV-specific and nonspecific symptoms of illness at each visit using the Integrated Management of Childhood Illness guidelines and the WHO Clinical Staging system
- Immunisations (see Appendix 7-B)
- Assessing and monitoring growth and development; this includes measuring and plotting height and weight on the Road to Health Card and exploring possible causes of growth failure; HIV-exposed infants who fail to grow should be referred for additional evaluation at Under-Five clinics and ARV treatment sites
- Screening and treatment for TB when indicated
- HIV antibody and viral testing as indicated (see Appendix 7-G)
- Providing guidance on infant feeding
- Providing vitamin A supplementation (see Appendix 7-C)
- Starting CPT at 4 weeks or as soon as possible (see Appendix 7-D)
- Providing education to families about how to prevent malaria, including the use of insecticide-treated bednets
- Treating anaemia according to national guidelines
- Assessing the mother’s health and making appropriate referrals for follow-up care, because the health of a mother and that of her child are closely related
7.5 Common signs and symptoms of HIV infection in infants

Healthcare workers should teach mothers and other caregivers to recognise early signs and symptoms of HIV infection and to seek early care for sick children.

Table 7.2. Clinical conditions or signs of HIV infection in a child who is HIV exposed

<table>
<thead>
<tr>
<th>Is symptom specific to HIV?</th>
<th>Signs and conditions</th>
</tr>
</thead>
</table>
| Common in children who are HIV infected; also seen in ill, uninfected children | ▪ Chronic, recurrent otitis media with discharge  
▪ Persistent or recurrent diarrhoea  
▪ Failure to thrive (slow growth)  
▪ TB |
| Common in children who are HIV infected; uncommon in uninfected children | ▪ Severe bacterial infections, particularly if recurrent  
▪ Persistent or recurrent oral thrush  
▪ Chronic parotiditis (swelling of the parotid gland, often painless)  
▪ Generalised persistent noninguinal lymphadenopathy in two or more sites  
▪ Hepatosplenomegaly (enlargement of the liver and spleen)  
▪ Persistent or recurrent fever  
▪ Neurologic dysfunction  
▪ Herpes zoster (shingles), single dermatome  
▪ Persistent generalised dermatitis unresponsive to treatment |
| Specific to HIV infection | ▪ PCP  
▪ Oesophageal candidiasis  
▪ Lymphoid interstitial pneumonitis  
▪ Herpes zoster (shingles) with multidermatomal involvement  
▪ Kaposi sarcoma |
7.6 Diagnosis of HIV in infants and young children

Introduction
Diagnostic services for HIV-exposed infants and young children are a critical part of follow-up care. However, two factors complicate the early diagnosis of HIV infection in these children. The first is that infants may have ongoing exposure to HIV through breastfeeding. Negative test results are therefore not definitive until 6 weeks after the complete cessation of breastfeeding. The second complication stems from the fact that maternal antibodies cross the placenta during pregnancy. All infants born to HIV-infected mothers receive maternal antibodies and will test antibody positive at birth, regardless of their own infection status. Maternal antibodies persist in the infant’s system for 15-18 months, which means that antibody test results for infants less than 18 months of age are difficult to interpret.

Viral tests such as HIV DNA PCR, and HIV RNA PCR detect the actual virus (not the antibody to the virus) and can therefore be used for a definitive diagnosis in HIV-exposed infants starting as early as 4 weeks of age. The availability of PCR testing is increasing in Tanzania and should be available at CTCs and zonal and district hospitals.

Presumptive diagnosis of HIV infection in children
If an infant is less than 18 months old and has symptoms that are suggestive of HIV infection, and viral testing is not available, it is possible to make a presumptive diagnosis of HIV infection for the purposes of starting ARV treatment.

- Infants less than 18 months of age can be diagnosed with HIV on the basis of symptoms and a positive antibody test.
- The use of symptoms to guide diagnosis of HIV should be followed by efforts to confirm the diagnosis with the best available tests for the infant’s age.
- If the child is at least 18 months old, an antibody test should be used to diagnose HIV infection.
Practice Point

Presumptive diagnosis of a severe HIV infection should be made if the child:

1. Has a confirmed positive HIV antibody test \(^a\)  
   AND
2. Has a diagnosis of any AIDS-indicating condition \(^b\)

   OR
3. Is symptomatic with two or more of the following:
   - Oral thrush \(^c\)
   - Severe pneumonia \(^c\)
   - Severe sepsis \(^c\)

Other factors that support the diagnosis of HIV disease in an HIV-seropositive infant include:
- Recent HIV-related maternal death or advanced AIDS in the mother
- If available, a CD4 percentage of less than 20%

\(^a\) Although HIV antibody tests are difficult to interpret for children under the age of 18 months, when accompanied by these other symptoms, the antibody test can be used to form the presumptive diagnosis of HIV.

\(^b\) AIDS-indicating conditions include some but not all HIV WHO Paediatric Clinical Stage 4 indicators, such as PCP, oesophageal candidiasis, cryptococcal meningitis, cerebral toxoplasmosis, HIV wasting and Kaposi sarcoma.

\(^c\) As defined by the Integrated Management of Childhood Illness.

Tanzania guidelines for infant HIV diagnosis

Practice Point

HIV-exposed infants and children

- Whenever possible, HIV-exposed infants and children should receive viral testing at 8 weeks postdelivery to determine their HIV status.
- When viral testing is not available, symptomatic children <18 months of age should receive antibody testing to confirm HIV exposure. Healthcare workers can make a presumptive diagnosis of HIV infection based on a positive antibody test, the child’s clinical symptoms and, if available, the child’s CD4 percentage.
- For children older than 18 months, an antibody test should be used to confirm HIV infection. As with adults, two positive results, using different antibody tests, are required for a definitive diagnosis of HIV infection.
- If the infant or child is breastfeeding, HIV testing should be repeated 6 weeks after the complete cessation of breastfeeding, regardless of the testing methodology that is used.
Children of unknown HIV status

Children of unknown HIV status who present with signs or symptoms of HIV infection should be tested for HIV infection immediately.

- If the child is older than 18 months of age, an antibody test should be performed. A positive antibody test will be definitive.
- If the child is less than 18 months of age, he or she should receive HIV viral testing. In the absence of viral tests, a presumptive diagnosis of HIV infection can be made when all criteria for presumptive diagnosis are met.

For more information, see the testing algorithm for infants and children in Appendix 7-G, *Algorithms for HIV Diagnosis for Infants and Children*.

Healthcare workers should discuss the testing process and diagnosis with parents in a compassionate and confidential manner, while informing them of potential services for the child. This counselling should begin in the antenatal period so that families are aware of the importance of follow-up care and HIV testing for their children.

### 7.6 Support for families with HIV-exposed and HIV-infected infants or children

The suspicion or confirmation of HIV diagnosis in an infant or child is difficult for parents and family members. Healthcare workers should discuss the diagnosis compassionately and confidentially and offer information about services available for the child.

Additional areas for which healthcare workers should make assessments and appropriate referrals include:

- Nutritional support
- Psychosocial support
- Educational support
- Financial support
- Faith-based support
- Transportation
- Home-based care
- Orphan care: care for child if a parent becomes severely ill, is incapacitated or dies
7.7 Basic management of HIV-infected children

HIV-infected children should receive routine paediatric care and should be monitored for their HIV disease progression.

Children under the age of 1 year should be seen monthly; thereafter, they should be seen every 3 months. At each visit, healthcare workers should perform a complete physical examination, paying particular attention to signs commonly associated with HIV infection. Growth and development should be evaluated and charted at all stages of development through adolescence.

7.8 ARV treatment for adults and children

ARV treatment for women who are HIV infected is increasingly available nationally and is being provided through CTCs and selected RCH facilities. ARV treatment for women and children should be administered according to the National Guidelines for the Clinical Management of HIV and AIDS. See Appendix 7-H, ARV Medications for Adults and Children in Tanzania, and Appendix 7-I, Information about Antiretroviral Medications, for additional information.

Basic facts about ARV treatment

There are some basic facts about ARV treatment that healthcare workers should be aware of in order to better counsel their clients who are receiving treatment.

<table>
<thead>
<tr>
<th>ARV treatment does not cure HIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARV drugs cannot cure HIV infection or eliminate it from the body. Instead, they stop HIV from replicating (reducing viral load) which slows the destruction of the immune system and helps the immune system to recover. If ARV treatment is stopped, HIV disease progression occurs more rapidly.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Always use 3 different ARV drugs for treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare workers should use only regimens that are effective enough to drastically reduce viral replication, prevent viral resistance and ultimately avoid treatment failure. At present, the only regimens that can do this for long periods of time involve a combination of at least 3 ARV drugs. Whereas mono or dual treatment (regimens with 1 or 2 ARV drugs) can be used for short-term prophylaxis against MTCT of HIV, healthcare workers should not prescribe mono or dual treatment for long-term ARV treatment.</td>
</tr>
</tbody>
</table>
### ARV drugs must be taken every day, otherwise they will not work

It is important to keep an effective concentration of ARVs in the patient’s bloodstream. Low drug concentrations in the blood allow HIV to mutate. These mutations can make the virus resistant to ARV drugs. When resistance develops, ARVs do not work as well to fight the virus.

Missing even one or two doses, taking medication late or taking medication with certain foods can lower concentrations of ARVs in the blood. *Therefore, patient adherence is crucial to the efficacy of ARV treatment.* ARV treatment should not be started or continued without consistent adherence assessment, counselling and support.

### Selecting which ARV medications to use should be done by an experienced healthcare worker

In choosing which medications to administer, healthcare workers should select effective regimens with the fewest side effects. Selection is guided by the national ARV guidelines. Many combinations of ARV drugs work, whereas other combinations do not. Certain ARV drugs are safe in pregnancy and others are not (eg, EFV during the first trimester). See Chapter 5, Appendix 7-H and Appendix 7-I for more information.

### Other medications will interact with ARV drugs

Clients should avoid the use of other medications that could reduce the concentration of ARVs in the blood. Healthcare workers should closely monitor all traditional and nontraditional medications taken by clients for possible interactions.

### Clinical criteria for commencing ARV treatment in adults and adolescents

The *National Guidelines for the Clinical Management of HIV and AIDS* contain the WHO Clinical Staging System for HIV-Infected Adults and Adolescents and guidelines for commencement of ARVs. National guidelines also outline when ARV treatment may be delayed. For the WHO Clinical Staging System, see Appendix 7-E, *WHO Clinical Staging of HIV/AIDS for Adults and Adolescents with Confirmed HIV infection*.

#### Practice Point

**Clinical criteria for commencing ARV treatment in adults and adolescents**

- Confirmed HIV positive, **AND**
- CD4 count of <200 cells/mm³ regardless of WHO clinical stage **OR**
- WHO Clinical Stage 3 with CD4 count of <350 cells/mm³ **OR**
- WHO Clinical Stage 4 regardless of CD4 count
National first-line ARV treatment regimens in adults

Practice Point

First-line adult ARV treatment regimens

Pregnant women and those of childbearing potential:
- Zidovudine (AZT) + lamivudine (3TC) + nevirapine (NVP)

Clients who are also being treated for TB:
- Zidovudine (AZT) OR stavudine (d4T) + lamivudine (3TC) + efavirenz (EFV)

All other adults:
- Stavudine (d4T) + lamivudine (3TC) + nevirapine (NVP)

Healthcare workers should be aware that pregnant women and women of childbearing potential are started on an ARV treatment regimen that is different from those recommended for other adults.

TB infection is a common entry point to care for HIV-infected clients who should be on ARV treatment, including pregnant women. Pregnant women who have TB face HIV treatment challenges. Several anti-TB regimens can be administered with effective ARV treatment in HIV-infected persons, whereas others cannot. Rifampicin, a potent drug used in the treatment of TB, should not be used with NVP if possible, because of the increased risk of liver toxicity. The national guidelines call for substituting NVP with EFV in the first-line regimen. However, EFV should be avoided in the first trimester of pregnancy because it may cause birth defects. Reliable contraception must be used in the postpartum period if EFV is continued postdelivery.

For information on the dosages and management of Tanzania’s first-line ARV treatment regimens, see section 5.3 in Chapter 5, Specific Interventions to Prevent MTCT, as well as Appendix 7-I, Information about Antiretroviral Medications.

ARV treatment for HIV-infected children

All healthcare workers must monitor infants and children for symptoms of HIV infection that would make them candidates for ARV treatment. The national guidelines contain detailed clinical and social criteria for initiating ARV treatment in children.
All children with confirmed or presumptive HIV infection should be referred to HIV treatment either at a CTC or in the RCH facility. Presumptive diagnoses of HIV infection should be confirmed with antibody tests at 18 months of age. Only children with confirmed HIV infection continue ARV treatment.

The first-line ARV regimens for children are outlined in Appendix 7-H, *ARV Medications for Adults and Children in Tanzania*. Paediatric dosages have to be adjusted frequently for growth. Healthcare workers should assess the child’s growth, adherence and the tolerability of the child’s ARV regimen at every visit and adjust the dosages accordingly.

For the WHO Clinical Staging of infants and children, see Appendix 7-F, *WHO Clinical Staging of HIV/AIDS for Infants and Children*.

### Practice Point

**Recommendations**

**In HIV-exposed children less than 18 months of age**, start ARV treatment according to the following criteria:

- WHO Paediatric Clinical Stage 4 *
- WHO Paediatric Clinical Stage 3 and CD4 percentage <20% OR, if clinical Stage 3 and there is no CD4 testing, start ARV treatment

If CD4 percentage is available, start:

- WHO Paediatric Clinical Stage 1 or 2 and CD4 percentage <20% only with confirmation of HIV by viral test; otherwise, monitor until they reach clinical Stage 3

**Clinical criteria for commencing ARVs in children aged 18 months and older with confirmed HIV infection:**

- WHO Paediatric Clinical Stage 3 or 4 regardless of CD4 percentage
- WHO Paediatric Clinical Stage 1 or 2 if CD4 percentage <15%

*Includes presumptive diagnosis. Confirm HIV diagnosis with antibody tests at 18 months of age. Only children with confirmed infection continue ARV treatment.*
Clinical failure

PMTCT healthcare workers should be able to *preliminarily* assess clinical failure of an ARV regimen using the WHO Clinical Staging System. New or recurrent Clinical Stage 4 or the presence of at least 3 symptoms or infections after 6 months of ARV treatment may suggest treatment failure.

If a healthcare worker suspects that treatment is failing and adherence issues are ruled out, the patient should be referred back to HIV treatment services as soon as possible. Before referring clients, healthcare workers should first assess adherence to ARV drugs and work with the patient to address barriers to adherence. In particular, healthcare workers should ask clients about any side effects that they may have.
experienced and offer information on how to manage them. A list of common side effects of first-line ARV medications can be found in Appendix 7-I, *Information about Antiretroviral Medications*. Clients should be questioned about other medications that may interfere with ARV medications.

Healthcare workers should note that ARV medications require a reasonable amount of time to take effect, usually 6-12 months. Clinical events in the first 3 months after starting ARV treatment may be caused by immune reconstitution syndrome rather than clinical treatment failure.

### 7.9 Promoting adherence

Patient adherence to ARV treatment is critical to success. ARV treatment requires close monitoring and consistent support in order to promote good treatment outcomes and improve quality of life. Healthcare workers should discuss and assess ARV tolerance with clients and refer them to HIV treatment services so that side effects can be managed promptly. The following suggestions can help to support ARV tolerance and improve adherence.

<table>
<thead>
<tr>
<th>Measures to increase ARV treatment adherence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educate clients</strong></td>
</tr>
<tr>
<td>▪ Make sure the client knows that ARV treatment is not a cure and that it requires a long-term commitment.</td>
</tr>
<tr>
<td>▪ Review each medication in the ARV regimen with the client.</td>
</tr>
<tr>
<td>▪ Assist the client in planning a dosage schedule that works for him/her.</td>
</tr>
<tr>
<td>▪ Remind clients of food and beverage restrictions (if any exist).</td>
</tr>
<tr>
<td>▪ Help clients understand that ARV drugs are effective only if they are taken every day.</td>
</tr>
<tr>
<td><strong>Assess and give guidance on adherence</strong></td>
</tr>
<tr>
<td>▪ Monitor for adherence through pill counts and encourage the client to bring all medications to appointments.</td>
</tr>
<tr>
<td>▪ Provide simple written information, diagrams or pictures on when to take medications.</td>
</tr>
<tr>
<td>▪ Encourage clients to disclose their HIV status to at least one friend or family member who knows about their ARV treatment and can remind them to take their medication.</td>
</tr>
</tbody>
</table>
## Measures to increase ARV treatment adherence

<table>
<thead>
<tr>
<th>Help clients understand and manage side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss common side effects and how to manage them before they occur. (See Appendix 7-I for information on how to manage common side effects of ARV drugs.)</td>
</tr>
<tr>
<td>Differentiate between short-term side effects of medication that will resolve and emergency symptoms that would prompt medical attention (e.g., shortness of breath).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work with other organisations/CTCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work with the local CTCs to understand how to report side effects of ARV drugs.</td>
</tr>
<tr>
<td>Help clients understand that they have to attend CTCs on a regular basis.</td>
</tr>
<tr>
<td>Clients should be encouraged to join HIV/AIDS support groups if possible.</td>
</tr>
<tr>
<td>Keep organised appointment records for clients attending CTCs.</td>
</tr>
</tbody>
</table>
CHAPTER 8
Safe and Supportive Care in the Work Setting

8.1 Standard Precautions

Standard Precautions are a simple set of effective practices designed to protect healthcare workers and clients from infection with a range of pathogens, including bloodborne viruses. Standard Precautions create a physical, mechanical or chemical barrier between healthcare workers or clients and potentially infectious material. *These practices are used when caring for all clients, regardless of diagnosis.*

**Practice Point**
The following actions provide the means for implementing Standard Precautions:

- Consider every person (patient or healthcare worker) as potentially infectious and susceptible to infection.
- Use appropriate hand hygiene techniques.
- Wear personal protective equipment.
- Appropriately handle sharps, which include hypodermic and suture needles, scalpel blades, lancets, razors and scissors, patient care and resuscitation equipment and linen.
- Appropriately manage patient placement and patient environmental cleaning.
- Safely dispose of infectious waste materials, including sharps, to protect those who handle them and to prevent injury and the spread of infection to the community.
- Process instruments by decontamination, cleaning and then either sterilisation or high-level disinfection using national recommended procedures.
- Apply waterproof dressing to cover all cuts and abrasions on healthcare workers.
- Promptly and carefully clean spills, blood or other body fluids.
8.2 Hand hygiene

Hand hygiene is a set of practices intended to prevent handborne infections by removing dirt and debris and inhibiting or killing microorganisms on the skin. Hand hygiene includes care of the hands, skin and nails.

Hand hygiene techniques minimise cross-contamination (eg, from healthcare worker to patient) and are one of the key components in minimising the spread of disease and maintaining an infection-free environment. Handwashing with plain soap and clean running water is one of the most effective methods for preventing transmission of bloodborne pathogens and limiting the spread of infection. There are 4 types of hand hygiene:

- Washing hands with soap and clean water
- Washing hands with an antiseptic agent and clean water
- Using alcohol-based hand rubs
- Using surgical hand scrubs

Practice Point

Hand hygiene techniques

Perform before:
- Putting on gloves
- Examining a patient
- Handling contaminated items such as dressings and used instruments
- Eating

Perform after:
- Removing gloves
- Examining a patient
- Performing any procedure that involves contact with blood or other body fluids
- Handling contaminated items such as dressings and used instruments
- Making contact with body fluids, mucous membranes, nonintact skin or wound dressings
- Handling soiled instruments and other items
- Eating
- Using a toilet
8.3 Personal protective equipment

Personal protective equipment safeguards clients and healthcare workers.

Gloves
The use of a separate pair of gloves for each patient helps prevent the transmission of infection from person to person. Gloves are not required for routine patient care activities in which contact is limited to a patient’s intact skin.

Healthcare workers should use gloves when:

- Contact with blood, other body fluids, mucous membranes or broken or cut skin is anticipated
- Handling items contaminated with blood, other body fluids or secretions
- Performing housekeeping activities
- Handling healthcare waste (use utility gloves in these situations)
- The healthcare worker has skin lesions on the hand
- Performing surgical procedures and vaginal examination in labour (use sterile gloves in these situations)

Aprons
Rubber or plastic aprons provide a protective waterproof barrier along the front of the healthcare worker.

Protective eyewear
Eyewear, such as plastic goggles, safety glasses, face shields and visors, protect the eyes from accidental splashes of blood or other body fluids. Eyewear is used during labour and delivery.

Boots
Rubber boots or leather shoes provide extra protection to the feet from injury by sharps or heavy items that may accidentally fall. They must be kept clean. Healthcare workers should avoid wearing sandals, thongs or shoes made of soft materials.
8.4 Handling of sharps, contaminated equipment and other materials

Handling and disposal of sharps
Most HIV transmission to healthcare workers in work settings is the result of a skin puncture with contaminated needles or sharps. These injuries occur when sharps are recapped, cleaned or inappropriately discarded.

Practice Point
- Use a sterile syringe and needle for each injection, including reconstitution of medications.
- Use single-use needles and syringes.
- Avoid recapping and performing other manipulations of needles by hand. If recapping is necessary, for example, after drawing blood from a Vacutainer or blood gas, use the single-hand scoop technique.
- Collect used syringes and needles at the point of use in a sharps container that is puncture-proof and leak-proof and that can be sealed before completely full.
- Dispose of the sharps container by incineration, burial or encapsulation. For more information, see Appendix 8-A, Safe Disposal of Infectious Waste Materials.
- Handle all laboratory specimens with care and wear gloves whenever performing a laboratory procedure.
- Use holders for all blades.
- Use a hands-free technique when passing sharp instruments during surgical procedures.
- Always point the sharp away from oneself and others.
- Pick up sharps one at a time; never pass handfuls of sharps or needles.

Sharps containers
Using sharps disposal containers helps prevent injuries from disposable sharps. Sharps containers should be fitted with a cover, and should be puncture-proof, leak-proof and tamper-proof. Nationally, sharps containers, also known as safety boxes, are yellow in colour.
Practice Point

- All sharps containers should be clearly marked “SHARPS” and, if possible, should have pictorial instructions for the use and disposal of the container.
- Place sharps containers away from high-traffic areas and within arm’s reach of where the sharps will be used.
- Do not place containers near light switches, overhead fans or thermostat controls where a healthcare worker can accidentally put a hand into the container.
- Never reuse or recycle sharps containers (safety boxes) for other purposes such as a rubbish bin.
- Dispose of safety boxes when 3/4 full. Do not fill safety box beyond 3/4 capacity.
- Avoid shaking sharps containers to settle its contents to make room for more sharps.

To reduce risk in the labour and delivery setting:

- Cover broken skin or open wounds with watertight dressings.
- Wear suitable gloves when exposure to blood or other body fluids is likely.
- Wear doubled surgical gloves during vaginal delivery.
- Wear boots, a waterproof plastic apron, masks and protective eyewear during delivery.
- Pass all sharp instruments onto a tray, rather than hand-to-hand, and use the “hands-free” technique.
- Cover the infant’s umbilical cord with a gloved hand or gauze before cutting.
- Use elbow-length or gauntlet gloves during manual removal of placenta.
- Use needle holders when suturing.
- When episiotomy is necessary, use an appropriate-size needle (21 gauge, 4 cm, curved) and needle holder during the repair.
- If blood splashes on skin, immediately wash the area with soap and water. If splashed in the eye, wash the eye with water only. If blood splashes on the floor, wash it away using chlorine.
- Dispose of solid waste (eg, blood-soaked dressings and placentas) safely according to facility procedures.
Proper handling of soiled linen
Staff that processes linen should be appropriately trained and regularly supervised. Each facility will determine the best way to handle, process and store linens.

Practice Point
- Housekeeping and laundry personnel should wear utility gloves and other personal protective equipment as indicated when collecting, handling, transporting, sorting and washing soiled linen.
- When collecting and transporting soiled linen, healthcare workers should handle it as little as possible and with minimum contact, in order to avoid accidental injury and the spread of microorganisms.
- All cloth items used during a procedure (eg, surgical drapes, gowns, wrappers) should be considered infectious.
- Linens must be laundered even if there is no visible contamination.
- Carry soiled linen in covered containers or plastic bags to prevent spills and splashes.
- Soiled linen should be kept in designated interim storage areas until transportation to the laundry.
- All linen should be carefully sorted in the laundry area before washing. Linen should not be presorted or washed at the point of use.
- When hand washing soiled linen:
  1. Use warm water if available.
  2. Add bleach (eg, 30-60 millilitres, about 2-3 tablespoons, of a 5% chlorine solution) for 10 minutes to aid cleaning and bactericidal action.
  3. If desirable, add soap (a mild acidic agent) to prevent yellowing of linen.
- Soiled patient linen should be decontaminated before returning it to the patient or relatives.
- Patients should be informed about decontamination of their clothing if it is necessary.
- Clean linen must be wrapped or covered during transport to avoid contamination.

Processing contaminated instruments and other items
Instruments processing is one of the key components of Standard Precautions. There are 3 steps in processing soiled instruments and re-useable items:

1. Decontamination
2. Cleaning
3. Sterilisation or high-level disinfection (HLD)
Decontamination is the first step in making equipment safer to handle. This requires a 10-minute soak in a 0.5% chlorine solution. This important step kills hepatitis B, hepatitis C, and HIV. For additional assistance with preparing the proper strength solutions for decontamination, see Appendix 8-B, *Preparing Chlorine Solutions for Decontamination*.

Cleaning is a process that physically removes all visible dust, soil, blood or other bloody fluids from objects. It consists of thoroughly washing with soap or detergent and water in addition to rinsing with clean water and drying.

HLD is a process that eliminates all microorganisms except some bacterial endospores from inanimate objects by boiling, steaming or using chemical disinfectants. See Appendix 8-C, *Steps in High-level Disinfection*, for more information on the details of HLD.

Sterilisation is a process that eliminates all microorganisms (bacteria, viruses, fungi and parasites) including bacterial endospores from objects by high-pressure steam (autoclave), dry heat (oven) or chemical sterilants. For more information on the different types of sterilisation techniques, see Appendix 8-D, *Types of Sterilisation Techniques*. 
8.5 Managing occupational exposure to HIV

Post-exposure prophylaxis
Post-exposure prophylaxis (PEP) is the immediate provision of medication following an exposure to potentially infected blood or other body fluids in order to minimise the risk of acquiring infection. This section will focus on HIV prophylaxis. For additional information on hepatitis B prophylaxis following exposure, see Appendix 8-E, *Hepatitis B Immunisation and Post-Exposure Prophylaxis*.

The risk of occupational exposure to HIV
The risk of acquiring HIV varies depending on the type of exposure. The risk after percutaneous injury is estimated to be 0.3%. The risk after a mucous membrane exposure is 0.09%. The risk for nonintact skin exposures is not known but is estimated to be lower than the risk for mucous membrane exposure.

Factors influencing the risk of acquiring HIV from an occupational exposure include the amount of blood or infectious fluid involved in the exposure, the patient’s viral load and the duration of the exposure. For percutaneous injuries, the factors that influence risk include:

- The depth of the injury
- Whether the device was visibly contaminated with blood
- Whether the procedure involved placing a needle directly into an artery or vein
- Whether the needle was a hollow-bore needle or a solid needle (e.g., suture needle)
- The size of the needle (large versus small gauge)

Steps in post-exposure management
*Step 1: Administer first aid (exposure site management)*

If occupational exposure to HIV occurs, healthcare workers should take immediate action:

- Apply first aid to reduce contact time with blood or body fluids.
- Immediately wash areas of the skin exposed to potentially infectious fluids with soap and water.
- Avoid milking the site. There is no advantage to bleeding the injury site.
- For an exposure to the eye, flush the exposed eye immediately with water or normal saline, if available.
For an exposure to the mouth, spit out the fluid immediately, rinse mouth using water or saline and spit out again. Repeat process several times. Do not use caustic agents such as disinfectants on exposed areas.

**Step 2: Report the exposure**
The exposed healthcare worker should report the accident to the immediate supervisor and to the person in charge of PEP. An injury report form should be filled out as soon as possible.

**Step 3: Establish eligibility for PEP**
A trained person should conduct a risk assessment immediately after every occupational exposure no matter what time of day it occurs. The risk assessment determines the severity of the exposure and determines whether any immediate action is required. If the risk is assessed as “not significant”, the healthcare worker should complete an injury report form; no further action is required. The level of risk should be assessed by examining the factors outlined in Table 8.1.

**Table 8.1. Risk assessment questions**

<table>
<thead>
<tr>
<th>Location of exposure</th>
<th>Severity of exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percutaneous</strong></td>
<td><strong>High-risk exposure</strong></td>
</tr>
<tr>
<td>• How deep was the injury?</td>
<td>• Large quantity of blood:</td>
</tr>
<tr>
<td>• What type of needle was used?</td>
<td>o Device visibly contaminated with source person’s blood</td>
</tr>
<tr>
<td><strong>Mucosal</strong></td>
<td>o Procedure involving needle placed directly into client's vein or artery</td>
</tr>
<tr>
<td>• What was the estimated volume of blood or bodily fluid on the mucosal surface?</td>
<td>o Deep injury</td>
</tr>
<tr>
<td><strong>Nonintact skin (eg, bruised skin)</strong></td>
<td>• Injury with hollow-bore needle</td>
</tr>
<tr>
<td>• What is the condition of the skin?</td>
<td>• High viral load in source person</td>
</tr>
<tr>
<td>• How long was the skin in contact with the infected blood or bodily fluid?</td>
<td>o Acute infection</td>
</tr>
<tr>
<td></td>
<td>o Advanced HIV disease (AIDS)</td>
</tr>
<tr>
<td><strong>Low-risk exposure</strong></td>
<td>• Exposure to small volume of blood or blood contaminated with fluids from asymptomatic HIV-infected patient with low viral load</td>
</tr>
<tr>
<td></td>
<td>• Exposure following an injury with a solid or blunt needle</td>
</tr>
</tbody>
</table>
### HIV status of source person

<table>
<thead>
<tr>
<th>HIV status of source person</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The source person is HIV positive</td>
<td>• Initiate (or continue) PEP.</td>
</tr>
<tr>
<td>The source person is HIV negative</td>
<td>• Stop the PEP regimen for the exposed person.</td>
</tr>
<tr>
<td></td>
<td>• Perform follow-up HIV testing at 6 weeks and at 3 months for both the source and exposed person, as it is possible that the source person was in the window period when the exposure occurred.</td>
</tr>
</tbody>
</table>

### HIV status of healthcare worker

<table>
<thead>
<tr>
<th>Exposed healthcare worker is HIV infected</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• There is no need to continue (or initiate) PEP because a positive result would indicate that the healthcare worker was infected with HIV before the incident.</td>
</tr>
<tr>
<td></td>
<td>• The HIV-infected healthcare worker should be referred to a CTC for evaluation while ensuring that confidentiality is maintained.</td>
</tr>
</tbody>
</table>

HIV testing of the source person (if possible) can help determine the need for PEP and may avert the unnecessary use of ARV medications, which can have adverse side effects.

- If the source can be identified and contacted, HIV testing should be performed immediately with the person’s consent.
- If a source person is unable to be contacted, or does not consent to HIV testing, assess the likelihood of the source being HIV positive. If there is a possibility that the source could be HIV infected, and the injury is significant, PEP should be started in the absence of the source person’s test results.
- Testing discarded needles or syringes for the HIV virus is not recommended.

### Step 4: Prescribe and dispense PEP medications

If the exposure is assessed as “significant” and the healthcare worker gives informed consent, the first dose of PEP with ARV medications should be given as soon as possible after the exposure. These medications should be prescribed by an experienced healthcare worker in accordance with national or facility PEP guidelines.

*ARV medications should be taken within 1-2 hours post-exposure and no later than 72 hours after an exposure.*

In order to determine the appropriate ARV prophylaxis regimen, a pregnancy test should be performed on all female healthcare workers of reproductive age if their pregnancy status is...
unknown. If possible, this should be done before initiating PEP. In addition, the following blood tests should be used to monitor PEP and the potential for ARV toxicity:

- Full blood count
- Liver function tests
- Renal function tests

An individual taking PEP may experience side effects of ARV medications including nausea, malaise, headache and/or anorexia. For more information on management of common side effects of ARV medications, see Appendix 7-I, *Information about Antiretroviral medications*.

It is important that healthcare workers have access to a full month’s supply of ARV medications once PEP has been started.

*Step 5: Provide follow-up care and HIV testing, monitor and manage ARV toxicity*

In addition to baseline testing, a healthcare worker with occupational exposure should have repeat HIV testing at 6 weeks, 12 weeks and 6 months after the exposure. If the exposed healthcare worker tests negative after 6 months, he or she is not infected with HIV.

Healthcare workers receiving PEP should be monitored for ARV drug toxicity. Full blood count, liver function tests and renal function tests should be repeated at 2 weeks.

Healthcare workers should be counselled about safer sex practices following the exposure until HIV infection can be ruled out at 6 months. Female healthcare workers should be counselled on family planning methods and choosing a reliable form of contraception during this time period, preferably using dual protection with a condom. Anyone exposed to HIV should refrain from donating blood, plasma, organs, tissue or semen until infection can be ruled out.

**ARV medications to be used for PEP**

Because of the need to start PEP as soon as possible after an exposure, a minimum of 2 doses of ARV prophylaxis should be on hand and accessible at a facility at all times.

The recommended ARV regimen according to risk category is shown in Table 8.2 below.
Table 8.2. Recommended ARV regimen according to risk category

<table>
<thead>
<tr>
<th>Risk category</th>
<th>ARV prophylaxis</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk</td>
<td>AZT 300 mg twice a day and 3TC 150 mg twice a day (Use fixed-dose combinations of the above medications when possible*)</td>
<td>28 days</td>
</tr>
<tr>
<td>High risk</td>
<td>AZT 300 mg twice a day and 3TC 150 mg twice a day* and EFV 600 mg once nightly on an empty stomach For pregnant women, replace EFV with LPV/r 133.33/33.3mg (3 capsules BD)</td>
<td>28 days</td>
</tr>
</tbody>
</table>

* Fixed-dose combinations include Combidir or Duovir, 1 tablet twice a day.

Facility management to improve access to PEP

In order to assure that PEP will be available to healthcare workers, facility supervisors should assign one person at the facility to be responsible for PEP, with a second trained and knowledgeable healthcare worker as a backup. All staff, including cleaners and other nonclinical staff, should receive information about PEP and should know how to contact the second responsible healthcare worker in charge of PEP when the person responsible for instituting PEP is off duty.

The ARV medications used for PEP should always be accessible, not locked in a cabinet or room. It will be the responsibility of the facility supervisor to put systems in place that guarantee confidentiality of HIV testing results following an exposure.

8.6 Supportive care for the caregiver

Characteristics of burnout

Burnout is a psychological syndrome characterised by overwhelming exhaustion, feelings of cynicism and detachment from the job, decreased productivity and a sense of
ineffectiveness. Burnout stems from extended exposure to intense job-related stress and strain. Healthcare workers who provide ongoing care to HIV-infected pregnant women and their infants are vulnerable to burnout.

**Job-related risks for burnout**
- Work overload, limited or no breaks
- Long working hours
- Poorly structured work assignment (healthcare worker not able to use skills effectively)
- Inadequate leadership and support
- Lack of job-specific training and skill-building

**Personal risks for burnout**
- Unrealistic goals and job expectations
- Low self-esteem
- Anxiety
- Personal attachment to clients with a fatal disease

### Table 8.3. The signs and symptoms of burnout

<table>
<thead>
<tr>
<th>Signs and symptoms of burnout</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behavioural</strong></td>
</tr>
<tr>
<td>▪ Frequent changes in mood</td>
</tr>
<tr>
<td>▪ Eating too much or too little</td>
</tr>
<tr>
<td>▪ Drinking alcohol or smoking too much</td>
</tr>
<tr>
<td>▪ Becoming “accident prone”</td>
</tr>
<tr>
<td><strong>Cognitive and Psychological</strong></td>
</tr>
<tr>
<td>▪ Unable to make decisions</td>
</tr>
<tr>
<td>▪ Forgetful, poor concentration</td>
</tr>
<tr>
<td>▪ Sensitivity to criticism</td>
</tr>
<tr>
<td><strong>Physical</strong></td>
</tr>
<tr>
<td>▪ High blood pressure</td>
</tr>
<tr>
<td>▪ Palpitations, trembling</td>
</tr>
<tr>
<td>▪ Dry mouth, sweating</td>
</tr>
<tr>
<td>▪ Stomach upset</td>
</tr>
<tr>
<td><strong>Occupational</strong></td>
</tr>
<tr>
<td>▪ Taking more days off</td>
</tr>
<tr>
<td>▪ Arguing with co-workers</td>
</tr>
<tr>
<td>▪ Working more hours but getting less done</td>
</tr>
<tr>
<td>▪ Having low energy, being less motivated</td>
</tr>
</tbody>
</table>

Strategies for minimising burnout include seeking support from others and taking time for relaxation, engaging in restorative activities such as reading and exercising, and spending time with family and friends.
8.7 Creating a safe work environment

The reduction of occupational risk and minimisation of burnout is an ongoing process that involves:

- Assessing risks in the work setting
- Exploring different strategies for meeting resource needs, including the adequate supply of personal protective equipment and ARV medications.
- Maintaining an optimal workload by developing strategies to attain and maintain appropriate staffing levels.
- Implementing supportive measures that reduce staff stress, isolation and burnout.
- Acknowledging and addressing the many needs of healthcare workers who are HIV infected.
- Orienting new staff to infection prevention and control procedures and providing ongoing staff education and supervision.
- Developing standards and guidelines that address safety, risk reduction, PEP follow-up and first aid.

Proper planning and management of supplies and other resources are essential in reducing the occupational risks of HIV infection. Examples of how supervisors or managers of facilities can create a safe work environment include the following:

- Provide appropriate handwashing facilities and other hand hygiene methods.
- Provide and use appropriate disinfectants to clean up spills involving blood or other body fluids.
- Make puncture-resistant sharps containers widely available to healthcare workers.
- Establish and implement policies and procedures for reporting and treating occupational exposure to HIV.
- Ensure that post-exposure prophylaxis is always available during working hours.
- Use proper housecleaning methods.

On-the-job training in infection prevention and control

Supervisors and the management of facilities are responsible for training healthcare workers in infection prevention and control. Healthcare workers need to be aware of the risks of exposure to bloodborne pathogens and the tools available to avoid exposure. They should understand how bloodborne pathogens, particularly HIV, hepatitis B and hepatitis C, are transmitted and should be able to identify and anticipate situations in which they may be exposed to them. Healthcare workers will need training on how to use and handle patient care equipment, personal protective equipment and linens correctly. Supervisors should regularly observe and assess implementation of Standard Precautions (including safe work
practices) in their facilities, correcting unsafe practices in a nonthreatening and supportive manner.
CHAPTER 9
PMTCT Programme Management, Monitoring, Supervision and Logistics

9.1 Introduction

As Tanzania expands its PMTCT services, there is a critical need to establish a nationwide PMTCT monitoring system. The purpose of monitoring PMTCT services is not to introduce a new system of reporting but rather to allow programme managers at the national, regional, district and facility levels to identify gaps and improve PMTCT-related activities and services. Implementation of a standard national PMTCT information system will reinforce best practices, ease the burden of data management and training and allow for comparison among PMTCT sites.

The PMTCT monitoring and evaluation framework presented here is organised to collect and report simple, reliable “core” data. An example of a core statistic is the number of women and infants receiving PMTCT services in RCH clinics and labour and delivery wards. The framework also describes indicators and data collection methods that will allow monitoring and evaluation of important PMTCT-related activities.

9.2 Overview of the national PMTCT programme

Goal of the programme
The goal of the national PMTCT programme is to have at least 50% of all health facilities providing PMTCT services by 2010.

Structure of the programme
The PMTCT programme operates under the guidance of a technical subcommittee of the National HIV/AIDS Steering Committee of the MOHSW. A National PMTCT Coordinator in the National AIDS Control Programme (NACP) runs the programme with the assistance of regional and district coordinators. The programme mirrors the national health system’s 4 levels of management (national, regional, district, facility).

See Figure 9.2 for an illustration of the PMTCT programme structure.

**PMTCT services**

PMTCT programmes include various services that are listed below.

- HIV counselling and testing for pregnant women in ANC
- Partner HIV counselling and testing
- Delivery of ARV prophylaxis or treatment to prevent MTCT
- Safer delivery practices
- Infant-feeding counselling and support
- ARV treatment, care and support for HIV-infected mothers and children
- Infant/child monitoring for proper growth and development
- Family planning services
- Partner testing and counselling
- Infant/child HIV testing

The PMTCT programme is unique in that it targets women of reproductive age, pregnant women, families and the community.

### 9.2 PMTCT programme monitoring

**Overview**

PMTCT programme monitoring is the routine collection and use of information (data) about PMTCT services and activities. Programme monitoring is important for evaluating the progress and success of the national PMTCT programme. Monitoring data are used to track the progress and success of the national PMTCT programme. In addition, health facility staff can use PMTCT monitoring information to identify problems and improve patient services.

**Practice Point**

Healthcare facilities should analyse monitoring data at regular intervals to assess progress and examine problems in programme implementation.
PMTCT data collection and recording systems

The PMTCT programme uses standard registers to collect and document PMTCT monitoring information. These registers are currently being revised and will be included in the next version of these guidelines.

Collecting and recording information (data) for programme monitoring is a very important responsibility for healthcare workers. Supervisors should ensure that all healthcare workers in RCH services know what data need to be collected, how it should be collected, who is responsible for collecting it and how it should be recorded. In order for this to occur, healthcare workers need training, supervision and support to assure that PMTCT monitoring data are consistently and reliably recorded.

Practice Point

PMTCT programme monitoring data should be collected daily and recorded accurately and consistently in PMTCT registers in a way that protects patient confidentiality.

- Registers should identify clients using registration numbers rather than names.
- Registers should be kept in locations away from public viewing.
- Registers should be accessible only to healthcare workers who need to work with them.

PMTCT Registers

PMTCT registers and tools are used in healthcare settings to record PMTCT services to mothers, their partners and their infants and follow-up with patients.

- **ANC Register.** During ANC, HCWs should record information about HIV counselling and testing, ARV drugs and referrals in the ANC Register for each patient.
- **ANC Partner Register.** HCWs should record HIV testing and referrals for a woman’s partner on the ANC Partner Register.
- **Labour and Delivery Register.** Maternity HCWs should record information for each woman. This includes HIV status during ANC or referrals for HIV counselling and testing, ARV treatment during pregnancy, ARV prophylaxis to mother and infant, infant feeding and referrals to the CTC and other healthcare and social services. Information about ANC can be obtained from a Mother’s Health Card.
- **Mother/Infant Follow-up Tool.** HCWs should use this tool to record follow-up care provided to mothers and infants, including cotrimoxazole dosing and HIV testing for infants.

**Health Cards**

Health cards provide important records of patient health information. Some of this information may be used to complete PMTCT registers. HCWs should be sure to record and update information on the Mother’s Health Card and Child Health Card at each visit.

- **ANC Mother’s Health Card.** The Mother’s Health Card is used to record important health information for each patient. It includes counselling, HIV and syphilis test results, malaria treatments given, immunisations, vitamins, ARVs, delivery and postpartum follow-up.

- **Postnatal Child Health Card.** The Child Health Card is used to record important health information for children from birth through 5 years. It includes birth weight, immunisations, disease history, growth monitoring and development. Cotrimoxazole dosing and HIV testing results should be recorded on the Child Health Card.

- **Referral.** The HCWs should document referral on appropriate registers and on clinic referral forms to ensure that all clients in need can go to their nearest PMTCT/CTC clinic for comprehensive diagnosis and/or management of HIV.

**Quality control of data**

Data collected through registers maintained at the health facility are the source of information for all data relating to the PMTCT programme in Tanzania. Given the importance of ensuring the accuracy and confidence in this data, the registers need to be reviewed regularly.

**Reporting PMTCT monitoring data**

To track the progress of PMTCT activities, health facilities submit ANC and labour and delivery monthly/quarterly\(^1\) summary forms to the districts through the District Reproductive and Child Health Coordinator (DRCHco). This office sends forms to the regions and finally to the national level. At the national level, data analysis is done and feedback to the lower levels is provided. See Figure 9.1.

Reporting is done on a monthly/quarterly interval:

- Health facilities send reports to the districts by the 7\(^{th}\) of the next month/quarter.

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\(^1\) The reporting system is in transition from monthly to quarterly reporting
- Districts aggregate health facility reports and send them to the regional office by the 14th of the next month/quarter.
- Regions make copies and send the originals to the central level by the 20th of the next month/quarter.
- Feedback shall be done at all levels and in both directions.

**Figure 9.1: Data Collection and Reporting Procedure**

**Feedback and dissemination of data**

Providing feedback is an essential aspect of programme monitoring. Feedback helps stakeholders to identify successes, problems and activities that need to be completed to meet programme goals.
In the PMTCT programme, staff at the national level compiles data to produce reports at regular intervals that are used for decision-making and providing feedback to PMTCT stakeholders. The regional and district Reproductive and Child Health Coordinators should provide feedback to healthcare facilities at regular intervals.

**PMTCT indicators**

PMTCT indicators are measures chosen to represent progress in the delivery of PMTCT services. They are key statistics that provide information about the scope, quality and impact of PMTCT activities. Most indicators used in Tanzania measure the delivery of key PMTCT service interventions by health facilities (coverage) and client’s acceptance of each of these interventions (uptake). The indicators are calculated using the information recorded by healthcare workers in PMTCT registers and monthly summary forms. The PMTCT programme indicators are established on the national level according to the needs, resources and standards of the national PMTCT programme in line with internationally accepted definitions of these indicators. The revised PMTCT indicators are:

- % of pregnant women presenting at facility who are tested and receive results
- % of pregnant women presenting at facility through referral, who have previously been tested and confirmed positive.
- % HIV infected pregnant women who received anti-retrovirals to reduce risk of MTCT. This requires changing the numerator to women who receive (and not necessarily a complete course) ARVs including HAART. The numerator is a combination of i) women who received ARVs at ANC ii) women who received ARVs during labour and delivery, and iii) women who received ARVs at CTC.
- % of HIV exposed infants receiving ARV prophylaxis at the ANC or during labour and delivery.
- % HIV-infected pregnant women assessed for eligibility for ART.
- % of women accepting postpartum counselling
- % of women receiving counselling on infant feeding at their first infant follow-up visit, out of all estimated HIV-infected pregnant women giving birth in the past 12 months.
- % HIV exposed infants receiving any HIV test (anti-body or virological) by age of 18 months
- % HIV exposed infants receiving cotrimoxazole prophylaxis within 2 months of birth.
9.3 PMTCT programme management

There are 4 levels of management in the overall Tanzania health system and in PMTCT specifically: national, regional, district and facility (see Figure 9.2). The referral hospitals are an arm of the government; these hospitals are expected to lead and provide technical oversight of healthcare services at all levels.

National level
The PMTCT Secretariat works under the guidance of PMTCT Subcommittee to:
- Coordinate
- Supervise
- Train
- Procure
- Forecast needs
- Document
- Mobilise resources
- Advocate and perform social mobilisation
- Formulate policy
- Provide support, feedback and guidance to the other levels

Regional level
PMTCT Secretariat, composed of the Regional Medical Officer (RMO), Regional AIDS Control, Regional Laboratory Technologist, Regional Pharmacist, Regional Nursing Officer and Regional TBL Coordinator, will oversee services in the region. The Secretariat will operate under the Reproductive Health Coordinator and will be responsible for coordinating and supervising activities; organising training for healthcare workers; procuring and forecasting the needs for equipment, supplies and medication; documenting activities, which includes monitoring and evaluation duties; and providing feedback and guidance to the lower levels.

The Regional AIDS Control (RAC) manager is responsible for advocacy and social mobilisation and for developing programme communication support.

District level
The main actor at the district level will be the PMTCT Secretariat, which is composed of the District Medical Officer, DRCHco, Regional or District AIDS Control Coordinator (RACC, DACC), District Laboratory Technologist, District Pharmacist, District Nursing Officer and District TBL Coordinator.
The DRCHco will work under the district PMTCT Secretariat to coordinate and supervise activities; organise training for healthcare workers; procure and forecast the needs for equipment, supplies and medication; document activities, which include monitoring and evaluation duties; and providing feedback and guidance to the lower levels The District AIDS Coordinator is responsible for advocacy and social mobilisation and for developing programme communication support.

![Figure 9.2: Organisation of National PMTCT Programme](image)

**Facility level**

The PMTCT programme management is composed of the Officer In-charge, ANC In-charge, Labour Ward In-charge, Laboratory In-charge, Pharmacy In-charge, Records In-charge and Community Contact Person.
Responsibilities of the management team include the following:

- Data collection, analysis and reporting
- Supervision and monitoring
- Ensuring the follow-up of clients
- Networking with local NGOs providing HIV-related services
- Organizing community mobilisation activities and outreach programmes

Health facility management is responsible for the implementation of PMTCT interventions at all levels, such as hospitals, health centres, and clinics, including home-based care. Additional responsibilities include monitoring the programme and assisting with information, education and communication (IEC) and social mobilisation activities at the national, regional and district levels.

In order to carry out these responsibilities, facility management will require regular feedback on performance, technical support and supervision, the necessary forms and registers for recordkeeping and the regular inventories of appropriate IEC materials, HIV test kits, supplies, equipment and medications, including ARV drugs.

A successful PMTCT programme requires the support and cooperation of the entire health team in the facility. Delivery of PMTCT-related services can take place in a variety of settings.

<table>
<thead>
<tr>
<th>Who is in the PMTCT team?</th>
<th>Where are PMTCT services provided?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurses</td>
<td>Dispensaries</td>
</tr>
<tr>
<td>Doctors</td>
<td>Health centres</td>
</tr>
<tr>
<td>Laboratory personnel</td>
<td>ANC and labour and delivery settings</td>
</tr>
<tr>
<td>Records personnel</td>
<td>RCH and family planning clinics</td>
</tr>
<tr>
<td>Administrative staff</td>
<td>STI clinics</td>
</tr>
<tr>
<td>Social workers and nutritionists, if available</td>
<td>Nutritional programmes</td>
</tr>
<tr>
<td></td>
<td>Hospital facilities</td>
</tr>
</tbody>
</table>

**Supervision**

Supervision is an active process of reviewing the tasks, knowledge, health system support and quality of care as set out in the plan of action for the provider and facilities. Using a standard integrated checklist, supervision will be performed at all levels of service provision.
9.4 Organisation of a healthcare facility for PMTCT services

The performance of daily activities requires organisation of people, time, equipment, materials and medications. Healthcare facilities require a supportive and well-organised system to work efficiently.

Basic requirements for provision of PMTCT services
Healthcare facilities provide PMTCT services at many administrative levels. At each level, the ability of the facility to deliver services will vary, depending on the availability of appropriate staff and resources. The basic requirements for providing PMTCT services include:
- An adequate physical structure
- Staffing at health facilities in accordance with MOHSW staffing guidelines
- Systems and space for ensuring the proper flow of clients
- Adequate equipment and health education materials
- A steady supply of medications and supplies, especially ARV drugs
- Active systems in place to ensure that records are updated regularly and kept confidential

Ensuring collaboration
PMTCT services may be new in many facilities. In order to ensure that these new services become integrated into the flow of work and that staff members collaborate, PMTCT workers should share PMTCT programme plans with supervisors and fellow staff and agree on how to implement plans. When possible, community members should be brought into this planning process to ensure wider participation in the program. As activities are rolled out, supervisors should be debriefed on PMTCT services being provided.

Managing patient flow and time
The introduction of HIV counselling and testing services into RCH facilities can create challenges in managing patient flow. Health facility staff will need to adjust their patient flow to accommodate new PMTCT services and avoid unnecessary waiting time. The new patient flow should be clearly explained to clients. Where necessary, notices or arrows should be placed on doors to direct new clients. The new patient flow system should be consistent with
the provider-initiated (opt-out) approach to testing (ie, women should not have to wait in separate queues according to whether or not they want to be tested). There should be a single queue for HIV counselling and testing, with the option to decline testing at the testing point.

It will be essential for health facilities to create linkages to other RCH and HIV-related health services to facilitate patient referral and ensure that clients do not queue twice. Improving patient flow also requires healthcare workers to be flexible and innovative in handling clients in order to serve them quickly and effectively. To maximise interaction between patients and healthcare workers, staff members should complete all preparation activities that can be done before the patient is present. The health services delivered should be tailored to the patient’s needs and unnecessary routines that inconvenience clients should be avoided. Appointments should be made to accommodate clients’ schedules.

**Recommendations for the physical setting**

The introduction of PMTCT services also requires adequate physical structures. Healthcare facility buildings should meet the following criteria:

- Facilities and their immediate surroundings should be kept clean. All floors, walls and working surfaces should be clean and sanitary, and the facility should have good ventilation.
- Waiting areas should have adequate seating space, should be protected from rain or direct sun, and should be stocked with up-to-date, locally understood, male-friendly IEC materials. Drinking water should be available in the waiting area.
- Facilities should have a room or space that offers privacy during counselling, history taking, physical assessment and labour and delivery.
- There should be space for proper sterilisation and safe storage of instruments, including sharps.
- Storage areas should be undamaged, of adequate size and easily accessible.

**Healthcare workers’ staffing and support**

- Staffing ratios should follow MOHSW staffing guidelines.
- Healthcare workers should be allocated according to jobs and tasks.
- Supervisors should ensure that there are systems in place to share new PMTCT information with healthcare workers and to train them on the job.
• Facility management should make available and adhere to service guidelines as well as infection control and Standard Precautions procedures.

• Facility management should establish and maintain prompt referral systems.

**Maintenance of teaching aids**

Healthcare workers should know which visual aids are available and how to use them. These aids should be used according to the manufacturer’s or supervisor’s instructions and should be kept in a safe dry place away from direct sunlight and dryness. Torn corners of posters and other visual material should be repaired with tape as needed.

9.5 **PMTCT commodities management**

**Procurement**

The Medical Stores Department (MSD) procures ARVs for PMTCT and HIV treatment programmes in Tanzania and distributes them to facilities providing these services. On receipt of the PMTCT commodities at a facility, a pharmacist or responsible person in the pharmacy should cross-check the PMTCT commodities received to make sure they are in line with the written documents and sign the delivery note and invoices, which serve as proof of delivery.

**Ordering PMTCT commodities**

Pharmacists who are responsible for keeping track of the consumption will be responsible for ordering general PMTCT commodities. They will send ordering information to the MOHSW.

Orders of ARV medications, drugs for treatment of OIs, laboratory reagents and other supplies for hospital uses should be sent to the MSD (not to the MOHSW). Health centres and dispensaries providing PMTCT services will have to order their commodities through the respective District Medical Officers (DMOs), who in turn will compile all orders and send them to the MSD. In order to allow supplies to reach the facilities in time, orders to the MSD must be timely (ie, when there is still a 1-month stock of the supplies).

**Storage of PMTCT commodities**

Stock must be kept in a high-security storage area with a single pharmacist/pharmaceutical technician (at any given time) responsible for receipts and issues. The responsibility for
maintaining security of ARV medications rests with all healthcare workers involved in service delivery sections.

ARVs must be stored at the appropriate temperature. Drugs such as solutions need a cool and dry environment and some second-line drugs such as lopinavir/ritonavir require refrigeration.

**ARV drug distribution**

ARV drugs are prescription medicines. Persons responsible should ensure that prescriptions are appropriately written and signed by an authorised prescriber whose name, signature and, where applicable, prescriber code, also appear on the prescription. Only trained and authorised prescribers in certified healthcare facilities should write ARV prescriptions.

When prescribing ARV drugs, clients should be warned about possible side effects and measures to be taken to reduce them. They should also be informed of side effects that require prompt and immediate return to the clinic.

All PMTCT commodities received either directly from the MSD or through the DMO should be entered in the appropriate registers before being distributed to clients.

- All clients receiving ARV treatment will be provided with patient cards.
- Pharmacists should send reports on the consumption and stocks of drugs to the MOHSW through the DMO for program monitoring.

**Equipment, supplies and medications needed for PMTCT services**

**Specific equipment, supplies and medications for PMTCT services**

- ARV drugs
- ELISA/HIV Welcozyme/Recombinant
- SD Bioline HIV 1/2 3.0
- Determine® HIV 1/HIV 2 kits
- Uni-gold™ HIV 1/ HIV 2 kits
- Vacutainer tubes (pack of 100)
- Vacutainer needles (pack of 100)
- Small refrigerator
- Timer

**Routine equipment, supplies and medications to support PMTCT**

- Suction tubes
- Cotton wool rolls
- Antiseptic
- Chlorhexidine 0.25%
- Disinfectant/Lysol (5-litre can)
- Iodine solution, 250 mL – 10%
- Gloves (latex), nonsterile disposable
- Gloves, surgical sterile size 7.5 and 8
- Gloves (long-sleeved), surgical sterile size 8
- Goggles/Eyeglass shield
- Apron
- Boots
- Syringes
- Lancets
- Band-aids
- Methylated spirit

**Medications for opportunistic infections**

The following medications are commonly used in the prevention and management of OIs. Healthcare facilities should have these medications in stock.

- Clotrimazole vagina pessaries (doses) pack of 5
- Cotrimoxazole syrup for children
- Cotrimoxazole tablets
- Ferrous sulphate
- Folic acid tablets
- Fluconazole tablets
- Multivitamin tablets
- Multivitamin syrup
- Amoxicillin syrup
- Ketoconazole ointment
- Nystatin oral suspension
- Daktarin oral jelly
- Clotrimazole cream
- Betamethasone cream
- Nystatin cream

**9.6 Maintenance of patient records**

Record keeping is an important part of PMTCT service delivery. Careful record keeping benefits both clients and healthcare workers. Healthcare workers should carefully record all relevant information as per standard forms and registers and file such records in a way that makes retrieval and the identification of defaulters easy. Records should be handled and stored in such way as to ensure privacy and confidentiality of clients’ information. Facility managers should make sure that appropriate, up-to-date forms and registers are available at their facilities.
APPENDICES
APPENDIX 1-A
HIV Prevalence in Women and Men

HIV prevalence in Women (15-49 years), Tanzania (2003-04)

HIV prevalence in Men (15-49 years), Tanzania (2003-04)

(Source: Tanzania HIV/AIDS Indicator Survey, 2005)

National and regional boundaries are only indicative.
# APPENDIX 2-A
## Contraceptive Methods

<table>
<thead>
<tr>
<th>Barrier Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Male condoms (eg, Salama, Dume)</td>
</tr>
<tr>
<td>- Female condoms (eg, Care and Lady Pepeta)</td>
</tr>
</tbody>
</table>

*Must be used consistently and correctly*

*Must be readily available*

<table>
<thead>
<tr>
<th>Oral Contraceptives</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Combined oral contraceptive pills taken daily</td>
</tr>
<tr>
<td>- Progesterone-only pill (POP)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Injectable Contraceptives</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Depo Provera (administered once every 3 months)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contraceptive Implants (subdermal, contain progestin only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Norplant – 5 rods effective for 5-7 years</td>
</tr>
<tr>
<td>- Implanon – 1 rod effective for 3 years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intrauterine Contraceptive Device (IUCD)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Voluntary surgical contraception (permanent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Tubal ligation – female (may be reversible)</td>
</tr>
<tr>
<td>- Vasectomy – male</td>
</tr>
</tbody>
</table>
APPENDIX 4-A
HIV Counselling and Testing in Antenatal Care Settings

Group Pre-test Education/Information Session
- Provide standard information
  - HIV/AIDS infection and disease
  - HIV transmission and prevention
  - Benefits and risks of HIV testing for pregnant women
  - HIV testing processes and confidentiality
  - Importance of partner testing, discordance (difference in HIV status)
  - Possible effects of positive and negative test results
  - Risk reduction/safer sex
  - Antenatal care (ANC), PMTCT and support services.
- Encourage client discussion and questions
- Use good communication and group techniques

HIV Test Performed

HIV-Negative Post-test Counselling
- Identify and address client questions
- Provide HIV test result
- Assess understanding of the meaning of the test results
- Discuss
  - Partner HIV testing and disclosure
  - Safer sex and risk reduction
  - Exclusive breastfeeding
  - ANC, postpartum care, infant care
  - Address questions, provide contact information
  - Provide referrals for needed services
- HIV Result indeterminate counsel as above plus
- Explain need for repeat testing and schedule test

HIV-Positive Post-test Counselling
- Identify and address client questions
- Provide HIV test result
- Assess understanding of the meaning of the test results
- Discuss
  - ARV prophylaxis and/or treatment
  - Counselling about safer infant feeding options
  - Treatment care and support services for client and family
  - Partner HIV testing and disclosure
  - If client already has children, discuss and plan for testing them
  - Safer sex and risk reduction
  - ANC, postpartum care, infant care
  - Address questions, provide contact information
  - Provide referrals for needed services

HIV Result indeterminate counsel as above plus

Subsequent Healthcare Visits: All Women
- Review post-test counselling messages according to patient HIV status and provide referrals
- If previously refused test, review HIV test declined messages and re-offer HIV test

HIV Test Refused
- Address barriers to testing
- Discuss
  - Risk reduction
  - Exclusive breastfeeding
  - ANC, postpartum care, infant care
  - Provide referrals
  - Offer counselling and testing at other visits

Appendices A-5
APPENDIX 4-B
Post-test Counselling Checklists

HIV-negative result
Counselling is a relationship, and it provides an opportunity to establish a rapport with the client, answer questions, and make sure the client understands the information you are providing.

In many ANC clinics nationally, rapid HIV tests are used. This offers an opportunity for clients who are tested to receive their results the same day. In many settings the client is taught to read his/her own test results.

- Greet the client.
- Ask whether the client has any questions before the results are read. Answer questions and let the client know counselling will continue to be available to help with important decisions regardless of the test results.
- Review the group pre-test information/counselling session. Let the client know you are doing this to make sure he/she remembers important information.
- Inform the client that the HIV test result is ready to interpret. Ask the client what the results are. Confirm the results with the client: 'Yes. Your test is "negative".'
- Pause and wait for the client to respond before continuing. Give the client time to express any emotions.
- Explore the client’s understanding of the meaning of the results.
- Discuss and support the client's feelings and emotions.
- Clarify that this means that as of 3 months ago (date) the client was not infected with HIV.
- If there was a recent risk exposure, discuss the need to retest.
- Talk about specific risk reduction strategies with the client:
  - Refer partner for testing.
  - Have sex with only one partner known to be HIV negative.
  - Use condoms (include condom demonstration).
  - Limit the number of sexual partners.
- Talk with the client again about disclosure and about partner testing.
- Discuss discordance.
- Inform the client that counselling is available for couples.
- Emphasise the importance of protecting against infection during pregnancy or breastfeeding, and explain how doing that will lower the risk of an infant becoming infected with HIV.
- Ask whether the client has questions or concerns. Give the client contact information for the clinic should any new concerns arise.
- Discuss support issues and available community resources, in addition to subsequent counselling sessions.
- Remind clients and their families that counselling or referral to counselling will be available throughout pregnancy to help them plan for the future and remain uninfected.
APPENDIX 4-B (continued)
Post-test Counselling Checklists

HIV-positive result
Counselling is a relationship, and it provides an opportunity to establish a rapport with the client, answer questions, and make sure the client understands the information you are providing.

In many ANC clinics nationally, the rapid HIV test is utilised. This offers an opportunity for clients who are tested to receive their results the same day. In many settings, they are taught to interpret their own result form.

✓ Greet the client.
✓ Ask whether the client has any questions before reading the result form. Answer questions and let the client know counselling will continue to be available to help with important decisions regardless of the test result.
✓ Recap the group pre-test information/counselling session. Let the client know you are doing this to make sure he/she remembers important information.
✓ Indicate that the HIV test result is ready to interpret. Ask whether the client is ready. Confirm the test results with the client.
✓ Pause and wait for the client to respond before continuing. Give the client time to express any emotions.
✓ Check the client's understanding of the meaning of the results.
✓ Explore and support the client's feelings and emotions.
✓ Reassure the client that it is common in this situation to have feelings and emotions.
✓ Inform the client of essential PMTCT issues. Discuss and support initial decisions about:
  ✓ Antiretroviral treatment and prophylaxis
  ✓ Infant feeding options
  ✓ Childbirth plans
  ✓ Adequate nutrition
  ✓ Address “positive living”; provide referral for preventive healthcare services.
  ✓ Prompt medical attention, prophylaxis, and treatment of opportunistic infections
  ✓ Stress management and support systems
✓ Explain that the client’s test results do not indicate whether her partner is infected and that her partner will need to be tested.
✓ Discuss disclosure and support issues.
✓ Address risk reduction that is necessary to protect her partner(s) and herself from re-infection:
  ✓ Condom use (male and female condoms) [include condom demonstration]
  ✓ Reducing the risk of infecting others and screening and treatment for sexually transmitted infections
✓ Identify sources of hope for the client, such as family, friends, community-based services, spiritual supports and treatment options. Make referrals when appropriate.
✓ If the client already has children, discuss and plan for testing of children.
✓ Ask whether the client has questions or concerns. Give the client contact information for the clinic should concerns arise.
✓ Remind mothers and families that counselling will be available throughout pregnancy to help them plan for the future and obtain necessary services.
APPENDIX 5-A
National Recommendations: Antiretroviral Prophylaxis Regimens to Prevent MTCT

National recommendations about ARV prophylaxis regimens are based on the effectiveness of the regimen in preventing MTCT and the advantages and disadvantages of the regimen.

General principles for the ARV prophylaxis recommendations:
Giving ARV medications during the antenatal period prevents HIV transmission in utero. If NNRTI-based ARV treatment is started within 6 months of childbirth, mothers who received single-dose NVP (sdNVP) as ARV prophylaxis to prevent MTCT are at risk of sub-optimal response to treatment because of viral resistance that develops after receiving sdNVP.

Because women receiving sdNVP are at risk of developing resistance to NVP, strategies to reduce this risk are recommended. The addition of a 7-day AZT/3TC tail beginning in labour and continuing postpartum is recommended to reduce the risk of developing resistance to NVP.

All regimens described in the table below are administered by mouth. Paediatric formulations are available for the main medications used in current prophylactic regimens to prevent MTCT (AZT and NVP). It is important to monitor for side effects and support maternal and infant adherence to these regimens.
### National Recommendations: Antiretroviral Prophylaxis Regimens to Prevent MTCT

**COMBINATION ARV PROPHYLAXIS REGIMENS TO PREVENT MTCT**

<table>
<thead>
<tr>
<th>REGIMEN</th>
<th>ANTENATAL</th>
<th>INTRAPARTUM</th>
<th>POSTPARTUM MOTHER</th>
<th>POSTNATAL INFANT</th>
</tr>
</thead>
</table>
| **Recommended:**  
AZT + sdNVP  
AND  
7 day maternal AZT + 3TC tail to reduce NVP resistance | AZT 300 mg twice a day starting at 28 weeks or as soon as possible thereafter | AZT 600 mg at onset of labour  
or  
AZT 300 mg at onset of labour and every 3 hours until delivery  
AND  
sdNVP 200 mg at onset of labour  
AND  
3TC 150 mg at onset of labour and every 12 hours until delivery | AZT 300 mg twice a day for 7 days  
AND  
3TC 150 mg twice a day for 7 days | sdNVP 2 mg/kg oral suspension immediately after birth¹  
AND  
AZT 4 mg/kg twice a day for 7 days² |

| **Recommended if mother presents during labour:**  
AZT + sdNVP  
AND  
7-day maternal AZT + 3TC tail beginning with the addition of 3TC at the onset of labour to reduce NVP resistance | None | AZT 600 mg at onset of labour  
or  
AZT 300 mg at onset of labour and every 3 hours until delivery | AZT 300 mg twice a day for 7 days  
AND  
3TC 150 mg twice a day for 7 days | sdNVP 2 mg/kg oral suspension immediately after birth¹ |

¹ Use mother’s sdNVP oral suspension immediately after birth if available.  
² Use mother’s 3TC suspension immediately after birth if available.
APPENDIX 5-A (continued)

National Recommendations: Antiretroviral Prophylaxis Regimens to Prevent MTCT

### MINIMUM ARV PROPHYLAXIS REGIMENS TO PREVENT MTCT

<table>
<thead>
<tr>
<th>REGIMEN</th>
<th>ANTENATAL</th>
<th>INTRAPARTUM</th>
<th>POSTPARTUM MOTHER</th>
<th>POSTNATAL INFANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum regimen: sdNVP to mother and infant</td>
<td>None</td>
<td>sdNVP 200 mg at onset of labour</td>
<td>Maternal: None</td>
<td>Infant: sdNVP 2 mg/kg oral suspension</td>
</tr>
<tr>
<td>Minimum regimen when mother presents in late labour: Postnatal infant sdNVP</td>
<td>None</td>
<td>None</td>
<td>Maternal: None</td>
<td>Infant: sdNVP 2 mg/kg oral suspension</td>
</tr>
</tbody>
</table>

1. The infant sdNVP dose can be given immediately after delivery or within 72 hours. It is preferable to give sdNVP as soon as possible after childbirth and before discharge from the healthcare facility. If a mother does not receive any ARV prophylaxis, or if delivery occurs less than 2 hours after she is given the intrapartum dose, the infant sdNVP should be given immediately after birth. AZT should be given to the infant for 4 weeks.

2. The infant course of AZT should be extended to 4 weeks if a mother received <4 weeks of AZT during the antenatal period.


### COMBINATION ARV PROPHYLAXIS REGIMENS TO PREVENT MTCT

<table>
<thead>
<tr>
<th>REGIMEN</th>
<th>ANTENATAL</th>
<th>INTRAPARTUM</th>
<th>POSTPARTUM MOTHER</th>
<th>POSTNATAL INFANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended: AZT + sdNVP AND</td>
<td>AZT 300 mg twice a day starting at 28</td>
<td>AZT 600 mg at onset of labour</td>
<td>AZT 300 mg twice a day for 7 days AND</td>
<td>sdNVP 2 mg/kg oral suspension immediately after</td>
</tr>
</tbody>
</table>
### COMBINATION ARV PROPHYLAXIS REGIMENS TO PREVENT MTCT

<table>
<thead>
<tr>
<th>REGIMEN</th>
<th>ANTENATAL</th>
<th>INTRAPARTUM</th>
<th>POSTPARTUM MOTHER</th>
<th>POSTNATAL INFANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 day maternal AZT + 3TC tail to reduce NVP resistance</td>
<td>weeks or as soon as possible thereafter</td>
<td>or AZT 300 mg at onset of labour and every 3 hours until delivery</td>
<td>3TC 150 mg twice a day for 7 days</td>
<td>birth¹ AND AZT 4 mg/kg twice a day for 7 days²</td>
</tr>
<tr>
<td><strong>Recommended if mother presents during labour:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AZT + sdNVP AND 7-day maternal AZT + 3TC tail beginning with the addition of 3TC at the onset of labour to reduce NVP resistance</td>
<td>None</td>
<td>AZT 600 mg at onset of labour</td>
<td>AZT 300 mg twice a day for 7 days AND 3TC 150 mg twice a day for 7 days</td>
<td>sdNVP 2 mg/kg oral suspension immediately after birth¹</td>
</tr>
</tbody>
</table>
### APPENDIX 5-A (continued)

**National Recommendations: Antiretroviral Prophylaxis Regimens to Prevent MTCT**

#### MINIMUM ARV PROPHYLAXIS REGIMENS TO PREVENT MTCT

<table>
<thead>
<tr>
<th>REGIMEN</th>
<th>ANTENATAL</th>
<th>INTRAPARTUM</th>
<th>POSTPARTUM MOTHER</th>
<th>POSTNATAL INFANT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimum regimen:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sdNVP to mother and infant</td>
<td>None</td>
<td>sdNVP 200 mg at onset of labour</td>
<td>Maternal: None</td>
<td>Infant: sdNVP 2 mg/kg oral suspension</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Minimum regimen when mother presents in late labour:</strong></td>
<td>None</td>
<td>None</td>
<td>Maternal: None</td>
<td>Infant: sdNVP 2mg/kg oral suspension</td>
</tr>
<tr>
<td>Postnatal infant sdNVP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 The infant sdNVP dose can be given immediately after delivery or within 72 hours. It is preferable to give sdNVP as soon as possible after childbirth and before discharge from the healthcare facility. If a mother does not receive any ARV prophylaxis, or if delivery occurs less than 2 hours after she is given the intrapartum dose, the infant sdNVP should be given immediately after birth. AZT should be given to the infant for 4 weeks.

2 The infant course of AZT should be extended to 4 weeks if a mother received <4 weeks of AZT during the antenatal period.

APPENDIX 6-A
Advantages and Disadvantages of Infant Feeding Options for HIV-Infected Mothers

<table>
<thead>
<tr>
<th>Exclusive Breastfeeding</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>▪ Breastmilk is the perfect food for infants and protects them from many diseases, especially diarrhoea and pneumonia and the risk of dying of these diseases.</td>
<td>▪ The risk of MTCT exists as long as the mother who is HIV infected breastfeeds because breastmilk contains HIV.</td>
</tr>
<tr>
<td>▪ Breastfeeding improves brain growth and development.</td>
<td>▪ The mother may be pressured to give water, other liquids or foods to the infant while breastfeeding. This practice, known as mixed feeding, may increase the risk of diarrhoea and other infections.</td>
</tr>
<tr>
<td>▪ Breastmilk gives infants all of the nutrition and water they need. They do not need any other liquid or food for the first 6 months.</td>
<td>▪ The mother will need support to exclusively breastfeed until it is possible to use another feeding option.</td>
</tr>
<tr>
<td>▪ Breastmilk is always available and does not need any special preparation.</td>
<td>▪ Exclusive breastfeeding requires feeding on demand at least 8-10 times per day, which working mothers may find difficult once they return to work if they lack adequate support (alternatively, they can privately express milk during the workday and can arrange to store milk in a cool place).</td>
</tr>
<tr>
<td>▪ Breastfeeding provides the close contact that deepens the emotional relationship or bond between mother and child.</td>
<td>▪ If the mother becomes very sick, it may be difficult for her to breastfeed.</td>
</tr>
<tr>
<td>▪ Exclusive breastfeeding for the first few months may lower the risk of passing HIV, compared with mixed feeding.</td>
<td>▪ Breastfeeding mothers require an additional 500 kcal/day to support exclusive breastfeeding during the infant’s first 6 months. This is the equivalent of 1 extra meal a day.</td>
</tr>
<tr>
<td>▪ Many women breastfeed, so people will not ask the mother why she is doing it.</td>
<td>▪ Exclusive breastfeeding helps the mother recover from childbirth and protects her from getting pregnant again too soon.</td>
</tr>
<tr>
<td>▪ Exclusive breastfeeding requires feeding on demand at least 8-10 times per day, which working mothers may find difficult once they return to work if they lack adequate support (alternatively, they can privately express milk during the workday and can arrange to store milk in a cool place).</td>
<td></td>
</tr>
</tbody>
</table>

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APPENDIX 6-A (continued)
Advantages and Disadvantages of Infant Feeding Options for HIV-Infected Mothers

<table>
<thead>
<tr>
<th>Exclusive breastfeeding with early cessation (at 6 months or later)</th>
<th>Commercial infant formula</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Advantages</strong></td>
</tr>
<tr>
<td>▪ Early cessation ends the infant’s exposure to HIV through breastfeeding.</td>
<td>▪ Commercial formula poses no risk of transmitting HIV to the infant.</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>▪ Commercial formula includes most of the nutrients that an infant needs.</td>
</tr>
<tr>
<td>▪ Infants may become malnourished after breastfeeding stops if suitable breastmilk substitutes are unavailable or are provided inappropriately.</td>
<td>▪ Other family members can help feed the infant.</td>
</tr>
<tr>
<td>▪ Infants may be at increased risk of diarrhoea if breastmilk substitutes are not prepared safely.</td>
<td>▪ Disadvantages</td>
</tr>
<tr>
<td>▪ Infants may become anxious and even dehydrated if they stop breastfeeding too rapidly.</td>
<td>▪ Commercial formula does not contain antibodies, which protect infants from infection.</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>▪ An infant who is fed commercial formula is more likely to get diarrhoea, chest infections, and malnutrition, especially if the formula is not prepared correctly.</td>
</tr>
<tr>
<td>▪ Replacement feeding will require feeding the infant with a cup. Cup feeding requires caregiver patience and time. If possible, mothers should be taught how to feed infants using a cup and expressed breastmilk, before they stop breastfeeding.</td>
<td>▪ The mother must stop breastfeeding completely, or the risk of transmitting HIV will continue.</td>
</tr>
<tr>
<td>▪ Mothers’ breasts may become engorged and infected during the transition period if some milk is not expressed and discarded.</td>
<td>▪ The mother may get pregnant again too soon.</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>▪ Safe preparation requires fuel and clean water (boiled vigorously for 1 to 2 seconds) to prepare the formula, and soap to wash the infant’s cup.</td>
</tr>
<tr>
<td>▪ Mothers’ breasts may become engorged and infected during the transition period if some milk is not expressed and discarded.</td>
<td>▪ In some settings, family, neighbours, or friends may question a mother who does not breastfeed about her HIV status.</td>
</tr>
<tr>
<td>▪ Mothrs’ breasts may become engorged and infected during the transition period if some milk is not expressed and discarded.</td>
<td>▪ Formula should be made fresh for each feed, according to directions, day and night, unless there is access to a refrigerator.</td>
</tr>
<tr>
<td>▪ Safe preparation requires fuel and clean water (boiled vigorously for 1 to 2 seconds) to prepare the formula, and soap to wash the infant’s cup.</td>
<td>▪ A continuous, reliable formula supply is required to prevent malnutrition.</td>
</tr>
<tr>
<td>▪ In some settings, family, neighbours, or friends may question a mother who does not breastfeed about her HIV status.</td>
<td>▪ The infant will need to drink from a cup. Babies can learn how to do this even when they are very young, but it may take time to learn.</td>
</tr>
<tr>
<td>▪ Mothers’ breasts may become engorged and infected during the transition period if some milk is not expressed and discarded.</td>
<td>The mother may get pregnant again too soon.</td>
</tr>
<tr>
<td>▪ The infant will need to drink from a cup. Babies can learn how to do this even when they are very young, but it may take time to learn.</td>
<td>The mother may get pregnant again too soon.</td>
</tr>
<tr>
<td>▪ A continuous, reliable formula supply is required to prevent malnutrition.</td>
<td>The mother may get pregnant again too soon.</td>
</tr>
</tbody>
</table>

Commercial formula is expensive.
APPENDIX 6-A (continued)
Advantages and Disadvantages of Infant Feeding Options for HIV-Infected Mothers

<table>
<thead>
<tr>
<th>Home-modified animal milk</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>▪ Home-modified animal milk presents no risk of HIV transmission.</td>
<td>▪ The mother or caretaker will need to make fresh formula for each feeding, day and night, unless she has access to a refrigerator.</td>
</tr>
<tr>
<td>▪ Home-modified animal milk may be less expensive than commercial formula and is readily available if the family has milk-producing animals.</td>
<td>▪ The mother or caretaker must add sugar in the correct amount and dilute home-modified formula with clean water which has been boiled; this also requires fuel, which is expensive.</td>
</tr>
<tr>
<td>▪ Mothers and caretakers already using commercial formula can use home-modified animal milk when commercial formula is not available.</td>
<td>▪ The mother must stop breastfeeding completely, or the risk of transmitting HIV to her infant will continue.</td>
</tr>
<tr>
<td>▪ Other family members can help feed the infant if the mother is unable.</td>
<td>▪ Families will need access to a regular supply of animal milk, sugar, multi-nutrient syrup, fuel for boiling water and soap for cleaning feeding cups and utensils used in preparing the formula.</td>
</tr>
</tbody>
</table>

**Disadvantages**

- Home-modified animal milk does not contain antibodies, which protect infants from other infections.
- An infant who is fed with home-modified animal milk exclusively is more likely to get diarrhoea and pneumonia and may become malnourished.
- Home-modified formula does not contain all of the nutrients and micronutrients that infants need.
- Formulas based on animal milks are more difficult for infants to digest than breastmilk.
APPENDIX 6-B
Baby-Friendly Hospital Initiative: Ten Steps to Successful Breastfeeding

The Baby-Friendly Hospital Initiative (BFHI) is a worldwide effort launched in 1991 by UNICEF and the World Health Organisation to ensure that all maternities, whether free standing or in a hospital, become centres of breastfeeding support. The Ten Steps to Successful Breastfeeding are a summary of practices to improve conditions for all mothers and babies, including those who are not breastfeeding.

The Ten Steps are:

1. Have a written breastfeeding policy that is routinely communicated to all healthcare staff.
2. Train all healthcare workers in the skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within half an hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation even if they are separated from their infants.
6. Give newborns no food or drink other than breastmilk unless medically indicated.
7. Practice rooming, in a hospital arrangement where the mother and infant stay in the same room day and night, allows unlimited contact between mother and infant.
8. Encourage breastfeeding on-demand.
9. Give no artificial teats or pacifiers (also called dummies and soothers) to breastfeeding babies.
10. The key to best breastfeeding practices is continued day-to-day support for the breastfeeding mother within her home and community.
APPENDIX 6-C
Steps to Express and Pasteurise Breastmilk

How to Express Breastmilk

- Get a container with a wide neck and a cover.
- Wash your hands and the milk container with soap and clean water.
- Sit or stand in a comfortable position in a quiet, private place. Drink something warm and try to relax as much as possible. You may ask someone to massage your back to help your milk to flow.
- Apply a warm compress to your breasts. Lightly massage them and gently
- Pull or roll your nipples.
- Put your thumb on the breast above the nipple and areola (the coloured area) and your first finger below the nipple and areola. Support your breast with your other fingers.
- Gently press your thumb and first finger together. Press and release, press and release, in order to start the milk flowing. This should not hurt. If it does, then you are not doing it right.
- Press the same way on the sides of the areola in order to empty all parts of the breast.
- Do not squeeze the nipple itself or rub your fingers along the skin. Your fingers should roll over the breast.
- Express one breast for 3-5 minutes until the flow slows then change to the other breast. Then do both breasts again.
- Change hands when the one hand gets tired. You can use either hand for either breast.
- Store the breastmilk in a clean, covered container.
- You can store fresh breastmilk for up to 8 hours at room temperature, and up to 24 hours in a refrigerator.
APPENDIX 6-C (continued)
Steps to Express and Pasteurise Breastmilk

Steps for pasteurising the milk

- Before pasteurising the milk, gather the following things:
  - Clean containers with wide necks and covers, enough to store the milk
  - A small pot to heat the milk, such as an enamel cup
  - A large container of cool water
  - Fuel to heat the water
  - Soap and clean water to wash the equipment

- Follow these steps to pasteurise and store milk:
  1. Wash all of the pots, cups and containers with soap and water.
  2. Heat your milk to the boiling point and then place the small pot in a container of cool water so that it cools more quickly. If that is not possible, let the milk stand until it cools.
  3. Only boil enough expressed milk for one feed.
  4. Store it in a clean, covered container in a cool place and use it within 1 hour.
  5. Feed the infant using a cup. Throw away any unused milk.
APPENDIX 6-D
How to Feed an Infant from a Cup

How to feed an infant with a cup

- Hold the infant sitting upright or semi-upright on your lap.
- Hold the cup of milk to the infant's lips.
- Tip the cup so that the milk just reaches the infant's lips and it rests lightly on the infant's lower lip.
- The infant will become alert and open mouth and eyes.*
- **Do not pour** the milk into the infant's mouth. Hold the cup to the infant's lips and let the infant take it.
- When the infant has had enough, he/she will close the mouth. If the infant has not taken the calculated amount, he/she may take more next time or the mother needs to feed more often.
- Measure the infant's intake over a 24-hour period, not just at each feed, to calculate whether the infant is getting the right amount of milk.

*Low-birth weight infants will start to take milk with the tongue. A full-term or older infant will suck the milk, spilling some.

<table>
<thead>
<tr>
<th>What you do...</th>
<th>Why you do it...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Get ready</strong></td>
<td><strong>Any form of dirt or germs may give your infant diarrhoea.</strong></td>
</tr>
<tr>
<td>- Wash hands with soap and water.</td>
<td><strong>Close touching fosters bonding.</strong></td>
</tr>
<tr>
<td>- Hold the infant close and comfortable.</td>
<td><strong>Helps prevent spilling and contamination if infant doesn't finish the whole feeding.</strong></td>
</tr>
<tr>
<td>- Pour small amount of prepared milk/formula in infant’s cup.</td>
<td></td>
</tr>
</tbody>
</table>

| **2. Feed the infant** | **Too much formula may make the infant choke.** |
| - Put the cup to infant’s lips. | **Every infant is different and may take a little more or less at different feedings.** |
| - Don’t tip the cup too much. | **Do not force-feed the infant** |
| - Let the infant lap or suck the milk at his/her own rate. | |
| - Keep the cup to infant’s lips until s/he is ready to drink again. | |
| - Encourage the infant to continue feeding as long as possible or until feed is finished. | |

| **3. Clean the utensils** | **Milk/formula is sweet and germs grow more quickly.** |
| - Wash used utensils with soap and clean water immediately after feeding. | **Contaminated utensils may make your infant sick. Follow directions for sterilising.** |
| - Look to see that there is no milk in the clean utensils. | |
| - Kill all germs by boiling utensils for 10 minutes or soaking in diluted household bleach followed by boiling to rinse bleach | |
| - Cover utensils and store in a dry place. | |
Cup feeding is always to be used instead of bottle feeding.

Be prepared
1. Use a reliable family planning method to prevent getting pregnant too soon.
2. Know how to give replacement fluids if your infant develops diarrhoea.
3. If you have a problem, consult your nurse/nutritionist for help.

This appendix was adapted from the following:
# APPENDIX 6-E
Commercial Infant Formula Requirements

<table>
<thead>
<tr>
<th>Month</th>
<th>500 g Tins/Month</th>
<th>450 g Tins/Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>44</strong></td>
</tr>
</tbody>
</table>

APPENDIX 7-A Comprehensive Care for Prevention of Mother-to-Child Transmission of HIV

Pregnant woman presents to RCH/ANC care

Group Pre-test Information Session

HIV test performed

HIV-negative Post-test counselling
Discuss:
- Partner testing
- Safer sex and risk reduction
- Infant feeding counselling
- ANC care
- Referrals as indicated

Standard ANC care

HIV-positive Post-test counselling
Discuss:
- Partner testing
- PMTCT interventions
- Treatment for family
- Infant/child care and testing
- Infant feeding counselling
- Referrals as indicated

Eligible for ARV treatment
- Clinical Stage 4
- Clinical Stage 3 (CD4 <350 cells/mm³)
- CD4 <200 cells/mm³

Start first-line regimen
- AZT + 3TC + NVP with monitoring and adherence support
- Establish communication between PMTCT programme and CTC

Labour and Delivery
Safer delivery practices and Standard Precautions.
Mother: Administration of regular ARV treatment or appropriate ARV prophylaxis
Infant: Administration of ARV prophylaxis
(sdNVP 2mg/kg before 72 hours PLUS AZT 4mg/kg BD for 1 or 4 weeks, if available)

Immediate postpartum care
Assess and educate mother about signs and symptoms of infection for mother and infant
Importance of follow-up care and schedule of appointments
Support for infant feeding choice

Comprehensive care for mother
- Referral to CTC at 42-day visit
- Family referrals
- Coordination and communication with all healthcare programmes
- Safer sex and family planning
- Psychosocial assessment and referral
- Nutritional counselling for family
- Signs and symptoms of OIs
- Counselling on HIV testine for infant

Comprehensive care for infant
- Start CPT at 4 weeks
- Growth and development monitoring
- Immunisations
- Schedule of Under-Five
- Schedule of HIV testing visits

HIV test declined
Discuss:
- Barriers to testing
- Reassure that testing available throughout pregnancy
- Safer delivery practices

Standard ANC care and HIV-specific care
Provide:
- Screening and Treatment of OIs/STIs
- Malaria and PCP prophylaxis if eligible
- Condoms
- Infant feeding counselling
- Staging of HIV disease

Referral to CTC for evaluation

Eligible for ARV prophylaxis
Clinical Stage 1 or 2 and CD4 <350 cells/mm³
1. Start AZT at 28 weeks, AZT, 3TC and sdNVP intrapartum, 7-day AZT and 3TC tail
2. sdNVP at onset of labour

Labour and Delivery
- Offer HIV counselling and testing or offer immediately postpartum
- If positive, offer ARV prophylaxis to the mother and infant

HIV status unknown
Standard ANC care
During ANC continue to:
- Address barriers to testing
- Offer counselling and testing
- Safer sex counselling

If negative, follow Standard Precautions and Well baby care
APPENDIX 7-B
Immunisation Recommendations and Schedule

All children who have been exposed to HIV should be fully immunised according to their age. Because most children who are HIV infected do not have severe immune suppression during the first year of life, immunisation should occur as early as possible after the appropriate age to optimise the immune response.

**Bacillus Calmette-Guérin (BCG).** Children with known symptomatic HIV infection should not receive the BCG vaccine. However, because most infants who are HIV infected are asymptomatic at birth, when BCG immunization occurs, and thus will have unknown HIV status, the birth BCG immunisation should be given. If scarring does not occur at the site after 3 months and the child is symptomatic, revaccinate with BCG.

**Oral polio vaccine.** If the child has diarrhoea and is scheduled to receive OPV, the dose should be given as scheduled. However, the dose should not be recorded in the schedule, and an additional dose of OPV should be given after the diarrhoea has resolved or at the next routine visit.

**Diphtheria, pertussis, tetanus (DPT).** Children who have either recurrent convulsions or active central nervous system disease or who have had shock or convulsions within 3 days of receiving a DPT vaccination should not receive subsequent DPT vaccination.

**Hepatitis B vaccine.** The World Health Organisation recommends that the hepatitis B vaccine be included in routine childhood immunisation schedules for all children. In Tanzania the combined DPT-hepatitis B vaccine is administered.

**Measles.** The measles vaccine can be safely given to HIV-exposed infants or HIV-infected infants at 9 months of age IF they are asymptomatic. Infants who are severely immunocompromised should not receive this live vaccine.

<table>
<thead>
<tr>
<th>Age of Infant</th>
<th>Vaccine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>BCG*, OPV-0</td>
</tr>
<tr>
<td>4 weeks</td>
<td>DPT-HBV-1,OPV-1</td>
</tr>
<tr>
<td>8 weeks</td>
<td>DPT-HBV-2, OPV-2</td>
</tr>
<tr>
<td>12 weeks</td>
<td>DPT-HBV-3, OPV-3</td>
</tr>
<tr>
<td>9 months</td>
<td>Measles* (if no severe immunodeficiency)</td>
</tr>
</tbody>
</table>

- **Key:**
  - BCG = Bacillus Calmette-Guérin
  - OPV = oral polio vaccine
  - DPT-HBV = combined diphtheria, pertussis, tetanus and hepatitis B vaccine

* BCG and measles vaccine should be given to all children except those children with symptoms of advanced HIV/AIDS.

APPENDIX 7-C
Vitamin A Supplementation

Studies show vitamin A reduces illness and death in children and adults. All mothers and children should receive vitamin A supplementation.

Protocol for vitamin A supplementation

<table>
<thead>
<tr>
<th>Age</th>
<th>Dose: <strong>Breastfed infants</strong></th>
<th>Dose: <strong>Formula fed infants</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 6 of age months</td>
<td>None</td>
<td>50,000 IU</td>
</tr>
<tr>
<td>At 9-12* months</td>
<td>100,000 IU</td>
<td>100,000 IU</td>
</tr>
<tr>
<td>At 15-18 months</td>
<td>200,000 IU</td>
<td>200,000 IU</td>
</tr>
<tr>
<td>At 21-24 months</td>
<td>200,000 IU</td>
<td>200,000 IU</td>
</tr>
</tbody>
</table>

* timing should correspond with measles vaccination
APPENDIX 7-D
Cotrimoxazole Preventive Therapy in Children

For HIV-exposed children
- **Every** infant born to an HIV-infected mother should receive cotrimoxazole preventive therapy (CPT) to prevent *Pneumocystis* pneumonia (PCP), beginning at 4 weeks of age or as soon as possible thereafter.
- CPT should be continued until the child is proven to be HIV antibody negative at 18 months and the mother has stopped breastfeeding.

For children with presumptive diagnosis of HIV infection
- Start CPT at any age and continue until HIV status is confirmed negative and there is no risk of transmission through breastfeeding.

*CPT should be stopped only if the HIV-exposed or presumptively diagnosed child tests HIV negative 6 weeks after the complete cessation of breastfeeding.*

For HIV-infected children

CPT should be given to:
- All HIV-infected infants <12 months of age
- All HIV-infected children between 1 and 4 years of age who have clinical signs or symptoms suggestive of mild, advanced or severe HIV disease (WHO Stage 2, 3 and 4)
- All children >12 months of age whose CD4 percentage is less than 15%
- All HIV-infected children >5 years of age should start or continue CPT according to adult guidelines

If ARV treatment is not available for the HIV-infected child, CPT should be continued indefinitely.

Side effects and allergy
Cotrimoxazole is generally well tolerated. The most common side effects are nausea, vomiting, diarrhoea. Rash and fever are less common but also occur. These side effects are generally seen within the first 2 weeks of use. If the child is allergic to cotrimoxazole and needs CPT treatment, Dapsone should be prescribed as an alternative to prevent PCP.
APPENDIX 7-D (continued)
Cotrimoxazole Preventive Therapy in Children

Cotrimoxazole formulation and dosage for HIV-infected or HIV-exposed children

<table>
<thead>
<tr>
<th>RECOMMENDED DAILY DOSAGE</th>
<th>Suspension (5 ml syrup 200 mg/40 mg)</th>
<th>Paediatric tablet (100 mg/20 mg)</th>
<th>Single-strength adult tablet (400 mg/80 mg)</th>
<th>Double-strength adult tablet (800 mg/160 mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6 months 100 mg SMX /20 mg TMP</td>
<td>2.5ml</td>
<td>One tablet</td>
<td>¼ tablet, possibly mixed with feeding</td>
<td>----</td>
</tr>
<tr>
<td>6 months – 5 years 200mg SMX /40 mg TMP</td>
<td>5 ml</td>
<td>Two tablets</td>
<td>Half tablet</td>
<td>----</td>
</tr>
<tr>
<td>&gt;6 – 14 years 400 mg SMX /80 mg TMP</td>
<td>10 ml</td>
<td>Four tablets</td>
<td>One tablet</td>
<td>Half tablet</td>
</tr>
<tr>
<td>&gt;14 years 800 mg SMX / 160 mg TMP</td>
<td>----</td>
<td>----</td>
<td>Two tablets</td>
<td>One tablet</td>
</tr>
</tbody>
</table>

Frequency: once a day

APPENDIX 7-E
WHO Clinical Staging of HIV/AIDS for Adults and Adolescents with Confirmed HIV infection

To be used for persons ≥15 years of age

Clinical Stage 1
- Asymptomatic
- Persistent generalised lymphadenopathy

Clinical Stage 2
- Unexplained moderate weight loss (<10% of presumed or measured body weight)
- Recurrent respiratory tract infections (sinusitis, tonsillitis, otitis media and pharyngitis)
- Herpes zoster
- Angular cheilitis
- Recurrent oral ulceration
- Papular pruritic eruptions
- Seborrhoeic dermatitis
- Fungal nail infections

Clinical Stage 3
- Unexplained severe weight loss (>10% of presumed or measured body weight)
- Unexplained chronic diarrhoea for longer than 1 month
- Unexplained persistent fever (above 37.5°C intermittent or constant, for longer than 1 month)
- Persistent oral candidiasis
- Oral hairy leukoplakia
- Pulmonary tuberculosis
- Severe bacterial pneumonia (such as pneumonia, empyema, pyomyositis, bone or joint infection, meningitis or bacteremia)
- Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis
- Unexplained anaemia (<8g/dL), neutropenia (<0.5 x 10^9 per litre) and/or chronic thrombocytopenia (<50 x 10^9 per litre)

Clinical Stage 4
- HIV wasting syndrome
- Pneumocystis pneumonia
- Recurrent severe presumed bacterial pneumonia
- Chronic herpes simplex infection (orolabial, genital or anorectal of more than 1 month’s duration or visceral at any site)
- Oesophageal candidiasis (or candidiasis of trachea, bronchi or lungs)
- Extrapulmonary tuberculosis
- Kaposi sarcoma
- Cytomegalovirus infection (retinitis or infection of other organs)
- Central nervous system toxoplasmosis
- HIV encephalopathy
- Extrapulmonary cryptococcosis including meningitis
- Disseminated non-tuberculous mycobacterial infection
- Progressive multifocal leukoencephalopathy
- Chronic cryptosporidiosis
- Chronic isosporiasis


3 Unexplained refers to where the condition is not explained by other causes.

4 Some additional specific conditions can also be included in regional classifications (such as reactivation of American trypanosomiasis [meningoencephalitis and/or myocarditis] in the WHO region of the Americas and penicilliosis in Asia).
APPENDIX 7-E (continued)

WHO Clinical Staging of HIV/AIDS for Adults and Adolescents with Confirmed HIV infection

<table>
<thead>
<tr>
<th>Clinical Stage 4 (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Disseminated mycosis (extrapulmonary histoplasmosis or coccidiomycosis)</td>
</tr>
<tr>
<td>▪ Recurrent septicaemia (including non-typhoidal <em>Salmonella</em> infection)</td>
</tr>
<tr>
<td>▪ Lymphoma (cerebral or B-cell non-Hodgkin)</td>
</tr>
<tr>
<td>▪ Invasive cervical carcinoma</td>
</tr>
<tr>
<td>▪ Atypical disseminated leishmaniasis</td>
</tr>
<tr>
<td>▪ Symptomatic HIV-associated nephropathy or symptomatic HIV-associated cardiomyopathy</td>
</tr>
</tbody>
</table>
APPENDIX 7-F
WHO Clinical Staging of HIV/AIDS for Infants and Children

WHO clinical staging system of HIV/AIDS infants and children <15 years of age with confirmed HIV infection

<table>
<thead>
<tr>
<th>Clinical Stage 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic</td>
<td></td>
</tr>
<tr>
<td>Persistent generalised lymphadenopathy</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinical Stage 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexplained persistent hepatosplenomegaly</td>
<td></td>
</tr>
<tr>
<td>Papular pruritic eruptions</td>
<td></td>
</tr>
<tr>
<td>Extensive wart virus infection</td>
<td></td>
</tr>
<tr>
<td>Extensive molluscum contagiosum</td>
<td></td>
</tr>
<tr>
<td>Fungal nail infections</td>
<td></td>
</tr>
<tr>
<td>Recurrent oral ulcerations</td>
<td></td>
</tr>
<tr>
<td>Unexplained persistent parotid gland enlargement</td>
<td></td>
</tr>
<tr>
<td>Lineal gingival erythema</td>
<td></td>
</tr>
<tr>
<td>Herpes zoster</td>
<td></td>
</tr>
<tr>
<td>Recurrent or chronic upper respiratory tract infections (otitis media, otorrhoea, sinusitis or tonsillitis)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinical Stage 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexplained moderate malnutrition not adequately responding to standard treatment</td>
<td></td>
</tr>
<tr>
<td>Unexplained persistent diarrhoea (14 days or more)</td>
<td></td>
</tr>
<tr>
<td>Unexplained persistent fever (above 37.5° intermittent or constant, for longer than 1 month)</td>
<td></td>
</tr>
<tr>
<td>Persistent oral candidiasis (after first 6-8 weeks of life)</td>
<td></td>
</tr>
<tr>
<td>Oral hairy leukoplakia</td>
<td></td>
</tr>
<tr>
<td>Acute necrotizing ulcerative gingivitis or periodontitis</td>
<td></td>
</tr>
<tr>
<td>Lymph node tuberculosis</td>
<td></td>
</tr>
<tr>
<td>Pulmonary tuberculosis</td>
<td></td>
</tr>
<tr>
<td>Severe recurrent presumed bacterial pneumonia</td>
<td></td>
</tr>
<tr>
<td>Symptomatic lymphoid interstitial pneumonitis</td>
<td></td>
</tr>
<tr>
<td>Chronic HIV-associated lung disease including bronchiectasis</td>
<td></td>
</tr>
<tr>
<td>Unexplained anaemia (&lt;8g/dl), neutropaenia (&lt;0.5 x 10⁹ per litre) or chronic thrombocytopenia (&lt;50 x 10⁹ per litre)</td>
<td></td>
</tr>
</tbody>
</table>

Unexplained refers to where the condition is not explained by other causes.
WHO clinical staging system of HIV/AIDS infants and children <15 years of age with confirmed HIV infection

### Clinical Stage 4

- Unexplained severe wasting, stunting or severe malnutrition not responding to standard treatment
- *Pneumocystis* pneumonia
- Recurrent severe bacterial infections (e.g., empyema, pyomyositis, bone or joint infection, meningitis, but excluding pneumonia)
- Chronic herpes simplex infection; (orolabial or cutaneous of more than 1 month’s duration or visceral at any site)
- Extrapulmonary tuberculosis
- Kaposi sarcoma
- Oesophageal candidiasis (or candidiasis of trachea, bronchi or lungs)
- Central nervous system toxoplasmosis (after 1 month of life)
- HIV encephalopathy
- Cytomegalovirus infection: retinitis or cytomegalovirus infection affecting another organ, with onset at age >1 month
- Extrapulmonary cryptococcosis (including meningitis)
- Disseminated endemic mycosis (extrapulmonary histoplasmosis, coccidiomycosis)
- Chronic cryptosporidiosis
- Chronic isosporiasis
- Disseminated non-tuberculous mycobacterial infection
- Cerebral or B-cell non-Hodgkin lymphoma
- Progressive multifocal leukoencephalopathy
- Symptomatic HIV-associated nephropathy of HIV-associated cardiomyopathy

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6 Some additional specific conditions can also be included in regional classifications (such as reactivation of American trypanosomiasis [meningoencephalitis and/or myocarditis] in the WHO region of the Americas, penicilliosis in Asia and HIV-associated rectovaginal fistula in Africa).
APPENDIX 7-G
Algorithms for HIV Diagnosis for Infants and Children

HIV diagnosis using antibody tests in children 18 months and older
APPENDIX 7-G (continued)
Algorithms for HIV Diagnosis for Infants and Children

HIV viral testing by PCR for infants and children less than 18 months of age

1 See the WHO Clinical Staging System for Children in Appendix 7-F.
2 Cotrimoxazole prophylaxis is started as early as 4 weeks of age in ALL HIV-exposed infants and in infants where you suspect HIV infection.
# APPENDIX 7-H
## ARV Medications for Adults and Children in Tanzania

<table>
<thead>
<tr>
<th>First line ARV treatment regimen for adults</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stavudine (d4T) + Lamivudine (3TC) + Nevirapine (NVP)</strong>*</td>
</tr>
</tbody>
</table>

### Dosing instructions for first-line regimen
- There are several fixed-dose combinations (FDC) of d4T + 3TC + NVP available nationally. One of them is called "Triomune".
- Triomune 30 or 40 contains d4T 30 or 40 mg, 3TC 150 mg and NVP 200 mg. If patient’s body weight is <60 kg, use Triomune 30; if body weight is >60 kg, use Triomune 40.

#### Stavudine (d4T)
- For patients <60 kg, d4T 30 mg twice a day
- For patients >60 kg, d4T 40 mg twice a day

#### Lamivudine (3TC)
- 150 mg twice a day

#### Nevirapine (NVP)
- Induction dosing for the first 2 weeks decreases the risk of hepatotoxicity and severe rash. Give NVP 200 mg once every day for 2 weeks and then increase to twice a day.
- If using FDCs, take Triomune once in the morning and then only d4T 30/40 mg and 3TC 150 mg in the evening for the first 2 weeks of treatment. If tolerated, continue at full dose of Triomune 30 or 40 BD.

#### Zidovudine (AZT)
- 300 mg twice a day

#### Efavirenz (EFV)
- 600 mg at night on an empty stomach
- Should be avoided during the first trimester of pregnancy and in women of childbearing age when pregnancy cannot be excluded.

### First-line substitutions
- If patient has peripheral neuropathy but no anaemia, replace d4T with **zidovudine (AZT)**.
- If patient experiences hepatotoxicity, an intolerance to NVP, or has TB and is taking rifampicin, replace NVP with **EFV**.

Unless contraindicated, all patients will commence treatment on: **d4T + 3TC + NVP with dose adjustment of the NVP portion for the first 2 weeks**.

However patients can be started on or switched to alternative first-line regimens under the following circumstances:
- **AZT + 3TC + NVP if there is peripheral neuropathy**
- **d4T + 3TC + EFV if there is TB and anaemia (Hgb <7.5 g/dL)**
- **AZT + 3TC + EFV if there is TB and no anaemia**
## APPENDIX 7-H (continued)

### ARV Medications for Adults and Children in Tanzania

<table>
<thead>
<tr>
<th><strong>Second-line ARV treatment regimen for adults</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abacavir (ABC) + didanosine (ddI) + lopinavir/ritonavir (LPV/r)</strong></td>
</tr>
<tr>
<td><strong>Dosing instructions for second-line regimen</strong></td>
</tr>
<tr>
<td><strong>Abacavir (ABC)</strong></td>
</tr>
<tr>
<td>▪ 300 mg twice a day</td>
</tr>
<tr>
<td><strong>Didanosine (ddI)</strong></td>
</tr>
<tr>
<td>▪ For patients &lt;60 kg, 250-300 mg every day</td>
</tr>
<tr>
<td>▪ For patients &gt;60 kg, 400 mg every day (or 200 mg twice a day)</td>
</tr>
<tr>
<td><strong>Lopinavir boosted with ritonavir (LPV/r)</strong></td>
</tr>
<tr>
<td>▪ 400/100 mg twice a day (each tablet contains 133.3/33.3 mg); take 3 tablets twice a day to get recommended dosage</td>
</tr>
<tr>
<td>▪ LPV/r may be substituted with boosted saquinavir (SQV/r) - SQV 1000 mg plus ritonavir 100 mg twice a day (each tablet of saquinavir contains 200 mg); take 5 tablets of SQV twice a day to get recommended dose</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>First-line ARV treatment regimens for children</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>For children &lt;3 years of age, use</strong></td>
</tr>
<tr>
<td>AZT + 3TC + NVP</td>
</tr>
<tr>
<td><strong>For children &gt;3 years of age, use</strong></td>
</tr>
<tr>
<td>AZT + 3TC + (EFV or NVP)</td>
</tr>
<tr>
<td><strong>d4T</strong> is an alternate for AZT in cases of anaemia (Hgb &lt;7.5 g/dL). It should be noted that d4T in liquid formulation needs refrigeration. Also, potential side effects, such as peripheral neuropathy, are difficult to recognise in children.</td>
</tr>
<tr>
<td><strong>Dosages for second-line regimens for children are available in the National Guidelines for the Clinical Management of HIV and AIDS.</strong></td>
</tr>
</tbody>
</table>

| **d4T** = stavudine | **AZT** = zidovudine |
| **3TC** = lamivudine | **ddI** = didanosine |
| **NVP** = nevirapine | **LPV/r** = lopinavir/ritonavir |
| **EFV** = efavirenz | **SQV** = saquinavir |
|                      | **RTV** = ritonavir |
|                      | **SQV/r** = boosted saquinavir |

## APPENDIX 7-I
### Information about Antiretroviral Medications

#### Classification of ARV Medications

<table>
<thead>
<tr>
<th>Full name</th>
<th>ARVs used nationally</th>
<th>How they work</th>
</tr>
</thead>
</table>
| **Nucleoside/Nucleotide Reverse Transcriptase Inhibitors** (NRTI) Also called “nukes” | Abacavir (ABC) Didanosine (ddI) Lamivudine (3TC) Stavudine (d4T) Zidovudine (AZT) | - These medications stop HIV from copying itself by blocking the reverse transcriptase enzyme.  
- This enzyme changes HIV's genetic material (RNA) into a form of DNA.  
- These medications mimic the building blocks used by reverse transcriptase to make copies of the HIV genetic material. These false building blocks disrupt the copying so the virus can’t reproduce. |
| **Non-nucleoside reverse transcriptase inhibitors** (NNRTI) Also known as “non-nukes” | Efavirenz (EFV) Nevirapine (NVP) | - These medications also target the reverse transcriptase enzyme but instead of mimicking the enzyme, they physically prevent reverse transcriptase from working. |
| **Protease Inhibitors (PIs)** | Lopinavir/ritonavir (LPV/r) Saquinavir (SQV) Ritonavir (RTV) | - These medications block the protease enzyme.  
- When protease is blocked, the new viral particles cannot mature. |

Adapted from:  
## APPENDIX 7-I (continued)
### Information about Antiretroviral Medications

#### Side Effects Management

<table>
<thead>
<tr>
<th>Drug</th>
<th>Very common side effects</th>
<th>Potentially serious side effects and adverse events</th>
<th>Long-term side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Warn patients about side effects before they occur and suggest ways they can manage the side effects</td>
<td>Education patients how to recognise side effect and what to do</td>
<td>Refer patients to CTC</td>
</tr>
<tr>
<td>d4T stavudine</td>
<td>Nausea, Diarrhoea</td>
<td>Seek care urgently at CTC:</td>
<td>Changes in fat distribution:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Severe abdominal pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Fatigue</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Shortness of breath</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seek advice soon:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Tingling, numb or painful extremities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>▪ Arms, legs, buttocks, and cheeks become thin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>▪ Breasts, belly, and back of neck become fat</td>
</tr>
<tr>
<td>3TC lamivudine</td>
<td>Headache, Nausea, Diarrhoea</td>
<td>Seek care urgently at CTC:</td>
<td></td>
</tr>
<tr>
<td>NVP nevirapine</td>
<td>Nausea, Diarrhoea</td>
<td>Seek care urgently at CTC:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Severe rash with peeling</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Signs of liver toxicity:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Jaundice/yellow eyes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Severe nausea and fatigue</td>
<td></td>
</tr>
<tr>
<td>AZT zidovudine</td>
<td>Nausea, Diarrhoea, Headache, Fatigue, muscle pain</td>
<td>Seek care urgently:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Pallor (anaemia)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Severe fatigue</td>
<td></td>
</tr>
<tr>
<td>EFV efavirenz</td>
<td>Nausea, Diarrhoea, Headache, Vivid dreams, Difficulty sleeping, Memory problems, Dizziness</td>
<td>Seek care at the CTC if you are on EFV and you become pregnant.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Take medication before bed</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from: World Health Organisation. *Chronic HIV Care with ARV Therapy and Prevention. Integrated Management of Adolescent and Adult Illness (IMAI) DRAFT February 2006.*
# APPENDIX 7-I (continued)
## Information about Antiretroviral Medications

### Side Effects Management

<table>
<thead>
<tr>
<th>Common side effects</th>
<th>Basic symptom management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nausea</strong></td>
<td>Take medication with food. If on AZT, reassure that this is common, usually self-limited. Treat symptomatically. If persists for more than 2 weeks (14 days) or worsens, call for advice or refer to CTC.</td>
</tr>
<tr>
<td><strong>Headache</strong></td>
<td>Give paracetamol. Assess for meningitis. If on AZT or EFV, reassure that this is common and usually self-limited. If persists more than 2 weeks (14 days) or worsens, call for advice or refer to CTC.</td>
</tr>
<tr>
<td><strong>Diarrhoea</strong></td>
<td>Hydrate. Follow clinic protocol for managing diarrhea. Reassure patient that if diarrhea is due to ARV, it will improve in a few weeks. Follow up in 2 weeks. If not improved, call for advice or refer to CTC.</td>
</tr>
<tr>
<td><strong>Fatigue</strong></td>
<td>Consider anaemia, especially if on AZT. Check haemoglobin. Fatigue commonly lasts 4 to 6 weeks especially when starting AZT. If severe or longer than this, call for advice or refer to CTC.</td>
</tr>
<tr>
<td><strong>Anxiety, nightmares, psychosis, depression</strong></td>
<td>This may be due to EFV. Give EFV at night; counsel and support (usually lasts &lt;3 weeks). Call for advice or refer if severe depression or suicidal or psychosis. Initial difficult time can be managed with locally available antidepressants or sleep medications.</td>
</tr>
<tr>
<td><strong>Blue/black nails</strong></td>
<td>Reassure. This is common with AZT.</td>
</tr>
</tbody>
</table>
| **Rash**            | If patient is on NVP or ABC, assess carefully at the CTC. If rash is severe and has wet lesions or if there is crusting or ulceration of the mouth or genitals with peeling skin, stop NVP immediately and refer to hospital. This may be Stevens-Johnson's syndrome.  
If there is a flu-like illness associated with a generalised rash after starting ABC, stop the medication and refer to a CTC. This may be a hypersensitivity reaction. |
| **Fever**           | Check for common causes of fever such as malaria. Call for advice or refer to CTC. Fever could be a side effect, an opportunistic or other new infection, or immune reconstitution syndrome. |
| **Yellow eyes**     | Stop all medications immediately. If possible, test liver enzymes and refer to CTC. |
### Common side effects | Basic symptom management

<table>
<thead>
<tr>
<th>(jaundice)</th>
<th>Abdominal pain may be pancreatitis from ddI or d4T. If jaundice or liver tenderness, send for ALT test and stop ARV treatment. Nevirapine is most common cause. Call for advice or refer to CTC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal or flank pain</td>
<td>If possible, measure hemoglobin. Refer, consult and stop AZT if severe pallor or symptoms of anaemia or very low haemoglobin (&lt;7.5).</td>
</tr>
<tr>
<td>Pallor: anaemia</td>
<td>If new or worse on treatment, call for advice or refer to CTC. If patient is on d4T-3TC-NVP, they should have the d4T discontinued. Substitute AZT if no anaemia. Check haemoglobin.</td>
</tr>
<tr>
<td>Tingling, numb or painful feet/legs</td>
<td>This could be immune reconstitution syndrome. If taking ABC, this could be a hypersensitivity reaction requiring referral to the CTC.</td>
</tr>
<tr>
<td>Cough or difficult breathing</td>
<td>Discuss carefully with your patient. Usually a benign side effect of the protease inhibitor class.</td>
</tr>
</tbody>
</table>

Adapted from: World Health Organisation. *Chronic HIV Care with ARV Therapy and Prevention. Integrated Management of Adolescent and Adult Illness (IMAI) DRAFT February 2006*
APPENDIX 8-A
Safe Disposal of Infectious Waste Materials

The purpose of proper waste management is to protect people who handle waste items from injury and prevent the spread of infection to healthcare workers and to the local community. Staff working in PMTCT sites are responsible for segregating waste properly.

The 5 steps of proper waste management are:

1. Segregation or separation of waste according to colour coding
2. Handling and storage (collection, weighing and storage)
3. Transport, both on-site and off-site
4. Treatment or destruction of materials by autoclave, lime, chemicals or incineration
5. Disposal (burning, burying, placenta pits and encapsulation)

The following lists the national recommended colour coding for waste disposal:

<table>
<thead>
<tr>
<th>Color of the container</th>
<th>Type of waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow</td>
<td>Safety box (puncture-resistant) for sharps:</td>
</tr>
<tr>
<td></td>
<td>- Needles</td>
</tr>
<tr>
<td></td>
<td>- Syringes</td>
</tr>
<tr>
<td></td>
<td>- Blades</td>
</tr>
<tr>
<td></td>
<td>- Broken glass</td>
</tr>
<tr>
<td></td>
<td>- Lancets</td>
</tr>
<tr>
<td></td>
<td>- Scissors</td>
</tr>
<tr>
<td></td>
<td>- Ampoules</td>
</tr>
<tr>
<td></td>
<td>- Slides and slide covers</td>
</tr>
<tr>
<td>Red</td>
<td>Wet, infectious materials:</td>
</tr>
<tr>
<td></td>
<td>- Blood</td>
</tr>
<tr>
<td></td>
<td>- Body tissues (amputations)</td>
</tr>
<tr>
<td></td>
<td>- Body fluids (discharges) and specimens (stool and sputum)</td>
</tr>
<tr>
<td></td>
<td>- Placentas</td>
</tr>
<tr>
<td></td>
<td>- Wet dressings</td>
</tr>
<tr>
<td></td>
<td>- Catheters</td>
</tr>
<tr>
<td></td>
<td>- Blood infusion bags</td>
</tr>
<tr>
<td>Blue/Black</td>
<td>Non-infectious materials:</td>
</tr>
<tr>
<td></td>
<td>- Office papers</td>
</tr>
<tr>
<td></td>
<td>- Pharmaceutical packaging</td>
</tr>
<tr>
<td></td>
<td>- Plastic bottles (including water bottles)</td>
</tr>
<tr>
<td></td>
<td>- Food remains</td>
</tr>
<tr>
<td></td>
<td>- Waste paper</td>
</tr>
<tr>
<td></td>
<td>- Trash</td>
</tr>
</tbody>
</table>
APPENDIX 8-B
Preparing Chlorine Solutions for Decontamination

General guidelines:
- Keep concentrated solutions in a cool place; avoid contact with light.
- Do not incinerate chlorine or mix chlorine with acid.
- Use very clean water (boiled and filtered) when making solutions.
- Do not store diluted chlorine.

Formula for making a dilute solution from a concentrated solution

\[
\text{Total Parts (TP) water} = \left( \frac{\% \text{ Concentrate}}{\% \text{ Dilute}} \right) - 1
\]

**Example A.** To make a 0.5% active chlorine solution from a concentrated liquid solution of 3.5% active chlorine, use the following formula:

\[
\text{Total parts water} = \left( \frac{3.5\%}{0.5\%} \right) = 7.7 - 1 = 6.
\]

Mix 1 part (volume) of chlorine with 6 parts (volume) of water for a ratio of 1:6. For example, mix 100 mL of concentrated chlorine with 600 mL of water.

**Example B.** To make a dilute solution of 0.1% from 5% concentrated solution:

\[
\text{Total parts water} = \left( \frac{5.0\%}{0.1\%} \right) = 50 - 1 = 49
\]

Take 1 part concentrated solution and add to 49 parts water.
Preparing Chlorine Solutions for Decontamination

Formula for making a dilute chlorine solution from a dry powder of any percent available chlorine

\[
\text{Grams/litre} = \left( \frac{\text{% Dilute}}{\text{% Concentrate}} \right) \times 1000
\]

**Example.** To make a dilute chlorine solution (0.5%) from a concentrated powder (35% available chlorine):

\[
\text{Calculate grams/litre} = \left( \frac{0.5\%}{35\%} \right) \times 1000 = 14.2\,\text{g/L}
\]

Add 14.2 g (approximately 14 g) to 1 litre of water to get a solution that is 0.5% chlorine.

The available chlorine from dry powder is as follows:
- Calcium hypochlorite: 70% available chlorine
- Calcium Hypochlorite: 35% available chlorine
- Sodium dichloroisocyanurate (NaDCC): 60% available chlorine
- Chloramine tablets: 1 g of available chlorine per tablet; to make a solution of 0.5% chlorine, dissolve 20 tablets/litre
APPENDIX 8-C
Steps in High-level Disinfection

High-level Disinfection (HLD)
HLD is the process that destroys all microorganisms (including bacteria, viruses, fungi and tuberculosis), but does not reliably kill all bacterial endospores, which cause diseases such as tetanus and gas gangrene. HLD is suitable for instruments and items that come in contact with skin or mucous membranes.

Sterilisation that kills all microorganisms, including bacterial endospores, is preferable to HLD for instruments and other items that will come in contact with the bloodstream or tissues under the skin. If sterilisation is not available, HLD is the only acceptable alternative. HLD can be performed by boiling, soaking in chemicals or steaming.

HLD by boiling
Step 1
- Decontaminate and clean all items to be boiled.
- Open all hinged items and disassemble those with sliding or multiple parts.
- Completely submerge all items in the water in the pot or boiler (at least 2.5 cm above the instrument).
- Place any bowls and containers upright, not upside-down, and fill with water.
- For the items that float it is not necessary that they be fully covered by the water, but do not forget to cover the pot with a lid.

Step 2
Cover the pot or close the lid on the boiler and bring the water to a gentle, rolling boil.

Step 3
When the water comes to a rolling boil, start timing for 20 minutes. Use a timer to make sure to record the time that boiling begins. From this point on, do not add or remove any water and do not add any items to the pot or boiler.

Step 4
Lower the heat to keep the water at a gentle, rolling boil. If the water boils too vigorously, it will evaporate, and the items may become damaged if they bounce around the container and hit the sidewalls and other items being boiled. Lower heat also saves fuel or electricity.

Step 5
After 20 minutes, remove the items using dry, HLD pickups (lifters, Cheatle forceps). Never leave the instruments in the pot. Place the items on an HLD tray or in an HLD container with a tight fitting cover away from insects and dust.

An HLD tray or container can be prepared by boiling it for 20 minutes or by filling it with a 0.5% chlorite solution and letting it soak for 20 minutes, then draining the chlorite solution and rinsing thoroughly with sterile water.

Step 6
Allow air-drying before use or storage.

Step 7
Use items immediately or keep them in a covered, sterile or HLD container for up to 24 hours.
APPENDIX 8-C (continued)
Steps in High-level Disinfection

| Never leave boiled items in water that has stopped boiling; they can become contaminated as the water cools. |

### HLD by chemicals

#### Step 1
- Decontaminate, clean, and thoroughly dry all instruments and other items to be processed. Water from wet items will dilute the chemical solution, thereby reducing its effectiveness.

#### Step 2
- **When using glutaraldehyde solution:** Prepare the solution according to the manufacturer’s instructions. Ideally, an indicator strip should be used each time the solution is used to determine if the solution is still effective. After preparing the solution, place in a clean container with a lid. Mark the container with the date the solution was prepared and the date it expires. Glutaraldehyde solution is toxic and an irritant; it must be used with a fume hood or in well-ventilated areas.

- **When using a chlorine solution:** Prepare the 0.5% chlorine solution as described. Fresh solution should be made each day or more often if the solution becomes cloudy. Put the solution in a clean container with a lid.

#### Step 3
- Open all hinged items and disassemble those with sliding or multiple parts. The solution must contact all surfaces in order for HLD to be achieved. Completely submerge all items in the solution. All parts of the items should be under the surface of the solution. Place any bowls and containers upright, not upside-down, and fill with the solution.

#### Step 4
- Cover the container, and allow the items to soak for 20 minutes. Do not add or remove any instruments or other items once timing has begun.

#### Step 5
- Remove the items from the solution using dry, HLD pickups (lifters, Cheatle forceps).

#### Step 6
- Rinse thoroughly (3 times or more) with sterile water to remove the residue that chemicals leave on items. This residue is toxic to skin and tissue.

#### Step 7
- Place the items on an HLD tray or in a HLD container and allow to air-dry before use or storage. Use items immediately or keep in a covered, dry HLD container and use within 24 hours.

A HLD tray or container can be prepared by boiling it for 20 minutes or by filling it with a 0.5% chlorine solution and letting it soak for 20 minutes, then draining the chlorine solution and rinsing thoroughly with boiled water.
APPENDIX 8-D
Types of Sterilisation Techniques

Sterilisation eliminates all microorganisms (bacteria, viruses, fungi and parasites), including bacterial endospores, from instruments and other items. Sterilisation is recommended for instruments and other items that will come in contact with the bloodstream or tissues under the skin, as well as on draped and some surgical attire.

Sterilisation can be performed using:
- High pressure steam (autoclaving)
- Dry heat (oven)
- Soaking in chemicals (cold sterilisation)
- Gamma radiation

Heat (autoclaving/steam and dry heat) is the most effective method of sterilisation and is reliable if monitored carefully. It is also cheaper than chemical methods. It should be considered first for all medical equipment that can withstand heat.

Chemical sterilisation is the alternative method when heat cannot be used (e.g., ethylene oxide and glutaraldehyde).

Sterilisation by Heat

Remember: Exposure time begins when the steriliser has reached the target temperature. Do not overload the steriliser. Leave at least 7.5 cm between items and walls of steriliser.

A. Dry Heat

<table>
<thead>
<tr>
<th>Time/Temperature:</th>
<th>1 hour at 170°C (340°F) and then cooling. Total cycle time is 2 to 2.5 hours.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 hours at 160°C (320°F) and then cooling. Total cycle time is 3 to 3.5 hours.</td>
</tr>
<tr>
<td></td>
<td>2.5 hours at 150°C (300°F)</td>
</tr>
<tr>
<td></td>
<td>3 hours at 140°C (285°F)</td>
</tr>
</tbody>
</table>

B. Steam Heat

- Time: 20 minutes (or 30 minutes if items are wrapped)
- Temperature: 121°C (250°F)
- Pressure: 106 K Pa (15 lbs/sq inch)

Allow all items to dry before removing from the steriliser.

C. Sterilisation by Chemicals (Cold Sterilisation)

Some high-level disinfectants will kill endospores after prolonged (10–24 hour) exposure and can therefore be used for sterilisation.

Chemical sterilisation method is used for instruments and other items that are heat-sensitive or when heat sterilisation is not available.

Follow the manufacturer’s instructions regarding the time necessary for sterilisation to be achieved. In general, if the solution contains glutaraldehyde, cover the container, and allow the instruments and other items to soak for 8 to 10 hours. Do not add or remove any instruments or other items once time has begun.
Remove the instruments and other items from the solution using large, sterile pickups (lifters, Cheatle forceps).

Rinse thoroughly with sterile water to remove the residue that chemical sterilants leave on instruments and other items; this residue is toxic to skin and tissues. Note that because boiling and steaming does not reliably inactivate all endospores, rinsing with boiled water can contaminate sterile instruments.

Storage: Place the instruments and other items on a sterile tray or in a sterile container and allow to air-dry before use or storage. Use the instruments and other items immediately or keep in a covered, dry, sterile container and use within 1 week.
APPENDIX 8-E
Hepatitis B Immunisation and Post-Exposure Prophylaxis

Immunisation
Immunisation of all healthcare workers against infection with hepatitis B (HBV) should be routine. HBV is more prevalent and more infectious than HIV. Long-term consequences of HBV infection include cirrhosis and hepatocellular carcinoma. HBV vaccines are cost effective and widely available.

It is unnecessary to check whether a healthcare worker is immune to hepatitis B before giving the immunisation.

A standard 3-month course is recommended for immunization.

- Dose #1
- Dose #2 – given 1 month later
- Dose #3 – given 6 months after dose #1

If possible, measure antibodies to hepatitis B 2-6 months after the last dose (dose #3) to determine whether the healthcare worker has developed immunity to HBV (ie, whether the healthcare worker is a good responder to hepatitis B vaccine). An anti-HBs serologic level of ≥10 mIU/mL indicates immunity. An anti-HBs serologic level of <10 mIU/mL is a negative serologic test and means that the healthcare worker is a nonresponder.

Occupational Exposure Management
In case of occupational exposure to hepatitis B virus, prophylaxis is indicated for those healthcare workers who are susceptible (defined as having a negative HbsAG or negative hepatitis B surface antigen and no history of receiving immune serum globulin).

Steps for managing an occupational exposure to HBV:
1. Give tetanus immunisation if it has not been given within the last 10 years.
2. Assess the risk of exposure to HBV.
3. Determine the immune status of the source person and the exposed person.
4. Collect a specimen from the source person for HBsAGg, to see there if there is active HBV.
5. If testing is not possible, base the determination on clinical history (jaundice, hepatitis of any viral strain, and previous immunisation status).
6. Give hepatitis B immune globulin (HBIG (5 ml by IM injection) as soon as possible but within 7 days of exposure (5 mL by IM injection).
7. Give dose #1 of hepatitis B vaccine, which should be repeated according to the standard 3-month course.

If dose #1 of hepatitis B vaccine is not available, repeat HBIG 1 month after first dose.