

# PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV



## Generic Training Package DRAFT Participant Manual *January 2008*



**World Health  
Organization**



The WHO/CDC *Prevention of Mother-to-Child Transmission of HIV Generic Training Package* is a comprehensive approach to the training of healthcare workers. The other components in this package are:

- Trainer Manual
- Presentation Booklet

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## Abbreviations and Acronyms

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<b>AIDS</b>	Acquired immune deficiency syndrome
<b>ANC</b>	Antenatal care
<b>ARV</b>	Antiretroviral
<b>CDC</b>	United States Centers for Disease Control and Prevention
<b>CTX</b>	Co-trimoxazole
<b>HCW</b>	Healthcare worker
<b>HIV</b>	Human immunodeficiency virus
<b>MCH</b>	Maternal and child health
<b>PLHIV</b>	People living with HIV
<b>PMTCT</b>	Prevention of Mother-to-child transmission of HIV
<b>MTCT</b>	Mother-to-child transmission of HIV
<b>TB</b>	Tuberculosis
<b>UNAIDS</b>	Joint United Nations Programme on HIV
<b>UNICEF</b>	United Nations Children's Fund
<b>USAID</b>	United States Agency for International Development
<b>WHO</b>	World Health Organization



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## Course Overview and Introduction

**SESSION 1** Course Overview and Introduction

**SESSION 2** Ice-breaker and Ground Rules (Slides 22-26)

**SESSION 3** Pre-test

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**After completing the overview and introduction, participants will be able to:**

- Understand the structure and organization of the course.
- Become familiar with other participants in the course.
- Talk about concerns about HIV and AIDS in the healthcare setting.
- List the ground rules for the course.



## SESSION 1 Course Overview and Introduction

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**After completing this session, participants will be able to:**

- Understand the structure and organization of the course.

### **Background on Prevention of Mother-to-child Transmission of HIV (PMTCT) Programmes**

Of the 33.2 million people living with HIV worldwide at the end of 2007, 2.5 million were children under the age of 15 years. In 2007 alone, 420,000 children worldwide were newly infected with HIV. The most frequent source of HIV infection in infants and children is transmission from mother-to-child during pregnancy, labour and delivery, or breastfeeding. Comprehensive programmes for prevention of mother-to-child transmission of HIV (PMTCT)—including ARV therapy and prophylaxis—can significantly reduce the number of infants who are HIV-infected and promote better health for their mothers and families.

#### **International support**

PMTCT remains central to global HIV initiatives. International organizations and national governments are working together to build PMTCT capacities and achieve the global goal of reducing the number of infants born with HIV. National PMTCT programmes provide an important foundation for HIV prevention and treatment programmes. With the commitment of the international community to increasing access to treatment for persons living with HIV, scale-up of PMTCT programmes is recognized as an important gateway to HIV prevention, care, treatment and support programmes for HIV-infected women, their children and families. This has resulted in growing support for PMTCT and new international initiatives to combat HIV. The GTP reflects the outcome of mutually agreed goals and efforts to scale up PMTCT.

#### **National scale-up**

A coordinated, national plan for building capacity to train and strengthen maternal and child health services at the local level will ensure beneficial outcomes for communities. The GTP is part of a national PMTCT scale-up to improve services in your country.

#### **Training and capacity development**

The rapidly growing HIV pandemic affects all levels of the healthcare system. Global and in-country collaboration can maximize existing human resources and strengthen human capacity. Training of healthcare workers is a key part of this strategy.

The GTP is designed to provide a template for the development of a national training plan and national curriculum. It can be adapted to meet local circumstances and national guidelines, or the information can be used to strengthen existing PMTCT training plans and curricula.

### **Overview of the PMTCT GTP**

The GTP is an evidence-based course on PMTCT designed for resource-limited settings. It is intended to be one component of a training plan that reflects the policies and priorities of national strategies for combating HIV.

PMTCT refers to comprehensive, family-centred clinical and supportive services—provided along with other public health initiatives—to prevent the transmission of HIV from a woman to her infant. The GTP presents the basic components of PMTCT programming.

## Course outline

This course offers information in the following areas:

- Module 1 Introduction to HIV
- Module 2 Overview of HIV Prevention in Mothers, Infants and Young Children
- Module 3 Specific Interventions for the Prevention of Mother-to-Child Transmission of HIV (PMTCT)
- Module 4 Stigma and Discrimination Related to MTCT
- Module 5 HIV Testing and Counselling for PMTCT
- Module 6 Infant Feeding in the Context of HIV Infection
- Module 7 Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection
- Module 8 Safety and Supportive Care in the Work Environment
- Module 9 PMTCT Programme Monitoring

## Course objectives

The objectives of the GTP are:

- To provide information and introductory skills on the essential components of a PMTCT programme, including the prevention of HIV; prevention of transmission from mother-to-child; provision of treatment and care to HIV-infected women, children and their families
- To facilitate the reduction of HIV-related stigma and discrimination and promote community linkages by empowering the healthcare worker to collaborate with community agencies and services
- To increase the capacity of programme managers and healthcare workers in resource-limited settings to deliver PMTCT services
- To help develop or strengthen national PMTCT curriculum and training plans

This PMTCT training course is designed to provide healthcare workers with the information and introductory skills necessary to deliver core PMTCT services in an integrated manner.

Each module and session has objectives specific to the content area.

## Target audience

This training course is targeted to staff working in (or intending to work in) PMTCT programmes or healthcare settings that provide PMTCT services:

- Nurses
- Midwives
- Physicians
- Social workers
- Outreach workers
- Counsellors
- Programme managers

Healthcare workers are encouraged to pursue additional training to complement the expertise available in their facility or region.

There is no substitute for hands-on experience when providing both clinical and social support. All participants are encouraged to view this course as providing a foundation on which to build and develop additional skills. This can be done through specialized training in areas such as HIV counselling or infant feeding. Many of these skills require practice to develop proficiency, and participants can benefit by actively seeking opportunities to increase their comfort with all aspects of programme implementation.

## Structure of the GTP

The GTP, available in printed form and as a CD-ROM, consists of the following components:

- **Participant Manual** is the main reference document for course participants. It includes an Introduction; nine content modules, each with a summary; clearly stated objectives; technical information; and exercises. It also contains a **Glossary, Frequently Asked Questions** and a **Resources** section.
- **Trainer Manual** includes all of the technical material that appears in the Participant Manual, describes the trainer's role in course planning, and offers the trainer directions for conducting each session.
- **Presentation Booklet** includes slides/overheads that summarize the main content areas of each module.

The 2004 version of the GTP also includes:

- **Training Programme and Course Director Guide** is divided into two sections.
  - **Section 1: Training Programme Guide** is targeted to those with overall responsibility for developing the PMTCT National Training Plan, adapting the generic PMTCT curriculum, and developing the plan to evaluate training efforts.
  - **Section 2: Course Director Guide** is a resource document targeted to the individual or team responsible for organizing and conducting the PMTCT training courses.
- **Pocket Guide** provides clear, concise information to support the delivery of services and is a helpful reference for healthcare workers.
- **Wall Charts** can be posted in the health centre or facility and are a reference on key PMTCT content areas.

## Development of the GTP

The development and update of the GTP involved the following activities:

- WHO conducted a systematic inventory of MTCT training materials, strategies, and plans for scale-up in East, Central, and Southern Africa.
- In 2001, visits were made to review pilot project sites, training strategies, and scale-up plans. PMTCT trainers, staff from the Ministry of Health, national AIDS programme, local NGOs, and funding agencies provided valuable input.
- In 2002, a WHO interregional workshop brought consultants together to arrive at a consensus on the GTP components
- In November 2002, WHO invited the U.S. Centers for Disease Control and Prevention (CDC) to collaborate on the development of a comprehensive training package.
- Field tests on the draft comprehensive training package were conducted in Guyana, Ethiopia, Mozambique, and Cambodia to evaluate the draft document and gauge its adaptability for use in resource-limited settings.
- The GTP was reviewed by PMTCT and training experts from WHO, CDC, and country programmes.
- In 2003–2005, the GTP was introduced globally, adapted, and implemented in more than 30 countries. It was also translated into Spanish, French, Arabic, Chinese and Russian during the country adaptation processes. Evaluations were used to revise and update the GTP starting in 2006.
- In 2006–2007, the GTP was updated to reflect the most recent developments in the field of PMTCT, including the newly revised international guidelines.
- In late 2007 the updated GTP was adapted for use in Fiji, Vanuatu, Kiribati and Solomon Islands. Applicable lessons learned from the pilot test of the adapted Training Package were integrated into the current, 2008, version of the GTP.

## SESSION 2 Ice-breaker and Ground Rules

**After completing this session, participants will be able to:**

- Become familiar with the other participants in the course.
- Talk about concerns about HIV in the healthcare setting.
- List the ground rules for the course.

### Introduction Exercise 1 “Getting to know each other”: large group exercise

<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ Create a comfortable learning environment.</li> <li>▪ Provide an opportunity to get to know each other.</li> </ul>
<b>Duration</b>	30 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ Working on your own, take a few minutes to think about the following questions:             <ul style="list-style-type: none"> <li>▪ <b>Concerns:</b> What concerns or worries do you have about taking care of women and children and families with HIV?</li> <li>▪ <b>Expectations:</b> What do you hope to learn from this course?</li> <li>▪ <b>Strengths:</b> What three personal strengths do you bring to your work as a healthcare worker?</li> </ul> </li> <li>▪ Write your responses on a sheet of paper. Your paper will not be collected.</li> <li>▪ Share your responses in the large group discussion.</li> </ul>

### Introduction Exercise 2 Determining the ground rules for the course & introduction of anonymous question bowl: large group exercise

<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ Develop and agree on a set of ground rules that will create an environment that facilitates learning.</li> <li>▪ Introduce the Anonymous Question Bowl as a safe space for asking questions.</li> </ul>
<b>Duration</b>	20 minutes
<b>Instructions</b>	<p>Participate in a discussion on the ground rules necessary to ensure a training environment that will make you feel more comfortable talking about the prevention of mother-to-child transmission of HIV. These ground rules will help guide the development of norms within this training.</p> <p>The trainer will also introduce the “Anonymous Question Bowl or Envelope”—a way to anonymously ask questions about HIV or any other topic addressed in the training. The bowl/envelope will be checked daily, and all questions will be answered.</p>

## SESSION 3 Pre-test (optional)

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<b>Introduction Exercise 3 Pre-test</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To assess participant knowledge before the training course.</li> </ul>
<b>Duration</b>	35 minutes
<b>Instructions</b>	<p>The trainer will introduce the pre-test, which you will find on pages x-xiii of this Course Overview and Introduction.</p> <ul style="list-style-type: none"> <li>▪ Do not write your name on the pre-test—the pre-test is anonymous. The post-test, which will be administered at the end of the course, is anonymous as well. The pre- and post-tests are <i>NOT</i> about measuring <i>your</i> knowledge, but rather about measuring how much the <i>group</i> learned, as a way of evaluating the effectiveness of the Training Package and training methods.</li> <li>▪ Choose any 3-digit number as your ID for the pre-test. Make a note of this number somewhere in your Participant Manual; you will need it again for the post-test. The ID number allows the course organizers to match your pre-test with your post-test—so that the scores can be compared—without being able to trace the test back to you.</li> <li>▪ The trainer will give you the test answers after the post-test.</li> </ul>

# PMTCT Knowledge Assessment Pre-test and Post-test

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ID \_\_\_\_\_

Thank you for attending the PMTCT Training course. The PMTCT Knowledge Assessment pre- and post-tests are given at the beginning and end of the course to determine the usefulness of this training.

**Your responses are anonymous.** You should **not** put your name on this form. In the ID blank at the top left-hand corner of the page, please write a 3 digit number, e.g. 3 4 2 (you may choose any three digit number such as the day and month of birth or your children's lucky numbers); use the same 3 digit number on both the pre and post-test. Record this number somewhere in your Participant Manual so that you won't forget it.

Please circle the **number (1 – 4)** below that best represents your PMTCT training and experience **BEFORE** this workshop.

1	2	3	4
Trained in PMTCT and providing PMTCT services	Trained in PMTCT and not providing PMTCT services	Not trained in PMTCT and working in a PMTCT facility	Not trained in PMTCT and not providing PMTCT services

Please complete **ALL** of the following questions.

**A. Please read each question (1 - 10) carefully and circle the most accurate response.**

- World-wide, approximately how many people were living with HIV in 2007?
  - 750,000
  - 8 million
  - 33 million
  - 52 million
- Which body fluid does NOT transmit HIV infection?
  - Semen
  - Breast milk
  - Blood
  - Sweat
- What do rapid HIV tests detect?
  - The presence of viral DNA
  - The presence of HIV antibody
  - The quantity of HIV
  - The presence of HIV antigen
- The risk of mother-to-child transmission of HIV infection **increases** when
  - Breastfeeding is continued over time.
  - Non-invasive delivery procedures are used.
  - Maternal viral load is low.
  - Sexually transmitted infections are treated early.
- What is one advantage of using commercial infant formula?
  - It provides all the nutrients and antibodies a baby may need.
  - It is always available.
  - Other family members can help feed the baby.
  - It carries very little risk of causing diarrhoea or bacterial infections.

ID \_\_\_\_\_

6. If two rapid HIV tests are performed and the first test is positive and second test is negative, it indicates that the
  - a) Patient is HIV-positive.
  - b) Patient is HIV-negative.
  - c) Patient is immuno-compromised.
  - d) Patient's HIV status needs to be confirmed with additional testing.
  
- 7 Which of the following approaches can **increase** the risk of HIV transmission during breastfeeding?
  - a) Taking ARV therapy while breastfeeding
  - b) Practising exclusive breastfeeding
  - c) Supplementing breast milk with commercial infant formula
  - d) Obtaining early treatment of breast problems
  
8. If a single dose of nevirapine (NVP) is used as prophylaxis to prevent mother-to-child transmission of HIV it should be given to
  - a) The mother throughout her pregnancy and the infant within 7 days of delivery
  - b) The mother during labour and the infant within 7 days of delivery
  - c) The mother and the infant immediately following delivery
  - d) The mother during labour and the infant immediately following delivery
  
9. Which of the following indicators may be used to monitor the success of the PMTCT programme at a health facility?
  - a) Percentage of orphans linked to mothers who are HIV-infected
  - b) National statistics on HIV prevalence in pregnant women between 15 and 25 years of age
  - c) Percentage of women who deliver at a PMTCT site who know their HIV status
  - d) Number of PLHIV receiving ARV therapy
  
10. A positive HIV antibody test in a 4 month old infant born to an HIV-infected mother who is breastfeeding indicates that
  - a) The infant is infected with HIV
  - b) The infant is not infected with HIV
  - c) A confirmatory antibody test should be performed one week later
  - d) The infant may be infected with HIV but requires follow-up testing using the best available tests for the infant's age
  
11. HIV-exposed infants should receive co-trimoxazole prophylaxis beginning
  - a) At birth
  - b) At 2 weeks
  - c) At 4–6 weeks
  - d) At the 12 week immunization visit

**B. Indicate whether the following statements (11-20) are True (T) or False (F).**

12. One of the most commonly seen presenting symptoms of HIV infection in children is poor growth. \_\_\_\_\_
  
13. The World Health Organization recommends that HIV-infected women exclusively breastfeed their infants for the first 6 months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe. \_\_\_\_\_

ID \_\_\_\_\_

14. A woman of unknown HIV status who presents to the healthcare facility in early labour should be tested and counselled for HIV as soon as possible. \_\_\_\_\_
15. HIV post-test counselling for HIV-negative women includes information about safer sex **only** if the client asks. \_\_\_\_\_
16. Dual protection refers to contraceptive methods that will protect against HIV and STIs as well as protect against pregnancy. \_\_\_\_\_
17. The risk of opportunistic infections such as *Pneumocystis pneumonia* (PCP) increases when CD4 counts are low. \_\_\_\_\_
18. Stigma is a way of expressing, either intentionally or accidentally, discriminating thoughts. \_\_\_\_\_
19. A person with HIV infection does not necessarily have AIDS. \_\_\_\_\_
20. The World Health Organization recommends single-dose nevirapine as the best regimen for PMTCT ARV prophylaxis. \_\_\_\_\_

### Participant Self-Rating

Please rate your perception of your understanding and ability on the following items related to perinatally-transmitted HIV infection.

For each item, place a check in the box that best describes your current level of understanding or ability, with “1” being the lowest level and “5” being the highest. Please leave the answer blank if the question is not applicable.

	Low					High
	1	2	3	4	5	
1. Knowledge about family-centred services for the prevention of mother-to-child transmission of HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Ability to describe the healthcare worker's role in PMTCT services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Ability to provide HIV testing and counselling in line with national guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Ability to advise and support women taking antiretroviral prophylaxis for PMTCT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Ability to provide women who are HIV-infected with infant feeding information, counselling and support.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Understanding of antiretroviral therapy for HIV-infected adults	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Understanding of antiretroviral therapy for HIV-infected children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Understanding of PMTCT programme monitoring and the role the healthcare worker plays	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	





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## Module 1 Introduction to HIV

**SESSION 1** Scope of the Worldwide HIV Epidemic

**SESSION 2** Transmission and Natural Course of HIV Infection

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**After completing the module, the participant will be able to:**

- Understand the global impact of HIV on women and children.
- Describe the effect of the HIV epidemic at the community, family and individual levels.
- Explain the difference between HIV and AIDS.
- Understand the differences between HIV-1 and HIV-2 infection.
- Discuss the natural course of HIV infection.
- Present public health strategies to prevent the transmission of HIV.

## SESSION 1 Scope of the Worldwide HIV Epidemic

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**After completing the session, the participant will be able to:**

- Understand the global impact of HIV on women and children.
- Describe the effect of the HIV epidemic at the community, family and individual levels.

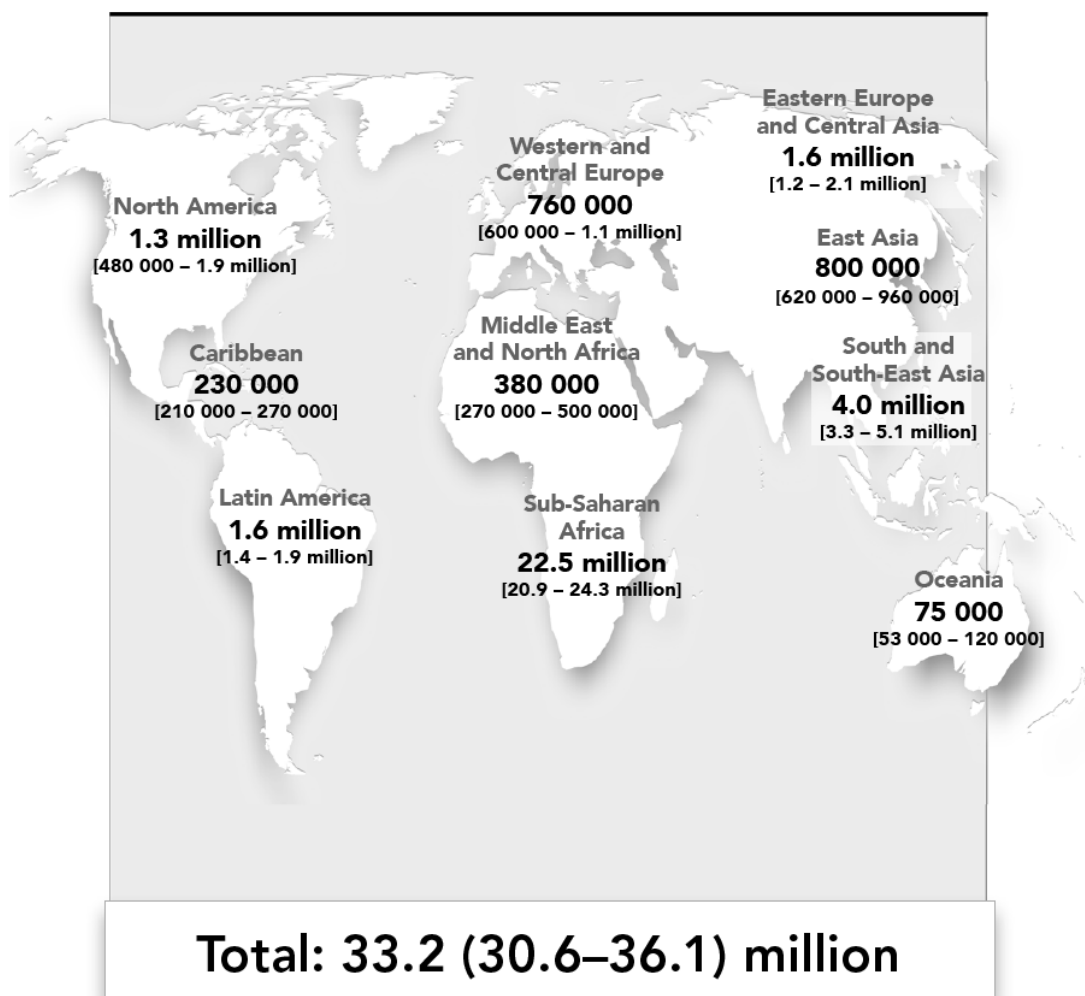
### Global Overview of HIV Rates

Globally HIV incidence (the number of new HIV infections) peaked in the late 1990s and stabilized despite increasing incidence in many regions. Changes in behaviour to prevent infection—such as increased use of condoms, delay of first sexual experience and fewer sexual partners—played a key role in the decline in adult HIV infection rates in many areas. However, the number of people living with HIV in East Asia, Eastern Europe and Central Asia doubled between 2001 and 2007. Even more alarming is that within the same period, the number of people living with HIV in Oceania increased three-fold. Far greater HIV prevention efforts are needed to slow the epidemic.

*“We are encouraged by the gains that have been made in some countries and by the fact that sustained HIV prevention programmes have played a key part in bringing down infections. But the reality is that the AIDS epidemic continues to outstrip global and national efforts to contain it.”*

UNAIDS Executive Director  
Dr. Peter Piot

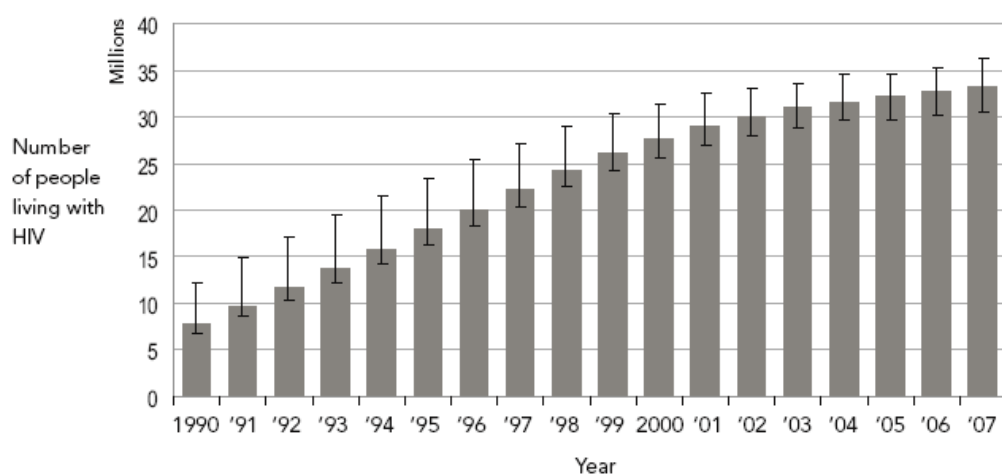
Figure 1.1 Adults and Children Living with HIV at end of 2007 (estimated)



(Source: UNAIDS, 2007)

There are an estimated 33.2 million people infected with HIV, including an estimated 2.5 million new infections worldwide in 2007. Sub-Saharan Africa continues to be the most affected globally: nearly 68% (22.5 of 33.2 million) of all people with HIV globally live in sub-Saharan Africa and 76% (1.6 of 2.1 million) of deaths due to AIDS in 2007 occurred in sub-Saharan Africa.

**Figure 1.2 Estimated number of people living with HIV globally, 1990–2007**



┌ This bar indicates the range around the estimate.

See Appendix 1-A for Regional HIV and AIDS statistics in 2001 and 2007.

## HIV prevalence

### HIV Prevalence

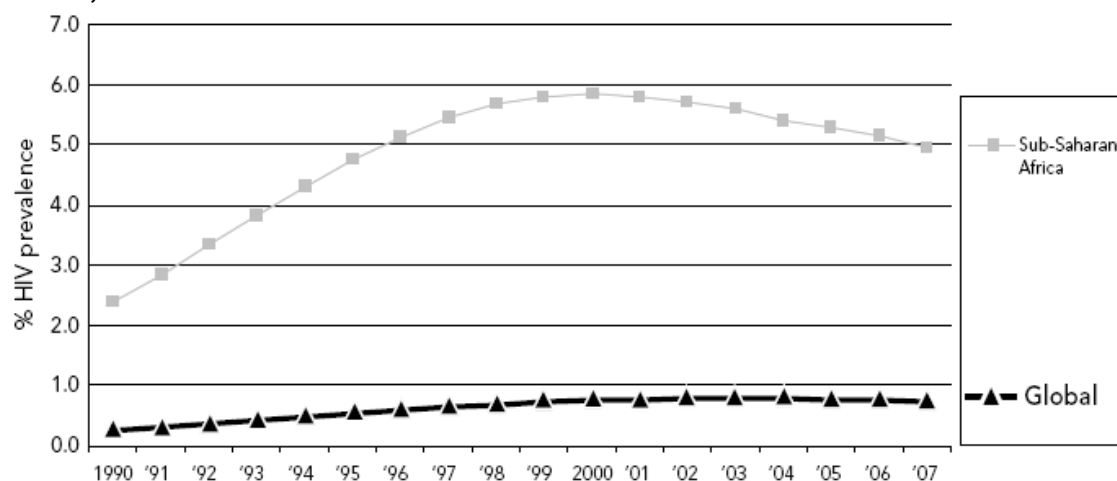
Proportion of people living with HIV at a specific point in time e.g., in Swaziland, adult HIV prevalence is estimated at 26% (UNAIDS, 2007).

One method of estimating HIV prevalence is by using data that focuses on pregnant women who attend selected antenatal clinics. This method assumes that HIV prevalence among pregnant women is about 25% higher than that in the general adult population (aged 15–49 years). Comparisons of HIV prevalence among pregnant women at antenatal clinics and the adult population in the same community has provided evidence for this method of estimating HIV prevalence<sup>1</sup>.

While HIV prevalence from sentinel surveillance, such as antenatal clinic attendees, will continue to provide valuable information about HIV trends, HIV prevalence measured in national population-based surveys provides improved data to estimate the national prevalence.

<sup>1</sup> A comparison of HIV prevalence among antenatal clinic attendees and HIV prevalence from population-based surveys has shown that HIV prevalence among adults in the latter surveys is approximately 80% of the prevalence among antenatal clinic attendees, in both rural and urban areas (UNAIDS, 2007). Based on that observation, it was recommended that in countries with generalized HIV epidemics that have not conducted a national population-based survey, HIV prevalence data from antenatal clinic attendees should be adjusted downward (UNAIDS Reference Group on Estimates, Modelling and Projections, 2006).

**Figure 1.3 Estimated adult (15–49) HIV prevalence (%) globally and in sub-Saharan Africa, 1990–2007\***

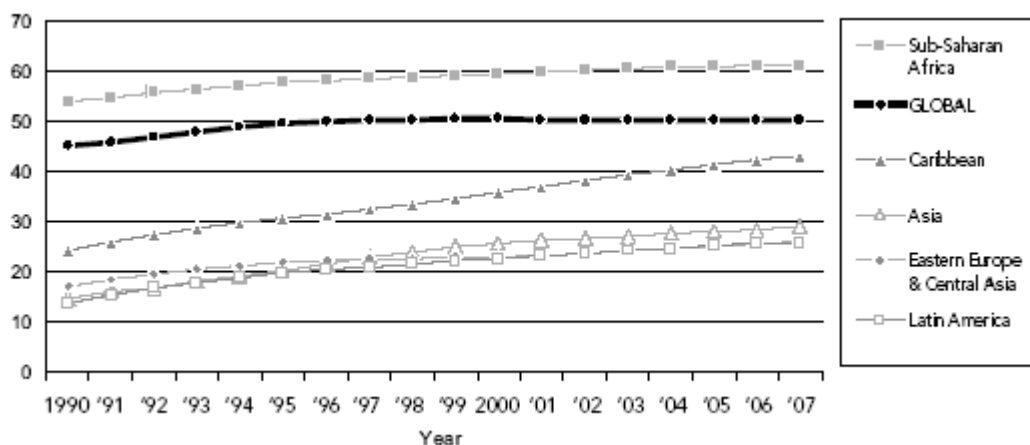


\*Even though the HIV prevalence rates have stabilized in sub-Saharan Africa, the actual number of people infected continues to grow because of population growth. Two other factors contributing to the increasing number of people living with HIV are continuing new infections and ARV therapy, which reduces HIV-related death.

### HIV in women, 2007

- Globally more adult women (15 years and older) than ever before are now living with HIV: 15.4 million.
- In sub-Saharan Africa, for every ten adult men living with HIV, there are about 16 adult women who are infected with the virus, i.e., 61% of adults living with HIV in sub-Saharan Africa in 2007 were women.
- In the Caribbean, 43% (compared with 37% in 2001) of adult HIV infections were in women.
- In Eastern Europe and central Asia, it is estimated that women accounted for 26% of adults with HIV in 2007 (compared with 23% in 2001), while in Asia that proportion reached 29% in 2007 (compared with 26% in 2001). The proportions of women living with HIV in Latin America, Asia and Eastern Europe are slowly growing, as HIV is transmitted to the female partners of men who are likely to have been infected through injecting drug use, during unprotected paid sex or sex with other men.

**Figure 1.4 Percent of adults (15+) living with HIV who are female 1990–2007**



See Appendix 1-B, Regional HIV Statistics and Features for Women, 2004 and 2006.

## **HIV in children, 2007**

UNAIDS estimates that at the end of 2007:

- 2.1 million children younger than 15 years old were living with HIV.
- Nearly 90% of the children living with HIV were in sub-Saharan Africa.
- 420,000 children worldwide were newly infected with HIV.
- 290,000 child deaths due to HIV are estimated to have occurred.
- In sub-Saharan Africa, approximately 9% of children under the age of 15 had lost one or both parents to AIDS.

## **New infections, 2007**

According to UNAIDS, over 6,800 new infections occurred *each day* in 2007. Of these new infections

- Most of the infections in children younger than 15 years old occurred through mother-to-child transmission (MTCT) of HIV.
- More than 95% were in low and middle income countries.
- About 1,150 (of the 6,800) were in children under 15 years of age.
- Of those aged 15 years and older who were infected in 2007:
  - Almost 50% were among women
  - About 40% were among young people (15-24)

## **Effects of HIV**

By affecting mostly young and middle-aged adults who are the foundation of the economy and primary income earners, the HIV epidemic undermines the backbone of society. The impact of HIV may be felt as an immediate shock, as when a family loses the primary income earner. The impact on society is felt as a gradual accumulation of losses eventually resulting in:

- Slowdown in economic development
- Overwhelmed healthcare systems
- Reduction in adult life expectancy
- Reduction in child survival rates
- Increase in number of orphans
- Damage to the tourism industry: high rates of HIV create a negative image for potential visitors

### **Community effects of HIV**

- Depletion of skilled work force
- Increased need for healthcare services
- Burden of nursing care
- Burden of care for orphaned children
- Disruption of education for children
- Child-headed families

### **Family and individual effects of HIV**

- Illness and suffering
- Shorter life spans for children and adults
- Loss of work and income
- Death of family members
- Grief, poverty and despair
- Barriers to receiving health care, including stigma and discrimination
- Weakened family unit
- Increasing gender inequality

## SESSION 2    Transmission and Natural Course of HIV Infection

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**After completing the session, the participant will be able to:**

- Explain the difference between HIV and AIDS.
- Understand the differences between HIV-1 and HIV-2 infection.
- Discuss the natural course of HIV infection.
- Present public health strategies to prevent the transmission of HIV.

### Overview of HIV and AIDS

#### Definitions of HIV and AIDS

**HIV** stands for *human immunodeficiency virus*, the virus that causes AIDS.

**H: Human**

**I: Immunodeficiency**

**V: Virus**

With HIV infection, the immune system becomes weak and the person becomes more prone to infections that normally he or she can fight. A person with HIV infection may have no signs of illness and may not know that he or she is infected.

- HIV breaks down the body's defence against infection and disease—the immune system—by destroying specific white blood cells (CD4 cells) and weakening the immune system.
- When the immune system becomes weak or compromised, the body loses its ability to fight illness.
- HIV infection is for life. Although there are life-prolonging drugs, ***there is no cure***.

As time passes, the immune system is unable to fight the HIV infection and the person may develop diseases that lead to death, including Opportunistic Infections (OIs) and some types of cancer.

#### Opportunistic Infection (OI)

An *opportunistic infection* (OI) is an illness caused by an organism that might not cause illness in a healthy person, but will cause illness in a person who has a weakened immune system.

**AIDS** stands for *acquired immunodeficiency syndrome* and refers to the most advanced stage of HIV infection.

- A: Acquired**—(not inherited) to differentiate from a genetic or inherited condition
- I: Immuno**—refers to the immune system
- D: Deficiency**—inability to protect against illness
- S: Syndrome**—a group of symptoms or illnesses that occur as a result of the HIV infection

## Differences: HIV, HIV infection and AIDS

- HIV is the virus that causes the infection.
- AIDS is a group of serious illnesses and OIs that develop after the immune system is weakened as the result of being infected with HIV for a long period of time.
- Most people who are HIV-infected will develop AIDS after a period of time, which may be several months to up to 15 years.

## Types of HIV

HIV-1 and HIV-2 are types of HIV. Both types are transmitted the same way, and both are associated with similar OIs and AIDS. HIV-1 is more common worldwide. HIV-2 is found mostly in West Africa (including Senegal, Ivory Coast, Cape Verde, Gambia, Guinea-Bissau, Liberia, Ghana and Nigeria) but has spread to areas with strong links to West Africa.

## Differences between HIV-1 and HIV-2

HIV-2 is less easily transmitted than is HIV-1. The period between initial infection and illness is longer and the disease is milder. While HIV-2 can be transmitted from an infected mother to her child, the rate of transmission is lower than with HIV-1. Overall, without intervention 0% to 4% of breastfed infants will become infected with HIV-2 if the mother is infected compared to 25%-40% rates of transmission if the mother is infected with HIV-1. In some areas, a person may be infected with both HIV-1 and HIV-2. Women who are infected with both HIV-1 and HIV-2 should follow all PMTCT recommendations for HIV-1-infected women.

Further information about PMTCT for women who are infected with HIV-2 is in Module 3, “Specific Interventions for the Prevention of Mother-to-Child Transmission of HIV (PMTCT),” Appendix 3-C.

## CD4 Count and Viral Load

The CD4 count and viral load are two measures of the progression of HIV.

### CD4 count and viral load, defined

**CD4 count** is the number of CD4 T-lymphocyte cells in the blood. CD4 cells are the type of white blood cell that is the immune system's key infection fighter. The CD4 count reflects the “health” of the immune system.

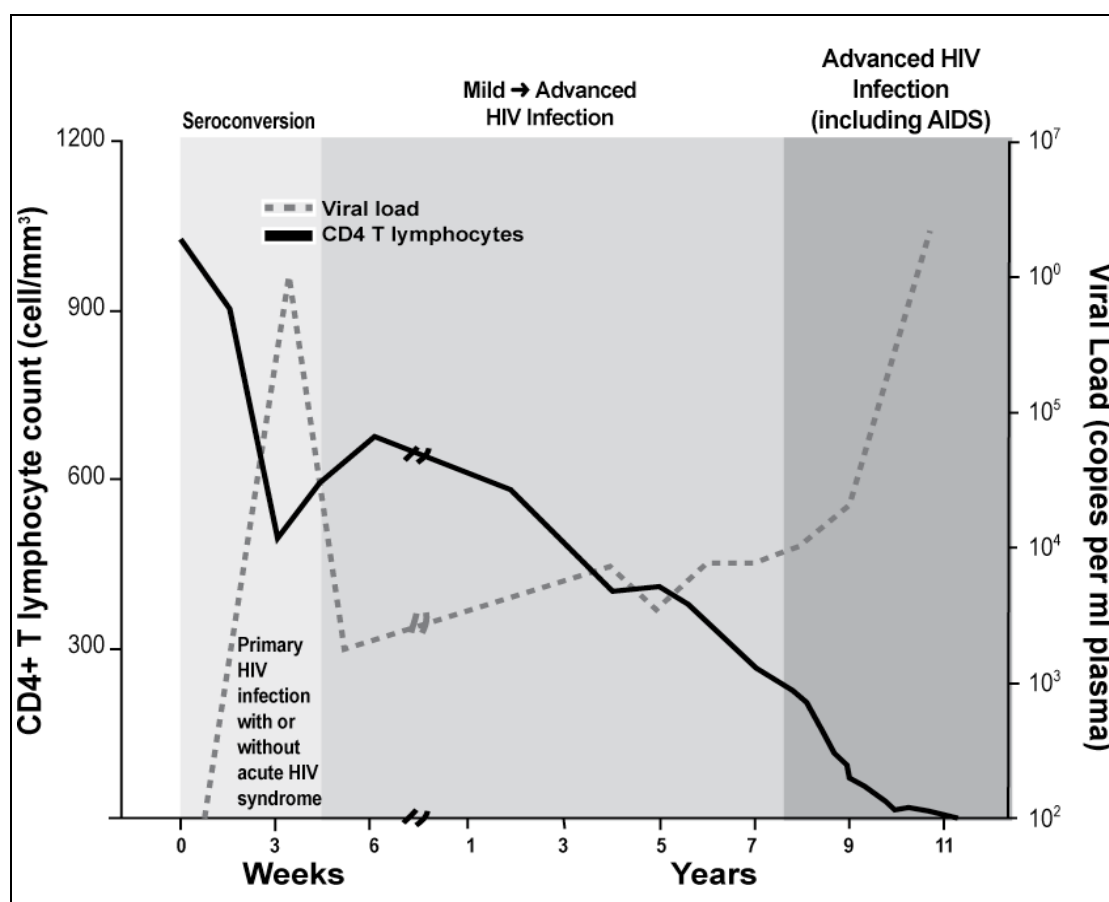
**Viral load** refers to the amount of HIV in the blood. The viral load can be measured by PCR testing. The test can be used to check the person's response to antiretroviral (ARV) therapy.

When HIV actively multiplies, it infects and kills CD4 cells. The CD4 count is usually expressed as the number of cells per cubic millimetre. The normal CD4 count in a healthy adult is between 500 and 1400 cells/mm<sup>3</sup>. As the CD4 count of an adult falls below 200 cells/mm<sup>3</sup>, the risk of opportunistic and serious HIV-related infections becomes higher.

The viral load is very high shortly after the person first becomes infected with HIV. A high viral load leads to a higher transmission risk. Viral load falls steeply when the body develops antibodies to HIV and rises again after a number of years as the immune system weakens and CD4 count drops. A high viral load can also be a sign of more severe disease progression (Figure 1.5).



Figure 1.5 Characteristic viral load and CD4 changes over time in HIV



(Adapted from: Pantaleo, Graziosi and Fauci, 1993)

## Natural Course of HIV Infection

### Seroconversion

- People infected with HIV usually develop antibodies 4 to 6 weeks after becoming infected, but it may take as long as 3 months for antibodies to develop.
- The period of time between infection with HIV and testing positive for HIV is called the "window period".
- Some people experience a flu-like illness (fever, rash, joint pains and enlarged lymph nodes) at the time of seroconversion, this is referred to as Acute Retroviral Syndrome (ARS).

### Seroconversion and the window period

**Seroconversion**—development of measurable antibodies to HIV in the blood as a result of infection. For example, a person who goes from being HIV-negative to HIV-positive is said to have seroconverted.

**Window period**—time from initial infection with HIV until antibodies are measurable by an antibody test.

*Note: A person who tests HIV-negative but who has engaged in behaviour within the past 3 months that places him or her at risk for HIV should be tested again in 3 months in case they were in the "window period" when originally tested.*

The terms HIV-positive or HIV-negative are used to describe the HIV status of someone who has been tested:

- A person whose blood test result is **HIV-positive** has been infected by HIV, this person is said to be seropositive, HIV-positive or HIV-infected.
- A person whose blood test result is **HIV-negative** is said to be seronegative, HIV-negative or not infected with HIV. If a person with an HIV-negative test result has engaged in behaviour that places him or her at risk for HIV in the past three months, then the HIV-negative test result may not be an accurate indication of the person's HIV status because the person might be in the window period and should be re-tested.

### Asymptomatic HIV infection

A person who is HIV-infected but looks and feels healthy is *asymptomatic*. None of the physical signs or symptoms that indicate HIV infection is present. *Whether they have symptoms or not, people who are HIV-infected can still pass the virus to others.*

The duration of the asymptomatic phase varies greatly from person to person. Some adults may develop symptoms of HIV as quickly as a few months after primary infection; others may take up to 15 years to develop symptoms.

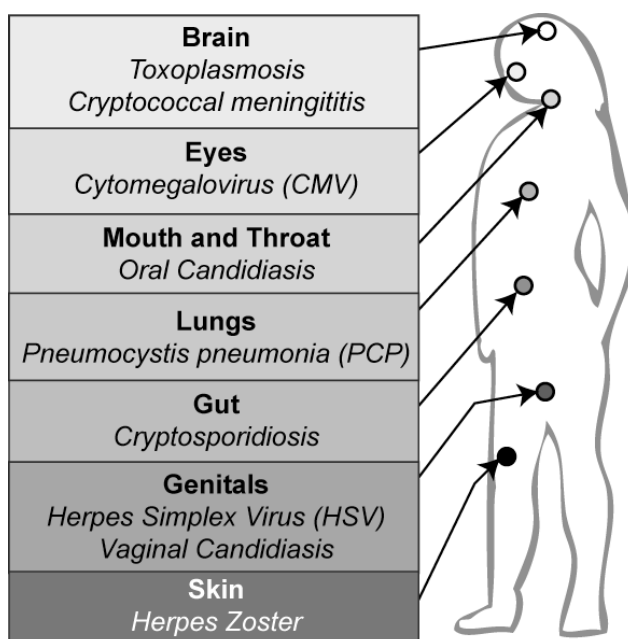
For children infected with HIV through MTCT—during pregnancy, labour and delivery, or breastfeeding—the asymptomatic phase is shorter. A few infants who are infected by MTCT will become ill within the first weeks of life. Most children start to develop symptoms before they are 2 years old; a few remain well for several years.

### Symptomatic HIV infection

A person who has developed physical signs of HIV and reports symptoms related to HIV is *symptomatic*. The immune system weakens and CD4 count decreases during this phase. The progression of HIV depends on the type of virus and specific host characteristics including general health, nutritional and immune status.

### AIDS

Almost all people who are HIV-infected will ultimately develop advanced HIV infection and AIDS, the end stage of HIV infection. As HIV infection progresses, the CD4 count continues to decrease and the infected person becomes more likely to develop OIs and other HIV-related infections.



People living with advanced HIV infection can suffer from OIs of the brain, eyes, lungs and other organs. Common OIs in persons diagnosed with AIDS are tuberculosis; *Pneumocystis pneumonia (PCP)*; cryptosporidiosis; other parasitic, viral and fungal infections; and some types of cancers. The illustration to the left provides examples of OIs that may affect people living with advanced HIV infection. *ARV therapy, prevention of PCP and treatment of OIs help preserve the CD4 cells, lower viral load and prolong the time it takes for HIV to progress to the symptomatic phase and, ultimately, to AIDS.*

## Staging Systems for HIV

Staging systems for HIV can:

- Help determine when a patient is eligible for ARV therapy
- Provide a framework for follow-up and clinical management
- Help understand prognosis and guide patient counselling
- Help evaluate whether ARV therapy is working
- Assist with clinical decision-making, including decisions on when to change ARV therapy

Staging systems for HIV are usually based on a patient's clinical presentation and/or their immunological status, as measured by laboratory tests like CD4 count. Healthcare workers (HCWs) should, ideally, use both clinical and immunological criteria to assess the progression of HIV infection in a patient. If immunological measures, like CD4 count are not available, staging can be based solely on clinical criteria.

### World Health Organization (WHO) clinical staging of HIV and AIDS

The revised WHO clinical staging of HIV-related disease for adults and adolescents as well as that for infants and children identifies four clinical stages of HIV infection—clinical stages 1 (Asymptomatic) to 4 (Severe)—that correspond to the natural course of HIV infection. (See Appendices 1-C and 1-D.)

Immunological staging using CD4 count also includes 4 stages. Immunological staging in children under age 5 years relies on age-specific %CD4 rather than absolute CD4 count. (See Appendix 1-E.) Many countries adapt the WHO clinical and immunological staging systems for in-country use.

Clinical and immunological assessments using WHO clinical staging may guide the decision about when to start ARV therapy. The ability to use clinical staging to guide ARV therapy is important for improved access to treatment throughout the world.

CD4 counts improve the value of clinical staging in decisions about starting ARV therapy and monitoring response to therapy. Access to CD4 testing should be encouraged and supported. Examples of how CD4 counts and immunological staging are used with clinical staging are summarized below.

- ARV therapy should be started in all adult and adolescent clients at clinical stage 4 (Severe)—irrespective of their immune status. However, for patients at clinical stage 3 (Advanced), CD4 counts provide information indicating whether ARV therapy should be started immediately (severe immunodeficiency) or when it is not yet indicated (mild immunodeficiency).
- Patients with severe immunodeficiency may not always show advanced or severe clinical symptoms. In these situations, CD4 counts indicating severe immunodeficiency can be used to start ARV therapy in clients at clinical stages 1 (Asymptomatic) or 2 (Mild).
- CD4 counts can be used to guide initiation of co-trimoxazole prophylaxis.
- CD4 counts can also be used in conjunction with clinical assessment to identify treatment failure and the need to switch to a second-line regimen.

### US Centers for Disease Control and Prevention (CDC) surveillance case definitions

The CDC AIDS Surveillance Case Definitions include clinical and immunological categories based on CD4 counts (and, for children, percent of total lymphocytes). This system uses both clinical and laboratory information to establish criteria for stages of infection from asymptomatic to severely symptomatic (AIDS). See Appendix 1-F.

## Routes of HIV Transmission

HCWs should consider **all sexually active men and women** at risk for HIV infection.

**Pregnant women** are at a higher risk of acquiring HIV than non-pregnant women. This increased risk is probably due to hormonal changes affecting the lining of the genital tract or to immune responses. Pregnant women should be warned of this increased risk of infection and strongly encouraged to practise safer sex.

HIV can be transmitted through sexual contact, from mother-to-child (also known as perinatal or vertical transmission), and through direct contact with HIV-infected blood (or a bloody body fluid) including through injection drug use:

- Sexual contact
  - Unprotected sexual intercourse (oral, vaginal, or anal) with an infected partner
  - Contact with HIV-infected body fluids: blood, semen, cervical or vaginal secretions, breastmilk and other body fluids containing blood
- Mother-to-child transmission
  - From mothers who are HIV-infected to their infants during pregnancy, labour and delivery, or breastfeeding. Babies born to HIV-infected women are **HIV-exposed**.
- Injection drug use
  - Sharing or re-using needles that were previously used by an HIV-infected person
- Blood and blood-borne products transmission
  - Transfusion with HIV-infected blood or blood-borne products
  - Direct contact with HIV-infected blood through non-intact skin
  - Occupational exposure
  - Using a sharp instrument—such as knives, scalpels, needles or any other sharp object—that was used previously on a person with HIV to cut or pierce the skin. This includes medical, recreational, ceremonial, religious, or beautifying procedures—in the community, healthcare facility, or any other setting—including sharing of needles or syringes to inject drugs.
  - There is preliminary evidence to suggest that if an HIV-infected caregiver pre-chews food before giving it to a small child, the caregiver risks transmitting HIV to the child. It appears that the risk is greater if the HIV-infected caregiver has bleeding gums or mouth sores.<sup>2</sup>

Globally, the most common route of HIV transmission is through heterosexual intercourse.

### HIV CANNOT be transmitted by:

- Coughing or sneezing
- Touching or hugging
- Kissing
- Shaking hands
- Working or going to school with a person who is HIV-infected
- Sharing cups, glasses, plates, or other utensils
- Being bitten by an insect
- Using the telephone
- Using public baths, pool, or toilets
- Sharing water or food

<sup>2</sup> Gaur A et al. *Practice of offering a child pre-masticated (pre-chewed) food: an unrecognised possible risk factor for HIV transmission*. Fifteenth Conference on Retroviruses and Opportunistic Infections, Boston, abstract 613b, 2008. Available at: <http://www.aidsmap.com/en/news/6FA31DB0-4120-44ED-BFD0-FA7F3C912A3E.asp>

## Public Health Strategies to Reduce the Risk of HIV Transmission

### Sexual contact

- Promote:
  - Abstinence (never having sexual intercourse)
  - Mutual faithfulness (when two people only have sex with one another)
  - Non-penetrative sexual activities
  - Reduction in number of sexual partners
- Promote condom use including instruction on the consistent and correct use of barrier methods.
  - Male or female condoms for vaginal or anal intercourse
  - Non-lubricated condoms for oral sex on a male
  - A barrier for oral sex performed on a woman, such as:
    - A dental dam (or oral dam), which is a thin, square of latex (see photo)
    - A condom that has been cut at the end and down one side of the latex cylinder
    - Cellophane or cling wrap/film
- Prevent, identify and provide early treatment for sexually transmitted infections (STIs).
- Provide access to HIV counselling and testing to assess HIV status

*Condoms provide protection from HIV transmission as well as other sexually transmitted infections (STIs) when used correctly and consistently.*



### Perinatal transmission from HIV-infected mothers

- Prevent unintended pregnancies among women who are HIV-infected through access to family planning services and counselling.
- Provide ARV therapy or prophylaxis for PMTCT.
- Follow safer delivery practices.
- Provide information on infant feeding options, infant feeding counselling and support.
- Provide linkages to treatment, care and social support for mothers and families with HIV infection.

(Module 2, “Overview of HIV Prevention in Mothers, Infants and Young Children” contains detailed information on a comprehensive approach to PMTCT.)

### Blood-to-blood transmission

- Avoid unnecessary blood transfusion.
- Screen all blood for HIV and use only blood screened for HIV.
- Follow Standard Precautions that include:
  - Handwashing
  - Using protective equipment (gloves, mask, eye protection, face shield and gown)
  - Safe handling of used patient-care equipment soiled with blood, body fluids, secretions
  - Cleaning and reprocessing equipment appropriately
  - Procedures for the routine care, cleaning and disinfection of environmental surfaces (such as beds, bedrails, bedside equipment)
  - Appropriate handling, transporting and processing of used linen soiled with blood, body fluids, secretions and excretions

- Injury prevention when using needles, scalpels and other sharp instruments or devices: never recap used needles, safely dispose of these items in appropriate puncture-resistant containers
- Educate people with HIV who care for young children to mash foods with utensils rather than pre-chewing.

### Drug use

- Provide referral for treatment of drug dependence.
- Educate about the risks of infection through the use of contaminated needles and syringes to inject drugs.
- Recommend harm reduction strategies for those unwilling or unable to enter drug treatment, e.g., provide education and support to drug users through outreach efforts.

**Drug use in any form may increase the risk of HIV infection by limiting judgement and making it easier to practise risky behaviours.**

<b>Exercise 1.1 HIV 1, 2, 3 knowledge game</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ Present basic and advanced information about HIV in a simple and enjoyable way.</li> <li>▪ Allow participants an opportunity to demonstrate what they already know.</li> <li>▪ Give participants a chance to get to know each other.</li> </ul>
<b>Duration</b>	45 minutes
<b>Instructions</b>	<p><b>Introduction</b></p> <p>The aim of this game is to be the first team to correctly answer one question in <b>six of the seven</b> categories. It is a competition! Each team will have identical questions to answer as a group. The questions are organized in the following seven categories:</p> <ol style="list-style-type: none"> <li>1. HIV Transmission</li> <li>2. Prevention</li> <li>3. Infant Feeding</li> <li>4. Testing</li> <li>5. Mother-to-Child Transmission</li> <li>6. Comprehensive Care, Treatment and Support</li> <li>7. Wild Card (Variety of topics)</li> </ol> <p><b>Preparation within teams</b></p> <ul style="list-style-type: none"> <li>▪ You will be divided into teams. Working within your teams, you will have 15 minutes to read and answer aloud the questions that start on page 16.</li> <li>▪ Within your teams, choose a recorder to write your team's answers on the team's question/answer sheet. Keep your answers simple and do not linger on any one question.</li> </ul> <p><b>The competition</b></p> <ul style="list-style-type: none"> <li>▪ After 15 minutes, the trainer will ask the first team to choose a category and a question. One person from that team should read the question aloud and give the answer. The team has 10 seconds to answer.</li> <li>▪ If correct, the team (or the trainer) should place a tick (✓) in the corresponding cell in the scoreboard.</li> <li>▪ If incorrect, the next team gets to answer that question or another</li> </ul>

<b>Exercise 1.1 HIV 1, 2, 3 knowledge game</b>	
	<p>question of its choosing.</p> <ul style="list-style-type: none"> <li>▪ A team may only answer one question per category.</li> <li>▪ Once a question has been answered correctly, no other team may use it.</li> <li>▪ Teams take turns. The first team to correctly answer one question in six of the seven categories is the winner!</li> </ul>

#### **Scoreboard for Exercise 1.1 HIV 1, 2, 3 knowledge game**

<b>Category</b>	<b>Team A</b>	<b>Team B</b>	<b>Team C</b>	<b>Team D</b>
1. HIV Transmission				
2. Prevention				
3. Infant Feeding				
4. Testing				
5. Mother-to-Child Transmission				
6. Comprehensive Care, Treatment and Support				
7. Wild Card				

For each correct response, a tick (✓) will be placed in the corresponding cell.

<b>Module 1: Key Points</b>
<ul style="list-style-type: none"> <li>▪ HIV is a global epidemic and the number of people living with HIV has reached its highest level, an estimated 33.2 million.</li> <li>▪ Sub-Saharan Africa is home to nearly 68% of people living with HIV (22.5 of 33.2 million) in 2007.</li> <li>▪ In countries that have suffered high HIV-related mortality, many children and elderly have been left without family support, and the wider community has been affected by the loss of some of its most important and productive members.</li> <li>▪ HIV is a virus that destroys the immune system, leading to OIs; AIDS is the end stage of HIV infection.</li> <li>▪ The progression from initial infection with HIV to AIDS varies from person to person and can take up to 15 years.</li> <li>▪ The most common route of HIV transmission worldwide is heterosexual transmission from an HIV-infected partner. In some sub-Saharan African countries, the second most common route of transmission is MTCT.</li> <li>▪ Pregnant women who are HIV-infected are at risk of passing HIV infection to their infants.</li> </ul>

# HIV 1, 2, 3 knowledge game

## Category 1: HIV Transmission

Question	Answer
List at least three ways in which HIV infection is transmitted.	
Name the two types of HIV.	
What body fluids contain high concentrations of HIV?	
What is the major route of HIV transmission worldwide?	
What specific part of the human body does HIV attack and what does this cause?	
If a HCW accidentally got stuck with a needle that had previously been used on a patient with HIV (and not cleaned), approximately what would be the chance that he or she would become HIV-infected? <b>A. Less than 1%</b> <b>B. 5%</b> <b>C. 15%</b> <b>D. 75%</b>	



**Category 2: Prevention**

<b>Question</b>	<b>Answer</b>
<b>What are the ABCs of prevention (on an individual level)?</b>	
<b>List two public health strategies HCWs can implement to reduce the risk of sexual transmission of HIV.</b>	
<b>Standard Precautions, which incorporate the major features of Universal Precautions, are designed to reduce the risk of transmission of bloodborne pathogens in healthcare settings. Name at least four interventions that can be considered Standard Precautions.</b>	
<b>List three of the four interventions that are key to preventing HIV transmission from a mother who has tested HIV-positive during ANC to her infant.</b>	
<b>List two important HIV prevention messages you (as a healthcare worker) would give to a person who injected drugs.</b>	
<b>Name one disinfectant that can make HIV inactive.</b>	
<b>Name an easily available object that can substitute as a sharps container in a healthcare setting if a plastic, metal, or dense cardboard safety box (that meets WHO specifications) is not available.</b>	

**Category 2: Prevention (continued)**

<p><b>What are two things that you can do when attending to a patient in obstetrics to reduce the risk of occupational exposure to HIV?</b></p>	
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**Category 3: Infant Feeding**

Question	Answer
<p><b>Exclusive breastfeeding is defined by WHO as giving an infant only breast milk (including expressed breast milk), with the exception of</b></p> <p>_____</p> <p><i>(Fill in the blank).</i></p>	
<p><b>List two reasons why cup feeding is preferred over bottle feeding when the mother chooses replacement foods (rather than breastfeeding).</b></p>	
<p><b>At what age does WHO recommend starting a child on complementary foods (food in addition to milk)?</b></p>	
<p><b>Name two reasons why an HIV-infected woman may choose to breastfeed rather than give a breast-milk substitute such as formula or animal milk to her infant.</b></p>	

**Category 4: Testing**

<b>Question</b>	<b>Answer</b>
<b>What is the difference between the client-initiated (opt-in) versus provider-initiated or routine (opt-out) approach to HIV testing?</b>	
<b>With regard to HIV testing, what does the "window period" mean?</b>	
<b>Name two advantages of the HIV rapid screening test (compared with the traditional ELISA test).</b>	
<b>Name one of the two commonly used algorithms for rapid HIV testing.</b>	
<b>Name three advantages of couple HIV counselling.</b>	

**Category 5: Mother-to-Child Transmission**

<b>Question</b>	<b>Answer</b>
<p>If 100 women who were HIV-infected gave birth to 100 infants, how many of the infants would typically become infected during pregnancy?</p>	
<p>If 100 women who were HIV-infected gave birth to 100 infants, how many of the infants would typically become infected during labour and delivery?</p>	
<p>If 100 women who were HIV-infected gave birth to 100 infants, how many of these infants would typically become infected during breastfeeding?</p>	
<p>Name two maternal factors that may increase the risk of HIV transmission during pregnancy.</p>	
<p>Name two factors that may increase the risk of HIV transmission during breastfeeding.</p>	

**Category 6: Comprehensive Care, Treatment and Support**

<b>Question</b>	<b>Answer</b>
Name at least two activities that should be included in the 6-week postpartum visit for the woman who is HIV-infected.	
Name one test that will tell you if an infant is HIV-infected.	
Name one symptom associated with HIV infection in the infant or child.	
Co-trimoxazole is used as a prophylaxis in people who are HIV-infected and eligible according to national criteria. Name 2 infections that co-trimoxazole prevents.	
How many clinical stages are there in the “WHO Clinical Staging of HIV/AIDS for Adults and Adolescents”?	
How many clinical stages are there in the “WHO Clinical Staging of HIV/AIDS for Children”?	

**Category 7: Wild Card**

Question	Answer
<p>AIDS is the _____ (choose number) cause of death in Africa?</p> <p>A. Number 1 B. Number 2 C. Number 3 D. Number 4</p>	
<p>At the end of 2007, approximately how many people were living with HIV worldwide?</p> <p>A. About 23 million B. About 33 million C. About 43 million D. About 53 million</p>	
<p>Of all people living with HIV in 2007, approximately what percentage lives in sub- Saharan Africa?</p> <p>A. 18% B. 48% C. 68% D. 98%</p>	
<p>What is the difference between stigma and discrimination?</p>	
<p>What is the difference between monitoring and evaluation?</p>	

## APPENDIX 1-A Regional HIV and AIDS Statistics

	Adults and children living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
<b>Sub-Saharan Africa</b>				
2007	22.5 million [20.9 million–24.3 million]	1.7 million [1.4 million–2.4 million]	5.0% [4.6%–5.5%]	1.6 million [1.5 million–2.0 million]
2001	20.9 million [19.7 million–23.6 million]	2.2 million [1.7 million–2.7 million]	5.8% [5.5%–6.6%]	1.4 million [1.3 million–1.9 million]
<b>Middle East and North Africa</b>				
2007	380 000 [270 000–500 000]	35 000 [16 000–65 000]	0.3% [0.2%–0.4%]	25 000 [20 000–34 000]
2001	300 000 [220 000–400 000]	41 000 [17 000–58 000]	0.3% [0.2%–0.4%]	22 000 [11 000–39 000]
<b>South and South-East Asia</b>				
2007	4.0 million [3.3 million–5.1 million]	340 000 [180 000–740 000]	0.3% [0.2%–0.4%]	270 000 [230 000–380 000]
2001	3.5 million [2.9 million–4.5 million]	450 000 [150 000–800 000]	0.3% [0.2%–0.4%]	170 000 [120 000–220 000]
<b>East Asia</b>				
2007	800 000 [620 000–960 000]	92 000 [21 000–220 000]	0.1% [<0.2%]	32 000 [28 000–49 000]
2001	420 000 [350 000–510 000]	77 000 [4900–130 000]	<0.1% [<0.2%]	12 000 [8200–17 000]
<b>Oceania</b>				
2007	75 000 [53 000–120 000]	14 000 [11 000–26 000]	0.4% [0.3%–0.7%]	1200 [<500–2700]
2001	26 000 [19 000–39 000]	3800 [3000–5600]	0.2% [0.1%–0.3%]	<500 [1100]
<b>Latin America</b>				
2007	1.6 million [1.4 million–1.9 million]	100 000 [47 000–220 000]	0.5% [0.4%–0.6%]	58 000 [49 000–91 000]
2001	1.3 million [1.2 million–1.6 million]	130 000 [56 000–220 000]	0.4% [0.3%–0.5%]	51 000 [44 000–100 000]
<b>Caribbean</b>				
2007	230 000 [210 000–270 000]	17 000 [15 000–23 000]	1.0% [0.9%–1.2%]	11 000 [9800–18 000]
2001	190 000 [180 000–250 000]	20 000 [17 000–25 000]	1.0% [0.9%–1.2%]	14 000 [13 000–21 000]
<b>Eastern Europe and Central Asia</b>				
2007	1.6 million [1.2 million–2.1 million]	150 000 [70 000–290 000]	0.9% [0.7%–1.2%]	55 000 [42 000–88 000]
2001	630 000 [490 000–1.1 million]	230 000 [98 000–340 000]	0.4% [0.3%–0.6%]	8000 [5500–14 000]
<b>Western and Central Europe</b>				
2007	760 000 [600 000–1.1 million]	31 000 [19 000–86 000]	0.3% [0.2%–0.4%]	12 000 [<15 000]
2001	620 000 [500 000–870 000]	32 000 [19 000–76 000]	0.2% [0.1%–0.3%]	10 000 [<15 000]
<b>North America</b>				
2007	1.3 million [480 000–1.9 million]	46 000 [38 000–68 000]	0.6% [0.5%–0.9%]	21 000 [18 000–31 000]
2001	1.1 million [390 000–1.6 million]	44 000 [40 000–63 000]	0.6% [0.4%–0.8%]	21 000 [18 000–31 000]
<b>TOTAL</b>				
2007	33.2 million [30.6 million–36.1 million]	2.5 million [1.8 million–4.1 million]	0.8% [0.7%–0.9%]	2.1 million [1.9 million–2.4 million]
2001	29.0 million [26.9 million–32.4 million]	3.2 million [2.1 million–4.4 million]	0.8% [0.7%–0.9%]	1.7 million [1.6 million–2.3 million]

Source: UNAIDS, WHO. 2007. AIDS epidemic update, November 2007, p.7. Available at: [http://data.unaids.org/pub/EPISlides/2007/2007\\_epiupdate\\_en.pdf](http://data.unaids.org/pub/EPISlides/2007/2007_epiupdate_en.pdf)



**APPENDIX 1-B Number of Women Living with HIV (2004–06)****Regional HIV Statistics and Features for Women, 2004 and 2006**

		<b>Number of women (15+) living with HIV</b>	<b>Percent of adults (15+) living with HIV who are women</b>
<b>Sub-Saharan Africa</b>	2006	13.3 million (11.5–15.2 million)	59
	2004	12.7 million (11.0–14.5 million)	59
<b>North Africa and Middle East</b>	2006	200,000 (100,000–370,000)	48
	2004	180,000 (89,000–330,000)	49
<b>South and South-East Africa</b>	2006	2.2 million (1.3–3.6 million)	29
	2004	2.0 million (1.2–3.3 million)	29
<b>East Asia</b>	2006	210,000 (110,000–370,000)	29
	2004	160,000 (90,000–280,000)	27
<b>Oceania</b>	2006	36,000 (17,000–90,000)	47
	2004	32,000 (16,000–81,000)	47
<b>Latin America</b>	2006	510,000 (350,000–800,000)	31
	2004	450,000 (310,000–670,000)	30
<b>Caribbean</b>	2006	120,000 (85,000–160,000)	50
	2004	110,000 (80,000–150,000)	50
<b>Eastern Europe and Central Asia</b>	2006	510,000 (330,000–810,000)	30
	2004	410,000 (260,000–650,000)	30
<b>Western and Central Europe</b>	2006	210,000 (160,000–300,000)	28
	2004	190,000 (140,000–260,000)	28
<b>North America</b>	2006	350,000 (190,000–570,000)	26
	2004	300,000 (160,000–510,000)	26
<b>TOTAL</b>	<b>2006</b>	<b>17.7 million (15.1–20.9 million)</b>	<b>48</b>
	<b>2004</b>	<b>16.5 million (14.2–19.5 million)</b>	<b>48</b>

Source: UNAIDS, WHO. 2006. *AIDS epidemic update, December 2006*. p 4. Available at: [http://www.unaids.org/en/HIV\\_data/epi2006/](http://www.unaids.org/en/HIV_data/epi2006/)

## APPENDIX 1-C WHO Clinical Staging of HIV/AIDS for Adults and Adolescents

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WHO clinical staging of HIV/AIDS for adults and adolescents with confirmed HIV infection. To be used for persons  $\geq 15$  years of age old

### Clinical Stage 1

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

### Clinical Stage 4<sup>b</sup>

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>▪ HIV wasting syndrome</li><li>▪ Pneumocystis pneumonia</li><li>▪ Recurrent severe bacterial pneumonia</li><li>▪ Chronic herpes simplex infection (orolabial, genital or anorectal of more than one month's duration or visceral at any site)</li><li>▪ Oesophageal candidiasis (or candidiasis of trachea, bronchi or lungs)</li><li>▪ Extrapulmonary tuberculosis</li><li>▪ Kaposi's sarcoma</li></ul> | <ul style="list-style-type: none"><li>▪ Cytomegalovirus infection (retinitis or infection of other organs)</li><li>▪ Central nervous system toxoplasmosis</li><li>▪ HIV encephalopathy</li><li>▪ Extrapulmonary cryptococcosis including meningitis</li><li>▪ Disseminated non-tuberculous mycobacterial infection</li><li>▪ Progressive multifocal leukoencephalopathy</li><li>▪ Chronic cryptosporidiosis</li><li>▪ Chronic isosporiasis</li></ul> |
|--|--|

## APPENDIX 1-C WHO Clinical Staging of HIV/AIDS for Adults and Adolescents *(continued)*

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*WHO clinical staging of HIV/AIDS for adults and adolescents with confirmed HIV infection. To be used for persons  $\geq 15$  years of age old*

### **Clinical Stage 4** *continued*

- Disseminated mycosis (*extrapulmonary histoplasmosis or coccidiomycosis*)
- Recurrent septicaemia (*including non-typhoidal Salmonella*)
- Lymphoma (*cerebral or B-cell non-Hodgkin*)
- Invasive cervical carcinoma
- Atypical disseminated leishmaniasis
- Symptomatic HIV-associated nephropathy or symptomatic HIV-associated cardiomyopathy

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<sup>a</sup> Unexplained refers to where the condition is not explained by other conditions.

<sup>b</sup> 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).

Source: WHO. 2006. *WHO case definitions of HIV for surveillance and revised clinical staging and immunological classification of HIV-related disease in adults and children*. Available at: <http://www.who.int/hiv/pub/guidelines/HIVstaging150307.pdf>

## **APPENDIX 1-D WHO Clinical Staging of HIV/AIDS for Children**

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

### **Clinical Stage 1**

- Asymptomatic
- Persistent generalised lymphadenopathy

### **Clinical Stage 2**

- Unexplained persistent hepatosplenomegaly
- Papular pruritic eruptions
- Extensive wart virus infection
- Extensive molluscum contagiosum
- Fungal nail infections
- Recurrent oral ulcerations
- Unexplained persistent parotid gland enlargement
- Lineal gingival erythema
- Herpes zoster
- Recurrent or chronic upper respiratory tract infections (*otitis media, otorrhoea, sinusitis or tonsillitis*)

### **Clinical Stage 3**

- Unexplained moderate malnutrition not adequately responding to standard therapy
- Unexplained persistent diarrhoea (*14 days or more*)
- Unexplained persistent fever (*above 37.5 intermittent or constant, for longer than one month*)
- Persistent oral candidiasis (*after first 6-8 weeks of life*)
- Oral hairy leukoplakia
- Acute necrotizing ulcerative gingivitis or periodontitis
- Lymph node tuberculosis
- Pulmonary tuberculosis
- Severe recurrent bacterial pneumonia
- Symptomatic lymphoid interstitial pneumonitis
- Chronic HIV-associated lung disease including bronchiectasis
- Unexplained anaemia (<8 g/dl), neutropaenia (<0.5 x 10<sup>9</sup> per litre) and/or chronic thrombocytopaenia (<50 x 10<sup>9</sup> per litre)

## APPENDIX 1-D WHO Clinical Staging of HIV/AIDS for Children

(continued)

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

### Clinical Stage 4<sup>a</sup>

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

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<sup>a</sup> 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.)

Source: WHO. 2006. WHO case definitions of HIV for surveillance and revised clinical staging and immunological classification of HIV-related disease in adults and children. Available at: <http://www.who.int/hiv/pub/guidelines/HIVstaging150307.pdf>

## APPENDIX 1-E WHO Immunological Classification for Established HIV Infection

HIV-ASSOCIATED. IMMUNODEFICIENCY	AGE-RELATED CD4 VALUES			
	≤11 months (%CD4+)	12–35 months (%CD4+)	36–59 months (%CD4+)	Children ≥ 5 years and Adults (absolute number Per mm <sup>3</sup> %CD4+)
None or not significant	>35%	>30%	>25%	≥ 500 cells/mm <sup>3</sup>
Mild	30–35%	25–30%	20–25%	350–499 cells/mm <sup>3</sup>
Advanced	25–29%	20–24%	15–19%	200–349 cells/mm <sup>3</sup>
Severe	<25%	<20%	<15%	<200 cells/mm <sup>3</sup> or <15%

Source: WHO. 2006. *WHO case definitions of HIV for surveillance and revised clinical staging and immunological classification of HIV-related disease in adults and children*. Available at: <http://www.who.int/hiv/pub/guidelines/HIVstaging150307.pdf>

## APPENDIX 1-F CDC AIDS Surveillance Case Definitions for Adolescents, Adults and Children

### I. CDC AIDS Surveillance Case Definition for Adolescents and Adults

Clinical Categories			
CD4 Cell Categories	A	B	C*
mm <sup>3</sup> (%)	Asymptomatic, PGL, or Acute HIV Infection	Symptomatic** (not A or C)	AIDS Indicator Condition (1987)
1 >500/mm <sup>3</sup> (≥29%)	A1	B1	C1
2 200–499/mm <sup>3</sup> (14–28%)	A2	B2	C2
3 <200/mm <sup>3</sup> (<14%)	A3	B3	C3

\* All patients in categories A3, B3 and C1-3 are defined as having AIDS, based on the presence of an AIDS-indicator condition (see the following table) and/or a CD4 cell count of less than 200/mm<sup>3</sup>.

\*\* Symptomatic conditions not included in Category C that are: a) attributed to HIV infection or indicative of a defect in cell-mediated immunity or b) considered to have a clinical course or management that is complicated by HIV infection. Examples of B conditions include but are not limited to bacillary angiomatosis; thrush; vulvovaginal candidiasis that is persistent, frequent or poorly responsive to therapy; cervical dysplasia (moderate or severe); cervical carcinoma in situ; constitutional symptoms such as fever (38.5° C) or diarrhoea lasting longer than 1 month; oral hairy leukoplakia; herpes zoster involving two episodes or more than 1 dermatome; idiopathic thrombocytopenic purpura (ITP); listeriosis; pelvic inflammatory disease (PID) (especially if complicated by a tubo-ovarian abscess); and peripheral neuropathy.

Source: US Centers for Disease Control and Prevention. 1992. 1993 Revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. *MMWR* 41(RR-17) <http://www.cdc.gov/mmwr/preview/mmwrhtml/00018179.htm>

### II. CDC AIDS Case Surveillance Definition for Infants and Children

CDC immunological categories based on age-specific CD4 counts and percent of total lymphocytes

Immunological Category	<12 mos	1–5 yrs	6–12 yrs
	mm <sup>3</sup> (%)	mm <sup>3</sup> (%)	mm <sup>3</sup> (%)
<b>Category 1:</b> No evidence of suppression	≥ 1,500 (≥ 25)	≥1,000 (≥ 25)	≥ 500 (≥ 25)
<b>Category 2:</b> Evidence of moderate suppression	750–1,499 (15–24)	500–999 (15–24)	200–499 (15–24)
<b>Category 3:</b> Severe suppression	< 750 (<15)	< 500 (<15)	< 200 (<15)

## APPENDIX 1-F CDC AIDS Surveillance Case Definitions for Adolescents, Adults and Children *(continued)*

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### Clinical categories for children with HIV

#### **CATEGORY N: NOT SYMPTOMATIC**

Children who have no signs or symptoms considered to be the result of HIV infection or who have only one of the conditions listed in Category A.

#### **CATEGORY A: MILDLY SYMPTOMATIC**

Children with two or more of the conditions listed below but none of the conditions listed in Categories B and C.

- Lymphadenopathy (> 0.5 cm at more than two sites; bilateral = one site)
- Hepatomegaly
- Splenomegaly
- Dermatitis
- Parotitis
- Recurrent or persistent upper respiratory infection, sinusitis, or otitis media

#### **CATEGORY B: MODERATELY SYMPTOMATIC**

Children who have symptomatic conditions other than those listed for Category A or C that are attributed to HIV infection.

#### **Examples of conditions in clinical Category B include but are not limited to:**

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>▪ Anemia (&lt;8 gm/dL), neutropenia (&lt;1,000/mm<sup>3</sup>), or thrombocytopenia (&lt;100,000/mm<sup>3</sup>) persisting ≥ 30 days</li><li>▪ Bacterial meningitis, pneumonia, or sepsis (single episode)</li><li>▪ Candidiasis, oropharyngeal (thrush), persisting (&gt;2 months) in children &gt;6 months of age</li><li>▪ Cardiomyopathy</li><li>▪ Cytomegalovirus infection, with onset before 1 month of age</li><li>▪ Diarrhea, recurrent or chronic</li><li>▪ Hepatitis</li><li>▪ Herpes simplex virus (HSV) stomatitis, recurrent (more than two episodes within 1 year)</li><li>▪ HSV bronchitis, pneumonitis, or esophagitis with onset before 1 month of age</li><li>▪ Herpes zoster (shingles) involving at least two distinct episodes or more than one dermatome</li><li>▪ Leiomyosarcoma</li></ul> | <ul style="list-style-type: none"><li>▪ Lymphoid interstitial pneumonia (LIP) or pulmonary lymphoid hyperplasia complex</li><li>▪ Nephropathy</li><li>▪ Nocardiosis</li><li>▪ Persistent fever (lasting &gt;1 month)</li><li>▪ Toxoplasmosis, onset before 1 month of age</li><li>▪ Varicella, disseminated (complicated chickenpox)</li></ul> |
|---|--|



## APPENDIX 1-F CDC AIDS Surveillance Case Definitions for Adolescents, Adults and Children *(continued)*

### CATEGORY C: SEVERELY SYMPTOMATIC

Conditions included in clinical Category C for children infected with HIV:

- **Serious bacterial infections, multiple or recurrent** (*i.e.*, any combination of at least two culture-confirmed infections within a 2-year period), of the following types: septicemia, pneumonia, meningitis, bone or joint infection, or abscess of an internal organ or body cavity (*excluding otitis media, superficial skin or mucosal abscesses and indwelling catheter-related infections*)
- **Candidiasis, esophageal or pulmonary** (*bronchi, trachea, lungs*)
- **Coccidioidomycosis, disseminated** (*at site other than or in addition to lungs or cervical or hilar lymph nodes*)
- **Cryptococcosis, extrapulmonary**
- **Cryptosporidiosis or isosporiasis** with diarrhea persisting >1 month
- **Cytomegalovirus disease** with onset of symptoms at age >1 month (*at a site other than liver, spleen, or lymph nodes*)
- **Encephalopathy** (*at least one of the following progressive findings present for at least 2 months in the absence of a concurrent illness other than HIV infection that could explain the findings*):
  - failure to attain or loss of developmental milestones or loss of intellectual ability, verified by standard developmental scale or neuropsychological tests;
  - impaired brain growth or acquired microcephaly demonstrated by head circumference measurements or brain atrophy demonstrated by computerized tomography or magnetic resonance imaging (serial imaging is required for children <2 years of age);
  - acquired symmetric motor deficit manifested by two or more of the following: paresis, pathologic reflexes, ataxia, or gait disturbance
- **Herpes simplex virus infection** causing a mucocutaneous ulcer that persists for >1 month; or bronchitis, pneumonitis, or esophagitis for any duration affecting a child >1 month of age
- **Histoplasmosis, disseminated** (*at a site other than or in addition to lungs or cervical or hilar lymph nodes*)
- **Kaposi's sarcoma**
- **Lymphoma, primary, in brain**
- **Lymphoma, small, noncleaved cell** (Burkett's), or immunoblastic or large cell lymphoma of B-cell or unknown immunological phenotype
- *Mycobacterium tuberculosis*, disseminated or extrapulmonary
- *Mycobacterium*, other species or unidentified species, disseminated (*at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes*)
- *Mycobacterium avium complex* or *Mycobacterium kansasii*, disseminated (*at site other than or in addition to lungs, skin, or cervical or hilar lymph nodes*)
- *Pneumocystis carinii* pneumonia
- **Progressive multifocal leukoencephalopathy**
- **Salmonella** (nontyphoid) septicemia, recurrent
- **Toxoplasmosis of the brain** with onset at >1 month of age
- **Wasting syndrome** in the absence of a concurrent illness other than HIV infection that could explain the following findings:
  - a) persistent weight loss >10% of baseline

**OR**

  - b. downward crossing of at least two of the following percentile lines on the weight-for-age chart (e.g., 95th, 75th, 50th, 25th, 5th) in a child > 1 year of age

**OR**

  - a. <5th percentile on weight-for-height chart on two consecutive measurements, >=30 days apart

**PLUS**

  - a. chronic diarrhea (*i.e.*, at least two loose stools per day for >30 days)

**OR**

  - b. documented fever (for > 30 days, intermittent or constant)

Adapted from: US Centers for Disease Control and Prevention. 1994. Revised classification system for human immunodeficiency virus infection in children less than 13 years of age. *MMWR* (RR-22). Available at: <http://www.cdc.gov/MMWR/preview/MMWRhtml/00032890.htm>



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## **Module 2** Overview of HIV Prevention in Mothers, Infants and Young Children

**SESSION 1** Introduction to Mother-to-child Transmission of HIV

**SESSION 2** Comprehensive Approach to Prevention of HIV Infection in Infants and Young Children

**SESSION 3** Role of Maternal and Child Health Services in the Prevention of HIV Infection in Infants and Young Children

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**After completing the module, the participant will be able to:**

- Provide an overview of mother-to-child transmission of HIV (MTCT).
- Identify factors that increase the risk of MTCT.
- Describe the four elements of a comprehensive approach to prevention of HIV infection in infants and young children.
- Provide examples of each of the four elements.
- Describe the role of maternal and child health (MCH) services in the prevention of HIV infection in infants and young children.

## SESSION 1 Introduction to Mother-to-child Transmission of HIV

**After completing the session, the participant will be able to:**

- Provide an overview of mother-to-child transmission of HIV (MTCT).
- Identify factors that increase the risk of MTCT.

### Prevention of Mother-to-Child Transmission of HIV

Mother-to-child transmission of HIV (MTCT) is the transmission of HIV from an infected mother to her baby during pregnancy, labour and delivery and breastfeeding. MTCT is also referred to as “vertical transmission” or “perinatal transmission”. Most of the children infected with HIV acquired the virus through MTCT. Prevention of mother-to-child transmission of HIV (PMTCT) is a common term for programmes, services and interventions designed to reduce the risk of MTCT.

PMTCT programmes provide the following interventions:

- HIV testing and counselling during ANC, labour and delivery and postpartum
- Provision of antiretroviral (ARV) drugs to mother and infant
- Safer delivery practices
- Infant feeding information, counselling and support
- Referrals to comprehensive treatment, care and social support for mothers and families with HIV infection

### Barriers to Universal Access to PMTCT Services

Despite the call for “universal access” to PMTCT services, PMTCT coverage is still limited. The UNICEF PMTCT Report Card 2005 found that only 11% of women in the 58 countries surveyed received PMTCT counselling and less than 10% were tested for HIV. In 2006 less than 10% of pregnant women who tested HIV-positive world-wide received ARV drugs for PMTCT. Limited access is due to significant barriers to scale-up:

“Universal Access” is the idea that everyone has a right to the prevention, care, support and treatment related to HIV and AIDS.

Limited access is due to significant barriers to scale-up:

- Weak healthcare systems, including inadequate antenatal care (ANC)
- Limited access to pre-test counselling, either because systems are not in place or providers are not routinely offering testing
- Lack of effective coordination to oversee implementation
- Inadequate community engagement
- Stigma and discrimination
- Lack of awareness that HIV can be passed from mother-to-child
- Inadequate access to ARV therapy or prophylaxis

The scale-up of PMTCT services is essential to avoid new infections among children and as part of the strategy to realize the vision of an HIV-free and AIDS-free generation.

<b>Exercise 2.1 Local HIV terminology: large group discussion</b>	
<b>Purpose</b>	<ul style="list-style-type: none"><li>▪ Discuss local terms used in HIV prevention, care and treatment programmes.</li><li>▪ Identify alternative local terms that can be used without misinforming or stigmatizing.</li></ul>
<b>Duration</b>	10 minutes

<b>Exercise 2.1 Local HIV terminology: large group discussion</b>	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ The trainer will ask for volunteers from the group to give an example, using local language, of how they might explain to a pregnant women about the risk of HIV transmission to her baby during pregnancy, labour and delivery, and when breastfeeding.</li> <li>▪ The trainer will lead a discussion on the words and phrases the group has heard or used to describe HIV-related concepts when speaking with pregnant women.</li> <li>▪ As a group, you will be asked to reach a consensus on the most appropriate words to use to for terms such as: <ul style="list-style-type: none"> <li>▪ Window period</li> <li>▪ Condom</li> <li>▪ HIV</li> <li>▪ AIDS</li> <li>▪ Virus</li> <li>▪ Viral load</li> <li>▪ ARVs</li> <li>▪ Replacement feeding</li> <li>▪ Stigma</li> <li>▪ Disclosure</li> <li>▪ Sex</li> <li>▪ STIs</li> <li>▪ People infected with HIV</li> <li>▪ Breastfeeding</li> <li>▪ Oral sex</li> <li>▪ Anal sex</li> <li>▪ Unprotected sex</li> </ul> </li> </ul>

## Overview of Mother-to-Child Transmission

The term “MTCT” attaches no blame or stigma to the woman who gives birth to a child who is HIV-infected. It does not suggest deliberate transmission by the mother, who is often unaware of her own infection status and unfamiliar with how HIV is passed from mother-to-child. The term “MTCT” should not hide the fact that either the woman or her sexual partner may introduce HIV into a family—and that both of them share the responsibility for preventing transmission to the infant.

### MTCT can occur during:

- Pregnancy
- Labour and delivery
- Breastfeeding

## Rates and Timing of MTCT

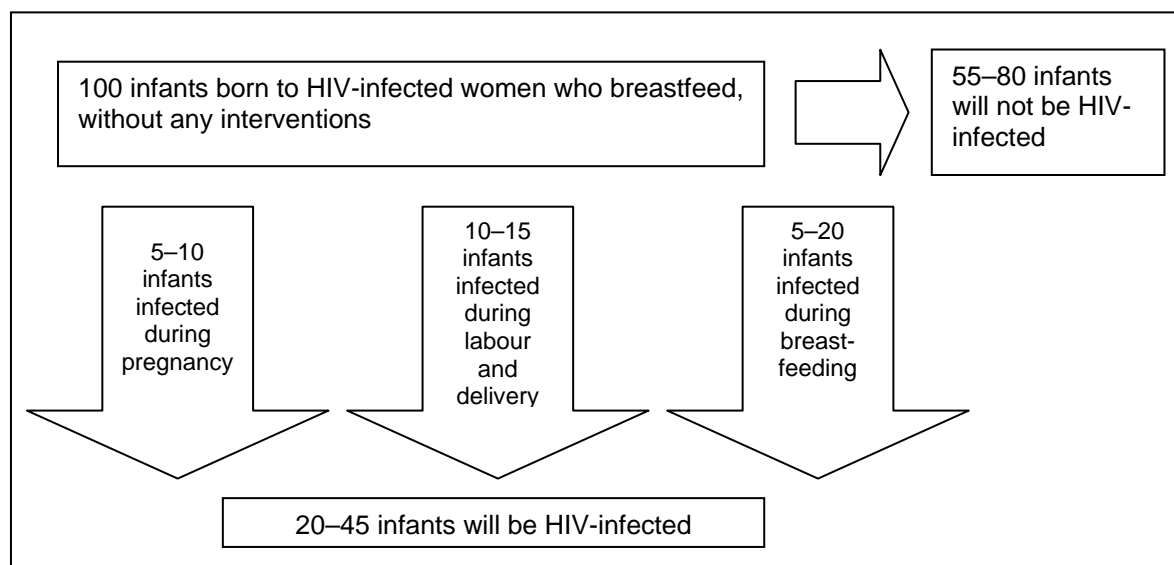
### Risk of transmission without intervention

Without intervention, the overall MTCT rate is approximately 20–45%. The risk of transmission during breastfeeding depends on whether the mother uses safer breastfeeding practices (e.g., avoiding mixed feeding) and duration of breastfeeding:

- With breastfeeding to six months: overall transmission rate is 20-35%
- With breastfeeding to 18-24 months: overall transmission rate is 30-45%

Safer infant feeding will be discussed in Module 6 “Infant Feeding in the Context of HIV Infection”. Figure 2.1 shows that without intervention, up to 45% of infants born to mothers infected with HIV who breastfeed may become HIV-infected.

**Figure 2.1: HIV outcomes of infants born to women infected with HIV**



### **Reducing MTCT through core interventions**

MTCT can be reduced by 40-70% through core PMTCT interventions, including ARV therapy or prophylaxis. Both ARV therapy and prophylaxis are effective for reducing MTCT, particularly if provided in combination with other interventions such as safer obstetric practices, infant feeding information, counselling and support.

In industrialized countries where women infected with HIV receive long-term combination ARV therapy and do not breastfeed—and where elective caesarean sections are safe, feasible and commonly performed—the rate of MTCT has been reduced to about 2%. In industrialized countries replacement feeding is affordable, feasible, acceptable, sustainable and safe for most women, so it is not as difficult for HIV-infected women under these circumstances to choose replacement feeding.

The interventions for reducing MTCT will be described in the following session and in Module 3, “Specific Interventions for the Prevention of Mother-to-Child Transmission of HIV (PMTCT)”.

### **Risk Factors for Transmission**

Viral, maternal, obstetrical, fetal and infant-related factors all influence the risk of MTCT. *The most important risk factor for MTCT is the amount of HIV in the mother's blood. This is known as the viral load.*

Risk of transmission to the infant is highest when the mother's viral load is high. A mother's viral load may be high for many reasons. Two of the main reasons that a mother may have a high viral load are:

- Recent HIV infection
- Advanced AIDS

**Table 2.1 Maternal and neonatal factors that may increase the risk of HIV transmission**

Pregnancy	Labour and Delivery	Breastfeeding
<ul style="list-style-type: none"> <li>▪ High maternal viral load (new infection or advanced AIDS)</li> <li>▪ Viral, bacterial, or parasitic placental infections, such as malaria</li> <li>▪ Sexually transmitted infections (STIs)</li> </ul>	<ul style="list-style-type: none"> <li>▪ High maternal viral load (new infection or advanced AIDS)</li> <li>▪ Rupture of membranes for more than 4 hours<sup>1</sup></li> <li>▪ Invasive delivery procedures that increase contact with mother's infected blood or body fluids (e.g. episiotomy, artificial rupture of membranes)</li> <li>▪ Chorioamnionitis (from untreated STI or other infection)</li> <li>▪ Preterm delivery</li> <li>▪ Low birthweight</li> </ul>	<ul style="list-style-type: none"> <li>▪ High maternal viral load (new infection or advanced AIDS)</li> <li>▪ Duration of breastfeeding</li> <li>▪ Mixed feeding (giving water, other liquids, or solid foods in addition to breastfeeding)</li> <li>▪ Breast abscesses, nipple fissures, mastitis</li> <li>▪ Oral disease in the baby (e.g. thrush or sores)</li> </ul>
<p><sup>1</sup> Studies have found there is an increased rate of HIV transmission after a mother's membranes have been ruptured for more than 4 hours. The longer the membranes are ruptured, the higher the risk of HIV transmission.</p>		

## HIV and Pregnancy

### Effect of pregnancy on HIV infection

- Pregnancy suppresses the immune function in both HIV-infected and non-infected women.
- Studies have shown that pregnancy does not seem to have an effect on the progression of HIV disease.

### Effect of HIV on pregnancy

HIV-infected women who are in advanced stages of HIV disease tend to have more complications during pregnancy, delivery and in the postpartum period particularly if they are not receiving proper care. Pregnancy-related complications for women with HIV include:

- Increased risk of spontaneous abortions
- Increased risk of stillbirth
- Increased risk of pre-term deliveries
- Increased risk of low birthweight infants
- Increased risk of bacterial pneumonia, urinary tract infections and other illnesses
- Increased risk of postnatal infections

It is therefore critical that pregnant women with HIV get the best possible ANC and postpartum care.

## SESSION 2 Comprehensive Approach to Prevention of HIV Infection in Infants and Young Children

**After completing the session, the participant will be able to:**

- Describe the four elements of a comprehensive approach to prevention of HIV infection in infants and young children.
- Provide examples of each of the four elements.

### Comprehensive Approach to Preventing HIV Infection in Infants and Young Children

To significantly reduce MTCT and achieve global and national targets, PMTCT must be viewed as a comprehensive public health approach focusing not only on women with HIV, but also their partners as well as parents-to-be whose HIV status is unknown or who have tested HIV-negative. The comprehensive approach includes the four elements listed in the box below:

#### PMTCT

**Prevention of mother-to-child transmission** is a term used to describe a package of services intended to reduce the risk of mother-to-child transmission of HIV (MTCT).

#### Four elements of a comprehensive approach to preventing HIV infection in infants and young children

Element	Target population	Additional information
Element 1: Primary prevention of HIV infection	Women and men who are sexually active	This element aims to prevent men and women from ever contracting HIV. If new HIV infections are prevented, fewer women will have HIV and fewer infants will be exposed to HIV.
Element 2: Prevention of unintended pregnancies among women infected with HIV	HIV-infected women	This element addresses the long term family planning and contraceptive needs of women with HIV.
Element 3: Prevention of HIV transmission from women infected with HIV to their infants	HIV-infected women	This element focuses on: <ul style="list-style-type: none"> <li>▪ Access to HIV testing and counselling during ANC, labour and delivery and the postpartum period</li> <li>▪ Provision of ARV drugs to mother and infant</li> <li>▪ Safer delivery practices to decrease the risk of infant exposure to HIV</li> <li>▪ Infant feeding information, counselling and support for safer practices</li> </ul>
Element 4: Provision of treatment, care and support to women infected with HIV, their infants and their families	HIV-infected women, their children and families	This element addresses the treatment, care and support needs of HIV-infected women, their children and families.

The most effective way to reduce the number of infants infected with HIV is to prevent HIV infection in women (Element 1) and to prevent unintended pregnancy among women

infected with HIV (Element 2). These two measures are not only beneficial to women but can decrease the proportion of infants infected by 35% to 45% in many countries. The third element alone will reduce HIV in infants by between 2% and 12% in many countries. It is essential that all four elements are implemented together if the UN goal of reducing by one half the number of infants infected with HIV by 2010 is to be achieved.

## Element 1: Prevention of Primary HIV Infection

### Example of Element 1

A 25-year old single woman decides to take a rapid HIV test at a mobile clinic sponsored by a local NGO. After receiving a negative test result, a counsellor discusses with her how to remain negative. The woman decides to bring her partner in for testing and to insist that he use condoms.

Primary prevention of HIV is the most effective means of controlling the spread of the disease and minimizing the impact on individuals, families and communities.

To ensure that sexually active men and women remain uninfected, primary prevention efforts must continue to be a major part of any comprehensive country response to HIV.

**“ABC”:** an HIV primary prevention strategy  
Promoting and supporting safe and responsible sexual behaviour and practices is one approach to preventing

HIV infection. Strategies include practising abstinence, mutual faithfulness, reducing the number of sex partners and using condoms. This is known as the “ABC” approach:

The “ABC” of HIV primary prevention	
<b>A =</b>	Abstain—Choose not to have sexual intercourse.
<b>B =</b>	Be faithful—Be faithful to one partner. This strategy is also referred to as “mutual faithfulness” or “mutual monogamy”.
<b>C =</b>	Use condoms correctly and consistently.

### Primary prevention issues for women

Especially for young women, the successful implementation of the “ABCs” outlined above may require support. *Factors contributing to women’s vulnerability to HIV include poverty, culturally defined roles, lack of information, abuse, violence, coercion by men and the inability to negotiate safer sex.* HCWs can help women address these challenges through education, support and community linkages. HCWs can also encourage and support young women and men to delay becoming sexually active.

### Mutual faithfulness

Mutual faithfulness is when two people have sex only with each other. Mutual faithfulness is an effective personal HIV prevention strategy when both partners are HIV-negative and have no other risk of HIV infection (e.g. neither are at risk of occupational exposure to HIV or exposure to HIV through injecting drug use). It is also a feasible strategy if both partners are HIV-positive. If one partner is HIV-positive and the other HIV-negative (discordant) then mutual faithfulness must be combined with correct and consistent condom use to be an effective primary prevention strategy.

### Condom access

Both male and female condoms, when used correctly and consistently, can help prevent HIV transmission and reduce the risk of STIs and unintended pregnancy. PMTCT programmes should make male and female condoms readily available. HCWs should provide clients with information on how to use condoms, support the client who is negotiating with her partner for safer sex and promote joint responsibility for preventing the transmission of HIV.



### Prevention and early treatment of STIs

There is a close relationship between the other STIs and HIV. In general, the presence of STIs increases the risk of HIV infection. Likewise, the presence of HIV infection tends to worsen the severity of the STI and makes the STI less responsive to conventional treatment.

The early diagnosis and treatment of STIs can reduce the incidence of HIV in the general population by about 40%. STI treatment services present an opportunity to provide information on HIV infection, MTCT and to refer the client for testing and counselling.

### HIV testing and counselling

HIV screening or diagnostic HIV testing and counselling should be routinely offered to clients attending in-patient and community-based services including hospital facilities, ANC, family planning, STI and post-delivery settings. Additionally, voluntary counselling and testing should be widely available and, where necessary, re-oriented to meet the needs of young people. Additional information on HIV testing and counselling can be found in Module 5.

### Counselling for women and men who test HIV-negative

Counselling provides an opportunity for men and women who test HIV-negative to learn how to protect themselves and their infants from HIV infection. Counselling can serve as a powerful tool to encourage adoption of safer sex practices, encourage partner testing and discuss family planning. For more information on how to counsel women and men about family planning and contraceptive choices, see Element 2: Prevention of Unintended Pregnancies Among Women who are HIV-Infected, below.

### Male circumcision

The World Health Organization and UNAIDS recommend that male circumcision is made available in countries highly affected by HIV as part of a comprehensive prevention programme. Recent studies have found that male circumcision reduces the risk of heterosexually acquired HIV infection in men by approximately 60%.

The procedure should only be performed by trained providers in sanitary settings with adequate equipment and counselling. Counselling of men and their sexual partners is necessary to prevent them from developing a false sense of security and engaging in high-risk behaviours that could undermine the partial protection provided by male circumcision. Male circumcision does not provide complete protection against HIV: circumcised men must continue to use other forms of protection from HIV, such as condoms.

### Prevention of blood-to-blood transmission

Screen all blood and blood products for HIV according to national guidelines. Follow Standard Precautions (which includes Universal Precautions) in the clinic setting. Standard Precautions are further described in Module 8, “Safety and Supportive Care in the Work Environment”.

<b>Exercise 2.2 HIV and STI handshake: group game</b>	
<b>Purpose</b>	<ul style="list-style-type: none"><li>Explore the concept of HIV and STI transmission—both with and without the use of protection—when individuals are sexually active with multiple partners.</li></ul>
<b>Duration</b>	20 minutes
<b>Instructions</b>	<p><b>Introduction</b></p> <p>The main message of this game is that abstinence or the use of condoms significantly reduces the risk of contracting HIV or a different STI.</p> <p><b>The game</b></p> <ul style="list-style-type: none"><li>You will be asked to take one piece of paper from the basket/box/paper</li></ul>

Exercise 2.2 HIV and STI handshake: group game	
	<p>bag; <b>do not look at it yet.</b></p> <ul style="list-style-type: none"> <li>▪ Next, you will be asked to walk around the room and shake hands with three people in the group. Remember with whom you shook hands.</li> <li>▪ When everyone has shaken hands with three people, you will be asked to return to your seat and unfold your piece of paper.</li> <li>▪ The trainer will continue to lead you through the remainder of the exercise.</li> </ul>



## Element 2: Prevention of Unintended Pregnancies Among Women who are HIV-Infected

Family planning is an important part of a comprehensive public health strategy to prevent HIV in women and children. The cost of infection and child deaths averted through family planning is substantially less than the cost of child death averted through the 3<sup>rd</sup> and 4<sup>th</sup> elements. Additionally, family planning provides intrinsic benefits by helping women avoid unintended pregnancy and, in effect, saving lives and enhancing the health status of women and their families.

### Example of Element 2

An HIV-infected woman with two young children brings her husband to the MCH clinic to attend a counselling session on family planning and condom use. She has decided that she wants to wait for at least another year, maybe even two years, before she has any more children.

Unintended pregnancies are avoidable. With access to family planning services and counselling, women who know they are HIV-infected can avoid unintended pregnancies. Family planning counselling enables women and/or couples to:

- Prevent unintended pregnancies
- Discuss condoms and condom use as dual protection against unintended pregnancy and STIs
- Access emergency contraceptive services
- Get referrals to providers of care, treatment and support

*Effective family planning can help prevent unintended pregnancies, space births and help women who are HIV-infected protect their own health while taking care of their families.*

It is particularly important that **pregnant** women practise safer sex. Not only are pregnant women at a higher risk of acquiring HIV than non-pregnant women (probably due to hormonal changes affecting the lining of the genital tract or to immune responses) but pregnant women who are newly infected are more likely to pass HIV to their infants. This is because the viral load in people with new (recent) infection is high

Providing safe and effective contraception and high-quality reproductive health counselling contribute to informed decision-making about pregnancy choices. Family planning counselling is a vital component of reducing maternal and child morbidity and mortality.

## Family Planning Counselling for HIV-infected Women and Families<sup>1</sup>

Family planning counselling should be conducted sensitively, in private and must demonstrate respect for clients' rights: every woman, regardless of her HIV status, has the right to make a free and informed decision about whether and when she becomes pregnant or whether to use contraception and which method to use. Use the skills that will be taught in Module 5, Testing and Counselling for PMTCT; but, as a general rule, adopt a neutral but supportive attitude and offer comprehensive, factual, unbiased information.

Where possible, encourage women to include their partners in family planning counselling sessions. Women may need assistance with building communication skills and with developing strategies to address sensitive situations with their partners. As appropriate, HCWs should offer to meet jointly with a couple or meet separately with the woman or her partner. In general, the family planning counselling session with an HIV-infected woman includes the following three steps.

### Step 1: Discuss HIV and pregnancy

A family planning counselling session with an HIV-infected woman should start with a discussion of HIV and pregnancy and include the following points:

- Pregnancy does not accelerate HIV progression but, overall, HIV-infected pregnant women have poorer outcomes than uninfected women.
- A mother with HIV can pass the virus to her baby during pregnancy, labour and delivery and breastfeeding. It is important that pregnant HIV-infected women attend antenatal care, take advantage of available PMTCT interventions and get care and treatment for their HIV infection. (Ensure that client has been given referrals for HIV treatment, care and support services and—if she is pregnant—ANC services.)
- Before deciding to have a (another) baby, a pregnant HIV-infected woman may want to consider the realities of caring for and raising a child, particularly if the child is unwell or even HIV-infected.

### Step 2: Support the client to select a contraceptive method

- Most methods of contraception are safe for use by women with HIV.
- **Condoms** are important as dual protection—to prevent pregnancy, most STIs and further transmission of HIV. HIV infected women need continuing protection against STIs.
- **Hormonal contraceptives**, including combined oral contraceptive pills and injectable methods (such as Depo-Provera/DMPA), are highly effective birth control methods, but:
  - HCWs prescribing a hormonal contraceptive for their HIV-infected patients on ARV therapy should counsel women about possible interactions between hormonal contraceptives and certain ARV drugs. Clients should understand that the clinical significance of these interactions is unclear but that using a back-up method like a condom is recommended to avoid unintended pregnancy.
  - Women taking rifampicin for tuberculosis usually need to use a back-up method of contraception like condoms while taking rifampicin, as rifampicin can lower the efficacy of some hormonal contraceptives (pills, monthly injectables or implants).

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<sup>1</sup> Adapted from:

- WHO 2006. *Decision-Making Tool for Family Planning Patients and Providers*. Available at [http://www.who.int/reproductive-health/family\\_planning/counselling.html](http://www.who.int/reproductive-health/family_planning/counselling.html) and Family Health International 2006. *Contraception for Women and Couples with HIV*. Available at <http://www.fhi.org/en/RH/Training/trainmat/ARVmodu>
- Family Health International and EngenderHealth. *Contraception for Women and Couples with HIV*. Available at <http://www.fhi.org/training/en/modules/ARV/howtouseSS.htm>

- **IUDs** can be used successfully in HIV-infected women on ARV therapy and in asymptomatic or mildly symptomatic women. IUDs are not usually recommended for women with advanced HIV who are not on ARV therapy.
- **Spermicides, or diaphragm with spermicides** (foams, gels, creams or suppositories/tablets that contain chemicals that immobilize or destroy sperm and reduce the risk of pregnancy) should not be used by HIV-infected women due to enhanced risk of HIV transmission. (See box below for additional information on spermicides.)
- **Fertility awareness-based methods** are difficult and unreliable in women with AIDS or on ARV therapy—due to changes in menstrual cycle and higher body temperatures.
- **Lactation amenorrhea method (LAM)** is a temporary contraceptive method that should only be used by women who (i) are less than 6 months postpartum, (ii) are exclusively breastfeeding, and (iii) have not resumed menstruating. Women who meet all three of these criteria have only a 1% to 2% chance of getting pregnant. As this method is temporary, every effort should be made to get women who desire family planning, on another method as soon as possible.
- **Sterilization** is a permanent method of birth control and an excellent method for women who do not desire any more children. There is no medical reason to deny sterilization to women with HIV infection nor is there any indication to sterilize HIV-positive women.

### Step 3: Discuss HIV and Fertility

- HIV may reduce fertility by as much as 40% but ARV therapy increases fertility. Women on ARV therapy should be made aware of the possibility of their fertility returning. Emphasize that family planning can reduce unintended pregnancy.
- HIV-infected men are more likely to have low sperm count and low sperm quality than HIV negative men.

#### Spermicides and Nonoxynol-9, summary of findings

Nonoxynol-9 is present in most spermicides on the market today. It has been used over the past half-century in vaginal gels, creams, foams, suppositories, sponges, and films—alone or with other contraceptive devices.

#### Safety

- Animal studies and human trials have shown nonoxynol-9 to be an irritant.
- Nonoxynol-9 is known to cause epithelial disruption in the vagina and rectum—the risk increases with increasing frequency of use.

#### Contraceptive effectiveness

- Used alone, nonoxynol-9 is only moderately effective as a contraceptive, but better than no contraceptive method at all.
- Used with a female mechanical barrier method (for example a cervical cap or diaphragm), nonoxynol-9 is more effective than when used alone.
- It is not known whether the contraceptive effectiveness of nonoxynol-9 differs with different formulations (film, sponge, gel, suppository, and foam) and doses.
- There is no evidence that condoms lubricated with nonoxynol-9 are more effective in preventing pregnancy than condoms not lubricated with it.

#### Recommendations

- Nonoxynol-9 should not be used to prevent STIs, including HIV infection—condoms should be used for this purpose.
- Nonoxynol-9 should not be used for contraception in women who have frequent intercourse (i.e. several times a day) or have a high risk of HIV infection.
- Nonoxynol-9 should not be used rectally.

For full report, see <http://www.who.int/reproductive-health/rtis/index.htm>

Additional information about family planning linkages, indicators and place of delivery can be found in Appendix 2-A.

### Element 3: Prevention of HIV Transmission from Women Infected with HIV to their Infants

#### Example of Element 3

At her 28 week ANC appointment, a woman who recently tested HIV-positive is assessed for eligibility for ART. Upon finding out that she is Stage 1, her clinician starts her on AZT as a part of an ARV prophylaxis regimen.

Prevention of HIV transmission from HIV-infected women to their infants usually refers to specific programmes that:

- Identify pregnant women infected with HIV.
- Provide HIV-infected pregnant women with effective interventions for PMTCT.

Specific interventions to reduce HIV transmission from an infected woman to her child are listed below.

PMTCT core interventions include:	
Intervention	These interventions work by...
<ul style="list-style-type: none"> <li>▪ HIV testing and counselling during ANC, labour and delivery and postpartum (individual, couple, group)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Providing information about HIV and PMTCT</li> <li>▪ Conveying the importance of safer sex during pregnancy, regardless of HIV status</li> <li>▪ Identifying women infected with HIV</li> </ul>
<ul style="list-style-type: none"> <li>▪ Provision of antiretroviral (ARV) drugs to mother and infant</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reducing maternal viral load</li> </ul>
<ul style="list-style-type: none"> <li>▪ Safer delivery practices</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reducing infant exposure to the maternal blood</li> </ul>
<ul style="list-style-type: none"> <li>▪ Infant feeding information, counselling and support</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reducing infant exposure to the virus in breast milk</li> </ul>
<ul style="list-style-type: none"> <li>▪ Referrals to comprehensive treatment, care and social support for mothers and families with HIV infection</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ensuring the woman and her family have access to life-saving care, treatment and support services</li> </ul>

Module 3, “Specific Interventions for the Prevention of Mother-to-Child Transmission of HIV (PMTCT),” discusses PMTCT interventions in detail. Note: This curriculum focuses on women infected with HIV-1; Appendix 3-C includes information about PMTCT services for women infected with HIV-2.

#### Partner involvement in PMTCT

The participation of *both* men and women in all four elements is vital to the success of a strategy to reduce HIV infection in infant and children. For example, men play an important role in Element 3 by attending ANC with their partners, supporting their partner’s adherence to PMTCT interventions (such as taking ARV prophylaxis as directed by the HCW, delivering the infant in a health facility or exclusive breastfeeding). *PMTCT interventions should be based on the principle that both mother and father have an impact on HIV transmission to the infant:*

- Both partners participate in decisions that can prevent HIV transmission
- Both partners play an important role in implementing family planning.
- Both partners should be tested and counselled for HIV.

- Both partners need to be responsible for safer sex [before and] during pregnancy and breastfeeding.
- Both partners should be given information about PMTCT interventions and services.
- Both partners should be responsible for choosing a safer infant feeding method.
- A partner's support is important in seeking and participating in HIV-related care, treatment and support.

#### **Element 4: Provision of Treatment, Care and Support to Women Infected with HIV, their Infants and their Families**

*If a woman is assured that she will receive adequate treatment and care for herself, her children and her partner, she is more likely to accept HIV testing and counselling and, if HIV-infected, to accept PMTCT interventions.*

Medical care and social support are important for women living with HIV, enabling them to address concerns about their own health and the health and future of their children and families.

##### **Example of Element 4**

A husband and wife visit an HIV care and treatment clinic together to receive antiretroviral (ARV) therapy. They also bring in their two children for HIV testing.

To promote long-term care of women who are HIV-infected and their families, it is important to develop and reinforce linkages with programmes offering treatment, care and support services. HIV-related treatment, care and support services for women, their infants and families include the following:

- Care and treatment with ARV therapy for the long-term health of women and families.
- Symptom management
- Prevention and treatment of HIV-related conditions
- Reproductive health care, including family planning and contraception counselling
- Nutritional support
- Psychosocial and community support
- Palliative care, if indicated

A women's ongoing care needs will be discussed in greater detail in Module 7 "Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection".

#### **Care and support of the infant and child who are HIV-exposed**

Infants and children who are born to HIV-infected mothers require regular follow-up care, especially during the first two years of life, including immunizations, prophylaxis for *Pneumocystis pneumonia* and other common infections, HIV testing and monitoring of feeding, nutrition, growth and development. The ongoing needs of infants and children will be discussed in Module 7 "Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection".

Children whose mothers are infected with HIV are at higher risk than other children for illness and malnutrition for multiple reasons:

- They may be infected with HIV and become ill—even when adequate healthcare and nutrition are provided.
- Those who receive replacement feeding are at risk of infections and malnutrition.
- If the mother is ill, she may have difficulty caring for her children adequately.

Families may also be economically vulnerable due to AIDS-related illnesses and deaths among adult relatives.

## SESSION 3    Role of Maternal and Child Health Services in the Prevention of HIV Infection in Infants and Young Children

**After completing the session, the participant will be able to:**

- Describe the role of maternal and child health (MCH) services in the prevention of HIV infection in infants and young children.

### Integrating the PMTCT Programme into MCH Services

Access to comprehensive MCH services is central to efforts to reduce HIV infection in infants and young children. To be most effective, PMTCT programmes need to be integrated into existing MCH care as part of the broad range of educational and clinical services that help mothers, children and families lead healthier lives. The structure of comprehensive MCH services will differ from country-to-country but usually includes services such as antenatal care (ANC), immunization programmes for infants and children and postpartum care. Table 2.2 lists the programmes and services that target mothers and children.

HCWs who provide quality ANC services already offer many complementary initiatives that support PMTCT programmes such as the Safer Motherhood Initiative, the Baby Friendly Hospitals Initiative (BFHI) and Saving Newborn Lives.

#### Gateway to services

Antenatal care is the most common entry point for a pregnant woman into the healthcare system. Enrolment in ANC should ensure that the woman has access to all necessary PMTCT interventions.

**Table 2.2 Comprehensive MCH services**

#### Comprehensive MCH services

- Provide comprehensive ANC care.
- Recognize that the best approach to preventing HIV infection in infants and children begins with prevention of primary infection in parents-to-be.
- Provide family planning services to couples who are HIV-infected and women of childbearing age of unknown HIV status to prevent unintended pregnancies.
- Educate women and their partners about reducing the risk of MTCT.
- Provide core PMTCT interventions: HIV testing and counselling, ARV drugs to mother and infant, safer delivery practices, infant feeding counselling and support, and referrals to comprehensive treatment, care and social support.
- Provide education about prevention and early recognition of STIs; provide or refer to STI care and treatment.
- Offer or refer for primary care of adults and children including treatment, care and support. This can include routine care (post-natal or well-child care including assessment of infant growth and development, immunizations and HIV testing of infant) as well as care for HIV infection (treatment of symptoms, HIV-related infections, ARV therapy).
- Link and refer women and their families to healthcare and community services that provide palliative care, psychosocial support, spiritual support and economic assistance.
- Educate patients about how to recognize symptoms of opportunistic infections and measures they can take to prevent such infections.
- Educate patients about how to recognize early signs and symptoms of HIV infection in the infant or child.

A comprehensive PMTCT programme links to or provides a continuum of care for the mother, child and other family members. The continuum begins with educating women about primary prevention of HIV infection and continues through medical and psychosocial support to the mother, child and family, especially through the crucial early years of childhood growth and development. This comprehensive approach ultimately links women and their families to existing community services that address the complex needs and issues involved in prevention, treatment and management of HIV disease.

### **Module 2: Key Points**

- Risk of MTCT without intervention is 20–45%.
- Effective PMTCT programmes provide access to interventions that can significantly reduce the rate of MTCT.
- Risk of transmission to the infant is highest when the mother's viral load is high. Two of the main reasons that a mother may have a high viral load are: recent HIV infection and advanced AIDS.
- A comprehensive approach is needed to prevent HIV infection in infants and young children. The four elements of the comprehensive approach to PMTCT are:
  - Primary prevention of HIV infection
  - Prevention of unintended pregnancies among women infected with HIV
  - Prevention of HIV transmission from women infected with HIV to their infants
  - Provision of treatment, care and support to women infected with HIV, their infants and their families
- MCH services, especially ANC care, are an entry point into the range of services required to meet the needs of HIV-infected women and their families.



## **APPENDIX 2-A Provision of Element 1 and 2 interventions**

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Elements 1 (primary prevention of HIV infection) and 2 (prevention of unintended pregnancies among women infected with HIV) together can prevent the vast majority of MTCT cases. The Glion consultation on strengthening the linkages between reproductive health and HIV/AIDS: Family Planning and HIV/AIDS in women and children, WHO/UNFPA, 2006, notes:

- All four elements recommended by the United Nations system are essential if the UNGASS goal for the reduction in the proportion of infants infected with HIV is to be attained
- Women's reproductive choices must be respected and safeguarded
- Family planning is a potent instrument in preventing HIV in women and children
- Family planning provides intrinsic benefits by saving lives and enhancing the health status of women and their families

The implementation and scale-up of Elements 1 and 2 require national, district and service level efforts as well as improvements in links and coordination between programmes. Links to be established/strengthened include:

1. HIV counselling to be provided in family planning services, with referral links established between family planning services and HIV services: increased access to HIV counselling and testing
2. Family planning services (counselling and methods including condoms) to be provided in VCT centres: increased access to primary prevention interventions
3. Family planning provided in HIV services (HIV care and treatment centres and day-clinics): increased access to family planning methods including prevention of HIV, STI and unwanted pregnancies
4. PMTCT interventions within MCH services (ANC, L&D, post delivery care) should include family planning services: prevention of HIV infection or re-infection and unwanted pregnancies
5. PMTCT interventions (IEC, counselling) to be provided within HIV services (HIV care and treatment centres and day-clinics)
6. PMTCT interventions (IEC, counselling) to be provided within family planning services
7. STI services to be provided within HIV and family planning services
8. TB clinics to link with family planning and HIV services (VCT, HIV care and treatment centres, PMTCT)

**APPENDIX 2-A Provision of Element 1 and 2 interventions** *(continued)*

Elements 1 and 2: interventions and place of delivery

Service	ANC	Maternity Ward	Post-delivery	Post-abortion	Family planning	STI	Youth/ Adolescent Friendly	HIV care and treatment	TB	Community-based (inc VCT)
Couple counselling for HIV and family planning	✓ (as IEC for MCH, family planning, PMTCT and HIV)	✓ Counselling and referral	✓ Counselling and referral	✓	✓ (as IEC for MCH, family planning, PMTCT and HIV)	✓	✓ (as IEC for MCH, family planning, PMTCT and HIV)	✓	✓ Counselling and referral	✓ (as IEC for MCH, family planning, PMTCT and HIV)
Barriers methods: condoms (M&F)	✓	✓	✓	✓	✓	✓	✓	✓		✓
Contraceptives Dual methods			✓	✓	✓	✓	✓			✓
Emergency contraception			✓		✓	✓	✓			✓ (Possibly)
HIV testing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ (VCT)
HIV prevention counselling	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Syphilis testing	✓	✓	✓	✓		✓		✓	✓	
Hgb measurement	✓	✓		✓						
STI prevention, diagnosis & treatment	✓	✓	✓	✓	✓	✓	✓	✓		
ARVs	Prophylaxis and treatment	Prophylaxis and treatment	Treatment	Treatment				Treatment		

## APPENDIX 2-A Provision of Element 1 and 2 interventions *(continued)*

### Indicators

Maternity Services	Indicators
Focused ANC	<ul style="list-style-type: none"> <li>▪ % pregnant women attending ANC1</li> <li>▪ % pregnant women attending ANC4</li> </ul>
Counselling for HIV and family planning	<ul style="list-style-type: none"> <li>▪ % pregnant women attending ANC counselled</li> </ul>
Condoms (M&F)	<ul style="list-style-type: none"> <li>▪ number condoms (M&amp;F) distributed</li> </ul>
HIV testing	<ul style="list-style-type: none"> <li>▪ % pregnant women attending ANC tested for HIV</li> <li>▪ % pregnant women attending ANC tested for HIV and receiving results</li> <li>▪ % of pregnant women with positive result receiving prophylaxis</li> </ul>
Syphilis testing	<ul style="list-style-type: none"> <li>▪ % pregnant women attending ANC tested for Syphilis</li> </ul>
Hgb measurement	<ul style="list-style-type: none"> <li>▪ % pregnant women attending ANC with Hgb measurement</li> </ul>
STI diagnosis & treat.	<ul style="list-style-type: none"> <li>▪ % pregnant women attending ANC tested and treated for STI</li> </ul>
ARV prophylaxis and treatment	<ul style="list-style-type: none"> <li>▪ % pregnant women attending ANC receiving ARV (prophylaxis or treatment)</li> </ul>
Childbirth	<ul style="list-style-type: none"> <li>▪ % pregnant women with assisted delivery (SBA)</li> </ul>
Post-delivery	<ul style="list-style-type: none"> <li>▪ % women receiving contraceptives</li> <li>▪ % women eligible for ARVs receiving ARV treatment</li> </ul>
Counselling for HIV and family planning	<ul style="list-style-type: none"> <li>▪ % pregnant women attending ANC counselled</li> </ul>

Post-abortion Services	Indicators
Counselling for HIV	<ul style="list-style-type: none"> <li>▪ % of women receiving PAC counselled on HIV</li> </ul>
Condoms (M&F)	<ul style="list-style-type: none"> <li>▪ number of condoms (F&amp;M) distributed</li> </ul>
Contraceptives	<ul style="list-style-type: none"> <li>▪ % of women receiving a contraceptive method after PAC</li> </ul>
HIV testing	<ul style="list-style-type: none"> <li>▪ % of women receiving PAC who are tested for HIV</li> <li>▪ % of women receiving PAC who are tested for HIV and receiving their result</li> </ul>
Syphilis testing	<ul style="list-style-type: none"> <li>▪ % of women receiving PAC who are tested for Syphilis</li> </ul>
Hgb measurement	<ul style="list-style-type: none"> <li>▪ % of women receiving PAC who are measured for Hgb</li> </ul>
STI diagnosis & treat.	<ul style="list-style-type: none"> <li>▪ % of women receiving PAC who are diagnosed and treated for STI</li> </ul>
ARV (treatment)	<ul style="list-style-type: none"> <li>▪ % women eligible for ARVs receiving ARV treatment</li> </ul>

**APPENDIX 2-A Provision of Element 1 and 2 interventions** *(continued)*

<b>Family Planning Services</b>	<b>Indicators</b>
General indicators	<ul style="list-style-type: none"> <li>▪ % women of childbearing age using a modern contraceptive method, including condoms (F&amp;M)</li> <li>▪ % of women living with HIV using a modern contraceptive method, including condoms (F&amp;M)</li> </ul>
Counselling for HIV and family planning	<ul style="list-style-type: none"> <li>▪ % of women counselled on HIV at family planning services</li> </ul>
Condoms (M&F)	<ul style="list-style-type: none"> <li>▪ number of condoms (F&amp;M) distributed</li> </ul>
Contraceptives	<ul style="list-style-type: none"> <li>▪ % of contraceptive users disaggregated by method</li> </ul>
Emergency contraception	<ul style="list-style-type: none"> <li>▪ number emergency contraception distributed</li> </ul>
HIV testing	<ul style="list-style-type: none"> <li>▪ % of women who are tested for HIV at family planning services</li> <li>▪ % of men who are tested for HIV at family planning services</li> </ul>
Syphilis testing	<ul style="list-style-type: none"> <li>▪ % of women who are tested for Syphilis at family planning services</li> <li>▪ % of men who are tested for Syphilis at family planning services</li> </ul>
STI diagnosis & treat.	<ul style="list-style-type: none"> <li>▪ % of women who are diagnosed and treated for STI at family planning services</li> </ul>

<b>STI Services</b>	<b>Indicators</b>
Counselling for HIV and family planning	<ul style="list-style-type: none"> <li>▪ % receiving HIV and family planning counselling</li> </ul>
Condoms (M&F)	<ul style="list-style-type: none"> <li>▪ number distributed</li> </ul>
Contraceptives	<ul style="list-style-type: none"> <li>▪ number distributed by methods</li> </ul>
Emergency contraception	<ul style="list-style-type: none"> <li>▪ number receiving</li> </ul>
HIV testing	<ul style="list-style-type: none"> <li>▪ % tested</li> </ul>
Syphilis testing	<ul style="list-style-type: none"> <li>▪ % tested</li> </ul>
STI diagnosis & treat.	<ul style="list-style-type: none"> <li>▪ % by type if STI</li> </ul>

<b>Youth/ Adolescent Friendly Services</b>	<b>Indicators</b>
Counselling for HIV and family planning	<ul style="list-style-type: none"> <li>▪ % receiving HIV and family planning counselling</li> </ul>
Condoms (M&F)	<ul style="list-style-type: none"> <li>▪ number distributed</li> </ul>
Contraceptives	<ul style="list-style-type: none"> <li>▪ number distributed by methods</li> </ul>
Emergency contraception	<ul style="list-style-type: none"> <li>▪ number receiving</li> </ul>
HIV testing	<ul style="list-style-type: none"> <li>▪ % tested</li> </ul>
STI diagnosis & treatment	<ul style="list-style-type: none"> <li>▪ % by type if STI</li> </ul>

<b>HIV Services</b>	<b>Indicators</b>
Counselling for HIV and family planning	<ul style="list-style-type: none"> <li>▪ % receiving HIV and family planning counselling</li> </ul>
Condoms (M&F)	<ul style="list-style-type: none"> <li>▪ number distributed</li> </ul>
HIV testing	<ul style="list-style-type: none"> <li>▪ % tested</li> </ul>
Syphilis testing	<ul style="list-style-type: none"> <li>▪ % tested</li> </ul>
STI diagnosis & treat.	<ul style="list-style-type: none"> <li>▪ % by type if STI</li> </ul>
ARV treatment	<ul style="list-style-type: none"> <li>▪ number treated</li> </ul>

## APPENDIX 2-A Provision of Element 1 and 2 interventions *(continued)*

Community-based services	Indicators
IEC for MCH/family planning and HIV	<ul style="list-style-type: none"> <li>▪ number of IEC campaigns with integrated MCH/family planning and HIV messages</li> <li>▪ % pregnant women attending ANC 1 and 4</li> <li>▪ % assisted deliveries (by skilled birth attendant)</li> <li>▪ % of men, women and adolescents tested for HIV</li> </ul>
Condoms (M&F)	<ul style="list-style-type: none"> <li>▪ number of condoms distributed by community-based mechanisms</li> <li>▪ % condoms users</li> </ul>
Pills	<ul style="list-style-type: none"> <li>▪ % of women using modern contraceptive methods using community-based distribution mechanisms for pills</li> </ul>
Emergency contraception	<ul style="list-style-type: none"> <li>▪ number of emergency contraceptive methods provided through community-based distribution mechanisms</li> </ul>
HIV Testing and Counselling	<ul style="list-style-type: none"> <li>▪ number of men, women and adolescents accessing HIV testing and counselling at community level</li> </ul>



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## **Module 3** Specific Interventions for the Prevention of Mother-to-Child Transmission of HIV (PMTCT)

- SESSION 1** Antiretroviral Therapy and Antiretroviral Prophylaxis for PMTCT
- SESSION 2** Antenatal Management of Women Infected with HIV and Women of Unknown HIV Status
- SESSION 3** Management of Women Infected with HIV and Women of Unknown HIV Status During Labour and Delivery
- SESSION 4** Postpartum Care of Women Infected with HIV and Women of Unknown HIV Status
- SESSION 5** Care of Infants Who are HIV-Exposed and Infants Born to Women of Unknown HIV Status
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**After completing the module, the participant will be able to:**

- Describe the difference between ARV therapy and ARV prophylaxis.
- List the criteria for starting pregnant women on ARV therapy.
- List the recommended ARV drugs for PMTCT.
- Understand the antenatal management of women infected with HIV and women of unknown HIV status.
- Explain the management of labour and delivery for women infected with HIV and women of unknown HIV status.
- Describe postpartum care of women infected with HIV and women of unknown HIV status.
- Describe the care of infants born to mothers who are HIV-infected and infants born to women of unknown HIV status.

## SESSION 1 Antiretroviral Therapy and Antiretroviral Prophylaxis for PMTCT

After completing the session, the participant will be able to:

- Describe the difference between ARV therapy and ARV prophylaxis.
- List the criteria for starting pregnant women on ARV therapy.
- List the recommended ARV drugs for PMTCT.

### Antiretroviral Therapy

#### ARV therapy versus prophylaxis

**ARV therapy:** Long-term use of antiretroviral drugs to treat maternal HIV and for PMTCT

**ARV prophylaxis:** Short-term use of antiretroviral drugs to reduce HIV transmission from mother-to-infant

Antiretroviral (ARV) drugs are effective for both treating maternal HIV infection and for PMTCT. Pregnant women who are HIV-infected and who are eligible for antiretroviral (ARV) therapy should receive treatment according to national or WHO guidelines. ARV therapy during pregnancy will improve the health of the woman and decrease the risk of transmitting HIV to the infant by decreasing the amount of virus in the mother's

blood. The lesser the amount of virus in the mother's blood, the lower the chance her infant will be exposed to the virus.

While some healthcare facilities that provide PMTCT services (such as the ANC clinic) provide ARV therapy and manage women throughout their pregnancy, other facilities refer pregnant women to HIV care and treatment clinics for ARV therapy. If ARV therapy is provided by referral, effective communication and coordination needs to be established between the ANC clinic and the HIV care and treatment clinic.

#### WHO recommendations for starting ARV therapy

WHO recommendations for when to start ARV therapy are based on symptoms of HIV infection and, where available, laboratory test results. As shown in Table 3.1, WHO recommends starting ARV therapy for the following patients:

If CD4 count is *not* available:

- Treat all symptomatic patients at WHO Stages 3 and 4

If CD4 count *is* available:

- Treat all patients with CD4 counts  $<200$  cells/mm<sup>3</sup> with or without symptoms
- Treat all HIV-infected pregnant women in Stage 3 whose CD4 count is  $<350$  cells/mm<sup>3</sup>
- *Consider* treatment for non-pregnant patients in Stage 3 if the CD4 count is  $<350$  cells/mm<sup>3</sup>, but treatment should be started before the CD4 count drops to below 200 cells/mm<sup>3</sup>

The criteria for pregnant and non-pregnant patients differ only if their CD4 count is between 200 and 350 cells/mm<sup>3</sup>. Treatment is recommended for pregnant patients whose CD4 count is less than 350 cells/mm<sup>3</sup>; whereas WHO suggests *considering* treatment for non-pregnant patients whose CD4 count is in between 200 and 350 cells/mm<sup>3</sup>.

Asymptomatic patients in Stages 1 and 2 should *not* receive ARV therapy if CD4 count is not available. Please refer to Appendix 1-C and 1-D for information on the WHO Clinical Staging System.

**WHO recommendations for women who become pregnant while on ARV therapy**

A woman on ARV therapy who becomes pregnant should continue to take her regularly scheduled course of ARV drugs throughout pregnancy, labour, delivery and the postpartum period. WHO recommends that the infant of an HIV-infected woman on ARV therapy receive one week of AZT as PMTCT prophylaxis.

Efavirenz (EFV), an antiretroviral drug that is potentially dangerous to the development of the fetus, is *not* recommended during the first trimester of pregnancy. For women receiving EFV who become pregnant and this is recognized during the first trimester, it is recommended that NVP be substituted for EFV. If the woman is in the second or third trimester when her pregnancy is recognized, EFV could be continued, given that the high-risk exposure has already occurred. For additional information about EFV and ARV therapy in pregnant women, see Appendix 3-A.

**Table 3.1 WHO Recommendations for initiating ARV Therapy**

WHO Clinical Staging	CD4 Count Not Available	CD4 Count Available and Patient is <u>Pregnant</u>	CD4 Count Available and Patient is <u>NOT Pregnant</u>
1	<b>Do not treat</b>	<b>Treat</b> if <200cells/mm <sup>3</sup> <sup>a</sup>	<b>Treat</b> if <200cells/mm <sup>3</sup> <sup>a</sup>
2	<b>Do not treat</b>		
3	<b>Treat</b>	<b>Treat</b> if CD4 cell count is <350 cells/mm <sup>3</sup>	Consider treatment if CD4 count is <350 cells/mm <sup>3</sup> <sup>a,b</sup> and initiate ARV therapy before CD4 count drops below 200 cells/mm <sup>3</sup>
4	<b>Treat</b>	<b>Treat</b> without considering CD4 count	<b>Treat</b> without considering CD4 count

**Adapted from:** WHO. 2006. *Antiretroviral Therapy for HIV Infection in Adults and Adolescents: Recommendations for a public health approach. 2006 revision.* WHO:Geneva. Available at: <http://www.who.int/hiv/pub/guidelines/artadultguidelines.pdf>

<sup>a</sup> CD4 cell count helpful in determining need for immediate therapy for situations such as pulmonary TB and severe bacterial infections, which may occur at any CD4 level.

<sup>b</sup> The initiation of ARV therapy is recommended for all HIV-infected patients who are diagnosed with pulmonary TB or a severe bacterial infection and who also have CD4 counts lower than 350 cells/mm<sup>3</sup>.

**Starting ARV therapy during pregnancy**

A pregnant woman eligible for ARV therapy based on national or international guidelines should start treatment as soon as possible, even during the first trimester of pregnancy. ARV therapy during pregnancy improves and protects the health of the mother, and substantially reduces the risk of MTCT.

*The first line ARV therapy regimen for pregnant women is selected according to the following criteria: drug potency, side effect profile, probability of adherence and availability. All ARV drugs are associated with some toxicity. The risk for a pregnant woman and her child from ARV therapy varies and is dependent on the stage of pregnancy, duration of therapy, and number of drugs used.*

The recommended first-line ARV therapy for treating pregnant women is as follows:

**Zidovudine (AZT) + lamivudine (3TC) + nevirapine (NVP)**

Pregnant women should be closely monitored for toxicity, including hepatitis, from NVP during the first 12 weeks of therapy.



<b>Information on commonly used ARVs</b>	
Zidovudine (AZT)	<ul style="list-style-type: none"> <li>▪ Absorbed quickly after being taken by mouth</li> <li>▪ Prenatal and neonatal exposure to AZT is generally well tolerated</li> <li>▪ Mild anaemia may occur but usually stops when the medication is stopped</li> <li>▪ May be taken with or without food</li> </ul>
Nevirapine (NVP)	<ul style="list-style-type: none"> <li>▪ Absorbed quickly after being taken by mouth</li> <li>▪ Crosses the placenta quickly to protect the infant</li> <li>▪ Long half-life benefits the infant</li> <li>▪ Can be given as a single dose for mother and a single dose for the infant as indicated by national guidelines</li> <li>▪ Can cause hepatotoxicity in women with higher CD4 counts or for whom no CD4 count is available. This does not apply to the use of a single dose of NVP for PMTCT.</li> <li>▪ Can cause viral resistance even after one dose</li> <li>▪ May be taken with or without food</li> </ul>
Lamivudine (3TC)	<ul style="list-style-type: none"> <li>▪ Absorbed quickly after being taken by mouth</li> <li>▪ May be taken with or without food</li> </ul>

For a list of alternative first-line ARV therapy regimens, see Appendix 7-C WHO 2006 Recommendations for ARV Therapy for Adults and Adolescents.

### **Delaying start of ARV therapy until after the first trimester**

Delaying the start of treatment for a pregnant woman who is eligible for treatment based on national or international guidelines can be considered during the first trimester of pregnancy for the following reasons:

- Pregnant women suffer frequently from nausea, a common side effect of some ARVs.
- First trimester is a time of important fetal development. A woman and her HCW may be concerned about the effect of ARVs on the developing fetus.

If the clinical or immune status of the pregnant woman suggests that she is severely ill, the benefits of early treatment for the HIV-infected woman outweigh any potential risk to the fetus and ARV therapy should be started.

### **Pregnant women with TB receiving ARV therapy**

In an HIV-infected pregnant woman with active TB, the first priority is to treat the TB. With careful clinical management, a pregnant woman can be treated for both HIV and TB. Drugs need to be monitored very closely to avoid interactions and side effects. See Appendix 3-A for additional information on how to manage an HIV-infected pregnant woman with TB.

## **ARV Prophylaxis**

All HIV-infected women who are *not* eligible for ARV therapy should be offered ARV prophylaxis for PMTCT.

ARV prophylaxis regimens are usually chosen based on national guidelines. Where there is a choice, decisions about which ARV drugs to use for an individual patient are based on:

- Effectiveness—Has the combination of ARV drugs been shown to prevent MTCT?
- Safety—Are the drugs safe? Will the drugs hurt the mother and/or fetus?
- Acceptability—Are the drugs acceptable to the mother? Will the mother take the medications prescribed?
- Availability—Will the drugs be available for the entire time they will be needed?

The WHO-recommended ARV prophylaxis regimens for PMTCT are included in Appendix 3-B. For additional information see the WHO guidelines “*Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants: Towards Universal Access, Recommendations for a public health approach 2006 version*”, available at: <http://www.who.int/hiv/pub/guidelines/pmtctguidelines3.pdf>

## ARV Prophylaxis for PMTCT

### Combination regimens

WHO now recommends the more effective PMTCT prophylaxis regimens combining AZT, 3TC and a single dose of NVP. Using ARVs in combination is more effective for PMTCT than using one drug alone. These combination regimens also help to reduce viral resistance.

### Viral resistance and ARVs

The HIV can mutate or change so it becomes resistant to specific ARV drugs—whether used for therapy or prophylaxis. When viral resistance occurs, these ARV drugs are no longer as effective.

Additional information on viral resistance can be found in, Module 7, “Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection.”

### Single-dose NVP for PMTCT

Where capacity is very limited, it may be necessary—as an absolute minimum—to implement the single-dose NVP as ARV prophylaxis regimen for mothers in labour and infants. Single-dose NVP should only be used where other options are not available. Resistance can develop when a single dose of NVP is given during labour for PMTCT. When a woman takes a single dose of NVP for PMTCT and is later prescribed ARV therapy that contains NVP, the regimen may not work effectively to reduce her viral load. However, studies have shown that resistance to NVP appears to diminish over time. Recent studies have preliminarily suggested that if ARV therapy is started at least 6 months after receipt of single-dose NVP for PMTCT, that an NNRTI-containing regimen will still be effective. However, the rate at which NVP resistant virus fades may vary.

Where single-dose NVP is used for PMTCT, the specific obstacles to delivering more effective regimens should be identified and action taken to address them. The use of single-dose NVP should be considered a temporary and interim measure while steps are taken to enable more effective regimens to be delivered.

## **SESSION 2    Antenatal Management of Women Infected with HIV and Women of Unknown HIV Status**

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**After completing the session, the participant will be able to:**

- Understand the antenatal management of women infected with HIV and women of unknown HIV status.

### **Antenatal Care**

Antenatal care (ANC) improves the general health and well-being of mothers and their families. By integrating PMTCT services into existing maternal child health (MCH) services—including ANC—PMTCT programmes will have access to MCH patients. Integrated care also ensures that the new PMTCT services benefit from the expertise and experience of the HCWs in the MCH infrastructure. Routinely providing PMTCT services within MCH also has the advantage of normalizing these services.

Good maternal healthcare not only improves pregnancy outcomes, but it also helps women with HIV stay healthy longer. When a mother dies, her children are at high risk for illness and death. MCH services should provide the following PMTCT-related services:

- Health information and education
- Education about HIV and HIV prevention including safer sex
- HIV testing and counselling
- Partner HIV testing and counselling, including couple counselling, either on-site or by referral
- ARV therapy or ARV prophylaxis (ARV therapy may be provided either on-site or by referral.)
- Treatment, care and support for HIV infection either on site or by referral
- Information on infant feeding options, infant feeding counselling and support
- Screening, prevention and treatment of opportunistic infections (OIs) and other HIV-related conditions including malaria and TB
- Co-trimoxazole prophylaxis against PCP, malaria and other infections
- Diagnosis and treatment of sexually transmitted infections (STIs)

### **HIV testing as the gateway to PMTCT**

HIV testing and counselling is the critical initial step to provide healthcare workers (HCWs) with the opportunity to offer PMTCT services. Determining the HIV status of a pregnant woman is the gateway to PMTCT interventions.

### **Antenatal Care of Women Infected with HIV**

ANC for women infected with HIV includes all of the basic services (i.e., the services for all pregnant women regardless of HIV infection status). In addition, an HIV-infected pregnant woman has other care and support needs as outlined in Table 3.2. The PMTCT interventions in this module are primarily in reference to women infected with HIV-1. Information about PMTCT interventions for the woman who is HIV-2 infected can be found in Appendix 3-C.

## Prevention, assessment and management of common infections in HIV-infected women

Prevention, screening and treatment for TB are very important for pregnant women with HIV. TB is a leading cause of mortality among all people who are infected with HIV. Refer to Module 7, “Comprehensive Care for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection,” for additional information on TB.

Women with HIV are susceptible to opportunistic infections, HIV-related infections, as well as other common infections because their immune systems are not working well. All infections can increase the risk of MTCT. Women should be monitored for the signs or symptoms of these infections.

### Examples of opportunistic infections, HIV-related and other common infections

#### Opportunistic infections

- Tuberculosis
- Pneumocystis pneumonia (PCP)

#### HIV-related infections

- Recurrent vaginal candidiasis

#### Other common infections

- Sexually transmitted infections (STIs)
- Urinary tract infections
- Respiratory infections
- Malaria, where prevalent

HCWs should follow national guidelines for prophylaxis and treatment of all infections that can affect HIV patients. Effective prevention reduces rates of illness and death among HIV-infected pregnant women. Prophylaxis also reduces the risk of preterm delivery and MTCT.

Section 1 in Module 7 “Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection” includes information about co-trimoxazole prophylaxis, which has been shown to prevent *Pneumocystis pneumonia* (PCP), other bacterial pneumonias, malaria, toxoplasmosis and certain causes of diarrhoea. Its use in pregnant women has been shown to improve overall pregnancy outcomes. One study in Africa showed reductions in chorioamnionitis, prematurity and overall neonatal mortality when co-trimoxazole prophylaxis was given to HIV-infected women as part of ANC.

### Psychosocial and community support

Pregnancy is a time of unique stress. HCWs should assess how much support an HIV-infected woman is receiving from family and friends. Pregnant women with HIV may have concerns about the health of the baby, their own health and disclosure of their status. Where available, HCWs should refer HIV-infected pregnant women to organizations that provide support.

**Table 3.2 Antenatal Care Services for HIV-Infected Women**

<b>Patient history</b>	<ul style="list-style-type: none"> <li>▪ Take medical, obstetric, family and psychosocial history.</li> <li>▪ Determine drug history, known allergies and use of traditional medicines such as herbal products.</li> <li>▪ Ask about alcohol or drug use and/or abuse.</li> </ul>
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<b>Table 3.2 Antenatal Care Services for HIV-Infected Women</b>	
<b>Physical exam and vital signs</b>	<ul style="list-style-type: none"> <li>▪ Conduct full physical exam to assess pregnancy as well as current signs or symptoms of illness. Target common symptoms of TB, malaria, sexually transmitted infections (STIs) and HIV disease progression.</li> <li>▪ Conduct pelvic exam, including speculum and bimanual exams, if indicated by symptoms.</li> <li>▪ If CD4 testing not available, conduct WHO clinical staging to determine need for ARV therapy.</li> </ul>
<b>Lab tests</b>	<ul style="list-style-type: none"> <li>▪ Perform routine tests for syphilis and anaemia.</li> <li>▪ Perform urine tests to detect urinary tract infection and protein.</li> <li>▪ Confirm HIV status per national guidelines, if not already confirmed.</li> <li>▪ Obtain CD4 count and, if available, perform HIV viral testing.</li> </ul>
<b>Nutritional assessment and counselling</b>	<ul style="list-style-type: none"> <li>▪ Monitor for anaemia, adequate caloric and nutrient intake.</li> <li>▪ Provide iron, folate and other micronutrient supplementation as per national guidelines.</li> <li>▪ Counsel on proper diet based on local resources.</li> </ul>
<b>STI screening</b>	<ul style="list-style-type: none"> <li>▪ Assess risk for STIs.</li> <li>▪ Diagnose and treat early according to national guidelines.</li> <li>▪ Counsel about STIs, their signs and symptoms and how STIs increase the risk of HIV transmission.</li> <li>▪ Educate about avoiding transmission or re-infection.</li> </ul>
<b>Tuberculosis</b>	<p><b>TB is the leading cause of mortality due to HIV</b></p> <ul style="list-style-type: none"> <li>▪ Screen all women for TB who have had a cough for more than 2 to 3 weeks, regardless of HIV status.</li> <li>▪ Specific TB treatment regimens are recommended for women infected with HIV, pregnant women and women already receiving ARV therapy.</li> </ul>
<b>Malaria</b>	<p><b>Malaria is a major cause of high maternal and infant morbidity and mortality and is linked to increased MTCT (via placental infection).</b></p> <ul style="list-style-type: none"> <li>▪ Administer malaria prophylaxis according to national guidelines.</li> <li>▪ In malaria endemic areas, intermittent presumptive therapy (IPT) for malaria is recommended in pregnant women. As co-trimoxazole can prevent and treat malaria, IPT is not recommended for HIV-infected women on co-trimoxazole prophylaxis.</li> <li>▪ Identify acute cases and treat appropriately.</li> <li>▪ Recommend indoor residual spraying: application of a long-acting insecticide like DDT on the inside walls and roof of the home and domestic animal shelters</li> <li>▪ Recommend use of insecticide-treated bed nets.</li> </ul>
<b>Opportunistic Infection (OI) prophylaxis</b>	<ul style="list-style-type: none"> <li>▪ Provide prophylaxis based on national guidelines.</li> </ul>
<b>Screening and care for other infections</b>	<ul style="list-style-type: none"> <li>▪ Screen for and treat common parasitic, bacterial and fungal infections when indicated.</li> <li>▪ Treat STIs, candidiasis, PCP, and any other common infections or HIV-related OIs.</li> <li>▪ Treat scabies, ensure entire family is treated.</li> <li>▪ Treat skin infections; educate patient to promptly clean and cover breaks in the skin (and, where available, apply gentian violet or topical antibiotics) to prevent common skin infections.</li> </ul>
<b>Tetanus immunizations</b>	<ul style="list-style-type: none"> <li>▪ Administer according to national guidelines.</li> </ul>

<b>Table 3.2 Antenatal Care Services for HIV-Infected Women</b>	
<b>ARV therapy during pregnancy</b>	<ul style="list-style-type: none"> <li>▪ Determine eligibility for therapy, using clinical staging and if possible CD4 count.</li> <li>▪ Provide ARV therapy when indicated, according to WHO or national guidelines.</li> <li>▪ Educate mother about importance of prophylaxis for infants.</li> </ul>
<b>ARV prophylaxis during pregnancy</b>	<ul style="list-style-type: none"> <li>▪ For patients not on ARV therapy, provide ARV prophylaxis according to national PMTCT guidelines.</li> <li>▪ Educate mother about importance of prophylaxis for infants.</li> </ul>
<b>Infant feeding</b>	<p><b>All women require infant feeding information, counselling and support.</b></p> <ul style="list-style-type: none"> <li>▪ For women who are not infected with HIV or women whose HIV status is unknown, promote and support exclusive breastfeeding.</li> <li>▪ For HIV-infected women: Provide information on infant feeding options, recommend exclusive breastfeeding for the first 6 months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe. Provide infant feeding counselling and support.</li> </ul>
<b>Counselling on safer pregnancy</b>	<ul style="list-style-type: none"> <li>▪ Provide women with information and instructions on seeking care early in their pregnancy.</li> <li>▪ Provide information on pregnancy complications such as: <ul style="list-style-type: none"> <li>▪ Bleeding</li> <li>▪ Fever &gt;38° C</li> <li>▪ Pre-eclampsia (swelling of hands and feet, severe headaches and blurred vision)</li> <li>▪ Severe pallor</li> <li>▪ Abdominal pain</li> </ul> </li> <li>▪ Teach about the importance of delivering in a safe environment with HCWs skilled in safer delivery practices, Standard Precautions and the administration of ARV therapy or ARV prophylaxis to mother and child.</li> <li>▪ Provide counselling about the effects of alcohol and injection drug use (IDU) on growth and development of the fetus. Refer to treatment programmes if needed.</li> </ul>
<b>Counselling on HIV danger signs</b>	<ul style="list-style-type: none"> <li>▪ Provide women with information on seeking healthcare for symptoms of HIV disease progression, such as opportunistic infections, chronic persistent diarrhoea, candidiasis, fever or wasting.</li> <li>▪ Refer women to HIV care and treatment clinic when eligible.</li> </ul>
<b>Partners and family</b>	<p><b>Stress and lack of support have been linked to progression of HIV infection.</b></p> <ul style="list-style-type: none"> <li>▪ Refer women, partners and families to community-based support clubs or organizations where available.</li> <li>▪ Encourage partner testing.</li> <li>▪ Assess need to test older siblings.</li> </ul>
<b>Effective contraception planning</b>	<ul style="list-style-type: none"> <li>▪ Counsel about correct and consistent use of condoms during pregnancy to prevent infection with other STIs, which can increase the rate of MTCT.</li> <li>▪ Provide long-term family planning and contraception counselling, with partner involvement when possible.</li> </ul>

<b>Exercise 3.1 Antenatal care: case study in small groups</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To review national policies on ANC and PMTCT.</li> <li>▪ To review antenatal management of women who are HIV-infected.</li> </ul>
<b>Duration</b>	30 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ Participants will be divided into groups of 3–5 people per group.</li> <li>▪ Refer to the antenatal care case study below.</li> <li>▪ Within your groups, you will have 10-15 minutes to discuss the case study and answer the questions. Choose one person from your group to report your group's responses.</li> <li>▪ The trainer will call on the reporter from each small group to summarize the discussion for the entire group.</li> </ul>

### **Exercise 3.1 Antenatal care: case study in small groups**

#### **Case study 1**

Selma, a 22-year-old single woman, tested HIV-positive at her first antenatal visit at 24 weeks gestation. During that visit, she received post-test counselling and was encouraged to bring her partner in for testing. At today's visit, she is 28 weeks pregnant. This is her first child.

- *What are the basic ANC management steps that should be taken?*
- *What specific HIV-related care does Selma need?*
- *What specific symptoms and physical findings do you assess at this visit?*

#### **Case study 2**

You are an antenatal clinic midwife. Your patient Louisa is 30 weeks pregnant. Louisa tells you she wants to have her baby at home. She tells you she is infected with HIV but that her two other children are "healthy." You can see that she is determined to have a home delivery.

- *What do you tell Louisa?*
- *Consider how you would approach meeting her ANC and PMTCT care needs if she plans to deliver at home. What would be your next steps be?*

## **SESSION 3 Management of Women Infected with HIV and Women of Unknown HIV Status During Labour and Delivery**

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**After completing the session, the participant will be able to:**

- Explain the management of labour and delivery in women infected with HIV and women of unknown HIV status.

### **PMTCT During Labour and Delivery**

Standard Precautions, which reduce the risk of transmission of blood-borne pathogens from the patient to the HCW, are used when caring for all patients, regardless of diagnosis or presumed HIV infection status. Because of risk of contact with blood, use of Standard Precautions is particularly important during delivery. Standard Precautions will be discussed further in Module 8.

Labour and delivery practices for HIV-infected women should follow standard obstetric practices, set forth by national or international standards, for all patients regardless of HIV status. Standard obstetric practices include Standard Precautions: wearing protective gear, using and disposing of sharps safely, sterilizing equipment and safely disposing of contaminated materials. For additional information on Standard Precautions, see Module 8, "Safety and Supportive Care in the Work Environment."

Additional procedures for women with HIV include the following:

#### **Administer ARV therapy or ARV prophylaxis during labour according to national guidelines.**

- Continue ARV therapy or ARV prophylaxis during labour, or start ARV prophylaxis at labour to reduce maternal viral load and provide protection to the infant.

#### **Avoid repeat dosing of single-dose NVP.**

If the ARV regimen contains single-dose NVP, it should not be repeated in the case of false labour, as this can cause viral resistance.

- Ensure that a woman is in true labour before administering a single-dose of NVP.
- Document NVP administration clearly on a patient's partogram or medical record to avoid accidental repeat dosing.

Precautions applicable to women with HIV and those of unknown HIV status include the following:

#### **Minimize vaginal examinations.**

- Perform vaginal examinations only when absolutely necessary.

#### **Avoid prolonged labour.**

- Consider using oxytocin to shorten labour when appropriate.

#### **Avoid premature rupture of membranes.**

- Use a partogram to measure the progress of labour.
- Avoid artificial rupture of membranes, unless necessary.

#### **Avoid unnecessary trauma during delivery.**

- Use non-invasive fetal monitoring.
- Avoid invasive procedures, such as using scalp electrodes or scalp sampling.



- Avoid routine episiotomy.
- Minimize the use of forceps or vacuum extractors.

**Minimize the risk of postpartum haemorrhage.**

- Actively manage the third stage of labour.
- Give oxytocin immediately after delivery.
- Use controlled cord traction.
- Perform uterine massage.
- Carefully repair genital tract lacerations.
- Carefully remove all products of conception.

**Use safe blood transfusion practices.**

- Minimize the use of blood transfusions.
- Use only blood screened for HIV and, when available, screened for syphilis, malaria and hepatitis B and C.

## Considerations Regarding Mode of Delivery

Caesarean section, when performed before the onset of labour or membrane rupture, has been associated with reduced MTCT. Elective caesarean section, when done in combination with safer infant feeding practices and ARV therapy or prophylaxis, has greatly reduced the rate of MTCT in countries where this procedure is safe and available.

The risk of elective caesarean section for PMTCT should be assessed carefully in the context of factors such as risk of post-operative complications, safety of the blood supply and cost.

## HIV Testing During Labour

A woman of unknown HIV status at labour should be offered HIV testing and counselling. Testing during labour is the last opportunity before childbirth to identify women infected with HIV. ARV prophylaxis, when initiated during labour for the woman and just after birth for the infant, can reduce MTCT by as much as 50%. Module 5, “HIV Testing and Counselling for PMTCT“, includes additional information about HIV testing and counselling during labour and delivery.

<b>Exercise 3.2 Labour and delivery ARV prophylaxis: case studies in large group</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To discuss administration of ARV prophylaxis during labour and delivery.</li> <li>▪ To review national or international guidelines on testing and counselling during labour.</li> </ul>
<b>Duration</b>	20 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ Each case study will be read aloud (the case studies appear below and on the next page). The trainer will ask participants to respond to the questions.</li> <li>▪ You will be asked if you agree or disagree with the answers offered; disagreements will be recorded for a future discussion.</li> </ul>

### Exercise 3.2 Labour and delivery ARV prophylaxis: case studies in the large group

#### Case study 1

Consuelo arrives at the labour and delivery unit. This is her first baby. She hands you her ANC card, which indicates that she was tested during pregnancy and is infected with HIV. Her water broke 3 hours ago and her contractions are now less than 4 minutes apart. Consuelo earlier received a single dose of NVP to take at home. When you examine her, you find that she is 6 centimetres dilated.

- *After providing general support during labour, what is your first priority?*

What if Consuelo presents to the labour and delivery unit with irregular contractions, no changes in her cervix, and her amniotic sac is still intact (water has not broken)? She tells you she has already taken her NVP tablet at home. You determine that she is in false labour.

- *12 hours later when she goes into true labour, do you repeat the dose of NVP?*
- *During Consuelo's delivery, how can you reduce MTCT?*

#### Case study 2

Deborah arrives at your clinic to deliver. As she is sitting comfortably, she tells you that this is her second child and that she has had a good pregnancy. Deborah has received no antenatal care and was never tested for HIV. At this time, her contractions are regular and about 10 minutes apart. During your examination, you find that she is 3 centimetres dilated.

- *Considering the national guidelines on testing and counselling during labour and delivery, what are your next steps?*
- *Describe a situation where you may decide **not** to offer HIV testing to a woman presenting in labour.*
- *What action should you take immediately after delivery if HIV testing was not offered before delivery?*

## SESSION 4 Postpartum Care of Women Infected with HIV and Women of Unknown HIV Status

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**After completing the session, the participant will be able to:**

- Describe postpartum care of women infected with HIV and women of unknown HIV status.

### Postpartum Care of Women Infected with HIV

When providing postpartum care to women infected with HIV, HCWs should follow national guidelines. The following areas require special attention:

#### Immediate post-delivery care

- Using Standard Precautions, assess the amount of vaginal bleeding.
- Dispose of blood-stained or blood-soaked linens or pads safely.

#### Infant feeding

- Provide the mother with information about her infant feeding options.
- Ensure she is provided with infant feeding counselling and support. Observe her feeding technique and provide assistance. See Module 6, “Infant Feeding in the Context of HIV Infection,” for additional information.
- Support the mother’s infant feeding choice.

#### Signs and symptoms of postpartum infection

Review the following symptoms of infection with the mother before she leaves the hospital or clinic, and provide information on where to seek treatment.

- Burning with urination
- Fever
- Foul smelling lochia
- Cough, sputum and shortness of breath
- Redness, pain, pus or drainage from incision or episiotomy
- Severe lower abdominal pain
- Breast pain, redness or warmth

#### Education

- Teach the mother about perineal and breast care.
- Ensure that the mother knows how and where to dispose of potentially infectious materials such as lochia-and blood-stained sanitary pads.
- Emphasize the importance of postpartum follow-up care for an HIV-infected mother and her HIV-exposed infant.

#### Family planning

A discussion about contraception and family planning goals starts in ANC. The discussion continues in the postpartum period. The main family planning goals for the woman who is HIV-infected are:

- Prevent unintended pregnancy using an effective method of birth control.
- Space children appropriately, which can help reduce maternal and infant morbidity and mortality.
- Educate women and families about contraceptive choices for HIV-infected couples.

See Module 2, “Overview of HIV Prevention in Mothers, Infants and Young Children” for additional information.

#### Postpartum and continuing care

Encourage and make plans for continuing healthcare in the following areas:

- Routine gynaecologic care, including Pap smears, if available

- Ongoing treatment, care and support for the new mother infected with HIV, including referral for ARV therapy if she is eligible
- Nutritional counselling and support
- Referral for prophylaxis and treatment of HIV-related conditions, including TB and malaria

For additional information, see Module 7 “Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection”.

## Postpartum Care of Women of Unknown HIV Status

Women whose HIV status is unknown should receive the same postpartum care as women with HIV infection, except that women of unknown status should be counselled and supported to breastfeed exclusively. Women of unknown HIV status should be encouraged to be tested for HIV. If she tests HIV-positive post delivery it is still possible to provide prophylaxis for the infant—if within 72 hours of the delivery—and advice on safer infant feeding, which can significantly reduce transmission from mother to infant. While it is still possible to administer single-dose NVP within 72 hours of birth, it is preferable to administer ARV prophylaxis to an infant as soon as possible after delivery.

### If a woman tests HIV-positive after delivery, provide:

- ARV prophylaxis for the infant according to national guidelines
- Safer infant feeding information, counselling and support for the mother
- Assessment for eligibility for ARV therapy
- Referrals for infant HIV testing
- Appropriate referrals for HIV-related treatment, care and support for the mother and members of her family

In addition, provide or refer for:

- Co-trimoxazole prophylaxis for the mother, if eligible, and her infant starting at 4-6 weeks. For additional information on co-trimoxazole eligibility see Module 7, “Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed infants and Families with HIV Infection.”

<b>Exercise 3.3 Postpartum care of women infected with HIV: case studies in small groups</b>	
<b>Purpose</b>	▪ To review postpartum care of women infected with HIV.
<b>Duration</b>	30 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ Participants will be divided into groups of 3–5 people per group. The trainer will assign half of the groups to case study 1 and the other half to case study 2 (postpartum case studies appear below).</li> <li>▪ Within your groups, you will have 20-25 minutes to discuss your assigned case and to answer the questions. Choose one person from your group to report your group’s responses.</li> <li>▪ The trainer will invite the reporters from each group to share their responses to the assigned case.</li> <li>▪ The trainer will then lead a group discussion using the following questions:               <ul style="list-style-type: none"> <li>▪ After hearing the answers from the other groups, would you change your plan of care?</li> <li>▪ What would you specifically change about the plan of care for Deborah or Consuelo?</li> <li>▪ What strategies do you use to care for your HIV-infected patients when you are very busy?</li> </ul> </li> </ul>

### **Exercise 3.3 Postpartum care of women infected with HIV: case studies in small groups**

#### **Case study 1**

Deborah's HIV status is unknown when she presents to the labour and delivery ward. The result of the rapid HIV test performed during labour is positive. When told of the test result, Deborah becomes upset but agrees to take the NVP tablet. Deborah has an uneventful labour and delivers a 2.5 kg boy, whom she names William. Although infant formula is available at the clinic, Deborah decides to breastfeed her baby. It is now two hours after her delivery and she is resting. Her mother and husband are staying with her.

- *What HIV-specific services does she need immediately?*
- *What general postpartum care does Deborah require?*
- *What can you accomplish with Deborah and her infant before she leaves the facility in 24 hours?*
- *What continuing treatment, care and support do Deborah and her infant need? How will it be provided and by whom/what agency?*

#### **Case study 2**

Consuelo, who is HIV-infected, took AZT and single-dose NVP during her pregnancy and labour. After a short labour, she delivered a 2 kg girl named Samantha, who received a single-dose of NVP immediately after birth and was started on AZT. Consuelo chose to use infant formula.

- *What HIV-specific services does she need immediately?*
- *What general postpartum care does Consuelo require?*
- *What can you accomplish with Consuelo and her infant before she leaves the facility in 24 hours?*
- *What continuing treatment, care and support do Consuelo and her infant need? How will it be provided and by whom/what agency?*

## **SESSION 5 Care of Infants Who are HIV-Exposed and Infants Born to Women of Unknown HIV Status**

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**After completing the session, the participant will be able to:**

- Describe the care of infants born to mothers who are HIV-infected and infants born to women of unknown HIV status.

### **Immediate Infant Care Following Delivery**

Immediately following delivery, the goal is to reduce MTCT by minimizing newborn exposure to maternal blood and body fluids. ARV prophylaxis should be offered for the infant according to national guidelines, including low birth weight infants and those with low Apgar scores. HCWs should emphasize the importance of infant ARV prophylaxis, which is safe for infants. The mother typically gives verbal consent to start ARV prophylaxis for her infant during the post-test session. See Appendix 3-B for information on WHO recommended ARV prophylaxis regimens for infants.

Care for the HIV-exposed infant should follow standard best practice and Standard Precautions. For example, regardless of the mother's HIV status, all infants should be handled with gloves until maternal blood and secretions have been washed off and all newborns should be kept warm and dry.

- When the head is delivered, gently wipe infant's eyes and face with gauze or cloth.
- After the infant is completely delivered, transfer the infant to the mother's abdomen or arms.
- Do not suction unless infant does not breathe within 30 seconds of birth. Use either mechanical suction at less than 100 mm Hg pressure or bulb suction, rather than mouth-operated suction.
- Thoroughly wipe the infant dry with a towel.
- Clamp cord after it stops pulsating and after giving the mother oxytocin:
  - Do not milk the cord.
  - Cover the cord with gloved hand or gauze before cutting.
- Leave the infant on mother with skin-to-skin contact and cover the infant.
- Ask the mother about her feeding choice.
  - If a mother is breastfeeding, help the mother to initiate breastfeeding.
- Administer infant dose of vitamin K and silver nitrate eye ointment according to national guidelines.
- Immunize according to national guidelines (e.g., bacille Calmette-Guérin (BCG) and hepatitis B).
- Use Standard Precautions when handling the infant. Wear gloves when giving injections, and clean all injection sites. Dispose of all needles safely.
- Specialized care for sick and preterm infants should follow national and international standards.

### **Follow-up Infant Care**

Care of the infant exposed to HIV should follow best practices for well-child care and include the package of services designed specifically for HIV-exposed infants. Continuing care for infants exposed to HIV should follow the approach described in Module 7, "Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection."

## Infants Born to Women of Unknown HIV Status

When HIV testing is unavailable or the mother's HIV status is unknown, immediate newborn care should include the procedures and Standard Precautions listed above, as if the mother is infected with HIV and the infant has been exposed to HIV.

- Women who have recently delivered and whose HIV status is unknown should be offered testing and counselling as soon as possible. If the mother tests HIV-positive within 72 hours of delivery, the infant can be provided/started on ARV prophylaxis. The sooner ARV prophylaxis is given, the more effective it is.
- If the test result of an HIV-positive woman becomes known more than 72 hours after the birth, she can still be provided with information on infant feeding options and infant feeding counselling and support.
- Women with unknown HIV status should be encouraged to breastfeed exclusively, as described in Module 6, "Infant Feeding in the Context of HIV Infection".

<b>Exercise 3.4 Care of infants who are HIV-exposed: case study in large group</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To review ARV prophylaxis and care of infants who are HIV-exposed.</li> </ul>
<b>Duration</b>	30 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ The trainer will ask for a volunteer to read the case study to the group and then ask participants to respond to the questions.</li> <li>▪ The trainer will lead a discussion on strategies to care and advise the patient, Salome.</li> </ul>

### Exercise 3.4 Care of infants who are HIV-exposed: case study in the large group

#### Case study 1

Deborah has just delivered her son, William. She tested HIV-positive during labour. Deborah denies that she is HIV-positive.

- *What HIV-specific care does William require at birth and after birth?*
- *What follow-up care does William need?*
- *How do you manage Deborah and William's HIV-related care if Deborah denies being infected with HIV?*

#### Case study 2

Samantha, the 3-week old daughter of Consuelo (who is HIV-positive), is irritable and cries often. Consuelo's mother-in-law is visiting and she is worried about her granddaughter. Consuelo's mother-in-law is helping Consuelo care for Samantha. You overhear her repeatedly telling Consuelo that the baby needs breast milk and that the formula is not satisfying the baby.

- *What can you do to help Consuelo at this stressful time?*
- *What support will Consuelo need to continue using infant formula*
- *What do you say, if anything, to Consuelo's mother-in-law?*

### Module 3: Key Points

- Specific PMTCT interventions for women who test HIV-positive include ARV therapy or ARV prophylaxis; information, counselling and support for safer infant feeding; and safer delivery practices that include precautions to reduce infant's exposure to maternal blood and secretions, in addition to standard obstetric practices.
- ARV therapy and prophylaxis reduce the risk of MTCT. ARV combination prophylaxis regimens are more effective than the single-dose NVP regimen.
- Integrating PMTCT services into existing MCH programmes normalizes HIV testing and other PMTCT interventions and allows for wide coverage in a cost-effective manner.
- Comprehensive ANC should address the special needs of HIV-infected women, e.g., assessing and treating TB, starting co-trimoxazole prophylaxis and referring for ARV therapy when indicated. Good ANC ensures a mother's health as well as reduces the risk of MTCT.
- Mothers require information on infant feeding options, infant feeding counselling and support during ANC, labour and delivery and the postpartum period.
- Standard obstetric practices apply to all women in labour and delivery, regardless of HIV-status. For women with HIV and those of unknown HIV status, there are additional steps or precautions to minimize the contact between the infant and the mother's blood and secretions.
- When providing postpartum care to women infected with HIV, HCWs should follow national guidelines. In addition, they should review with the mother, the signs and symptoms of postpartum infection, provide education on disposal of infectious materials and emphasize the importance of follow-up care and treatment and family planning.
- Care of infants exposed to HIV requires special measures in the delivery setting in addition to Standard Precautions.



## APPENDIX 3-A Clinical Situations and Recommendations for ARV Therapy in Women of Child-Bearing Potential and Pregnant Women

WHO recommends that ARV therapy be started for HIV-infected *pregnant* women in

- Clinical stage 4, irrespective of the CD4 count
- Clinical stage 3 if no CD4 testing available or if the CD4 count is less than 350 cells/mm<sup>3</sup>
- Clinical stage 1 and 2 if the CD4 count is less than 200 cells/mm<sup>3</sup>

Additional information about the choice of which ARV drugs to use can be found in WHO. 2006. *Antiretroviral Therapy for HIV Infection in Adults and Adolescents: Recommendations for a public health approach*. WHO:Geneva. Available at: <http://www.who.int/hiv/pub/guidelines/artadultguidelines.pdf>

Clinical Situation	Recommendation
<p><b>A:</b> HIV-infected women of childbearing potential with indications for starting ARV therapy</p>	<p><b>Recommended first-line regimen: 2 NRTIs + NNRTI*</b></p> <p>*NVP is the preferred NNRTI for the initial treatment of women if there is a potential for pregnancy or during the first trimester of pregnancy due to the possible teratogenic effects of EFV.</p> <p>If NVP is used:</p> <ul style="list-style-type: none"> <li>▪ <b>Conduct close monitoring for liver toxicity for 12 weeks following the start of NVP especially for women with CD4 counts between 250-350 cells/mm<sup>3</sup>.</b></li> <li>▪ Assess for clinical symptoms (jaundice, rash, fever and abdominal pain) and monitor hepatic transaminases if available.</li> <li>▪ NVP requires a dose escalation when starting therapy to reduce the risk of side effects and adverse reactions e.g., rash. Give NVP once a day for 2 weeks then increase to twice a day thereafter.</li> </ul> <p>The choice of ARV therapy requires considering the possibility that the ARV drugs may be received early in the first trimester of pregnancy. In addition, as NNRTIs and forms of hormonal contraception can interact, condom use is recommended.</p> <p>If EFV is used as the NNRTI:</p> <ul style="list-style-type: none"> <li>▪ Adequate contraception must be ensured to prevent pregnancy as EFV can cause birth defects in the first trimester.</li> </ul>
<p><b>B:</b> HIV-infected pregnant women with indications for starting ARV therapy</p>	<p>When eligible, start ARV therapy as soon as possible, even if in first trimester.</p> <p><b>Women</b></p> <p><b>Recommended first-line regimen: AZT + 3TC + NVP</b></p> <ul style="list-style-type: none"> <li>▪ <b>Close monitoring for liver toxicity should be performed for 12 weeks following the start of NVP especially for women with CD4 counts between 250-350 cells/mm<sup>3</sup>.</b></li> <li>▪ Assess for clinical symptoms (jaundice, rash, fever and abdominal pain) and monitor hepatic transaminases if available.</li> <li>▪ NVP requires a dose escalation when starting therapy to reduce the risk of side effects and adverse reactions e.g., rash. Give NVP once a day for 2 weeks then increase to twice a day thereafter.</li> </ul>

## APPENDIX 3-A Clinical situations and recommendations for ARV therapy in women of child-bearing potential and pregnant women

(continued)

Clinical Situation	Recommendation
	<p><b>Infants</b></p> <ul style="list-style-type: none"> <li>▪ 1-week AZT</li> <li>▪ <b>OR</b> 4-weeks AZT if a women received less than 4 weeks of ARV therapy</li> </ul> <p><i>Women with indications for ARV therapy who present late in pregnancy should be started on ARV therapy regardless of gestational age of the pregnancy. For women who present late in pregnancy where it is not possible to start therapy before delivery, start the recommended ARV prophylaxis regimen, see Appendix 3-B while planning to start ARV therapy as soon as possible after delivery.</i></p>
<p><b>C:</b> HIV-infected women <b>receiving</b> ARV therapy who <b>become</b> pregnant</p>	<p><b>Women</b></p> <ul style="list-style-type: none"> <li>▪ Continue the current ARV therapy unless it contains EFV <b>and</b> a woman is in her first trimester.</li> <li>▪ If in the first trimester, substitute NVP for EFV or change to triple NRTI, or a PI-based regimen.</li> <li>▪ If switching to NVP (see clinical situation B) <ul style="list-style-type: none"> <li>▪ <b>Closely monitor for liver toxicity for 12 weeks following the start of NVP especially for women with CD4 counts between 250-350 cells/mm<sup>3</sup>.</b></li> <li>▪ Omit NVP dose escalation to avoid sub-therapeutic drug levels in the context of ongoing therapy.</li> </ul> </li> <li>▪ Continue the same ARV regimen during labour and delivery, continuing clinical and laboratory monitoring postpartum.</li> <li>▪ If the woman is in her 2nd or 3rd trimester and on an EFV-based regimen, continue regimen.</li> <li>▪ Exposure to EFV during pregnancy is not an indication for abortion.</li> </ul> <p><b>Infants</b></p> <ul style="list-style-type: none"> <li>▪ 1-week AZT</li> <li>▪ <b>OR</b> 4-weeks AZT if a women received less than 4 weeks of ARV therapy</li> </ul>
<p><b>D:</b> HIV-infected pregnant women with severe anaemia (haemoglobin &lt;7 g/dl) with indications for ARV therapy</p>	<p><b>Women</b></p> <ul style="list-style-type: none"> <li>▪ Treat severe anaemia according to national guidelines.</li> <li>▪ Start ARV therapy with a non-AZT containing regimen, e.g., d4T or ABC.</li> </ul> <p><b>Infants</b></p> <ul style="list-style-type: none"> <li>▪ 4-weeks AZT</li> </ul>

## APPENDIX 3-A Clinical situations and recommendations for ARV therapy in women of child-bearing potential and pregnant women (continued)

Clinical Situation	Recommendation
<p><b>E:</b> HIV-infected pregnant women with active tuberculosis</p>	<p><b>In pregnant women with active TB, the priority is to treat the TB.</b></p> <p>However, with careful clinical management pregnant women can be treated for TB and HIV simultaneously. The following options can be considered:</p> <ul style="list-style-type: none"> <li>▪ EFV-based regimen is the recommended first-line treatment for patients with TB and HIV, but only if the women is in her 2<sup>nd</sup> or 3<sup>rd</sup> trimester and effective contraception is available postpartum.</li> <li>▪ NVP-based regimen can be used during the continuation phase of TB treatment as long as rifampicin is not used.</li> <li>▪ Triple NRTI regimen can be used</li> </ul> <p>The use of PIs for initial treatment is not recommended for adults with TB</p> <p>The best time to start ARV therapy in women already being treated for TB will depend upon a women's CD4 count, tolerance of TB treatment and other clinical factors.</p> <p><b>Infants</b></p> <ul style="list-style-type: none"> <li>▪ 1-week AZT</li> <li>▪ <b>OR</b> 4-weeks AZT if a women received less than 4 weeks of ARV therapy</li> </ul>

Adapted from:

- WHO. *Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants: Towards Universal Access, Recommendations for a public health approach* 2006 version. Available at: <http://www.who.int/hiv/pub/guidelines/pmtctguidelines3.pdf>
- WHO. *Antiretroviral Therapy for HIV Infection in Adults and Adolescents: Recommendations for a public health approach*. Available at: <http://www.who.int/hiv/pub/guidelines/artadultguidelines.pdf>

## **APPENDIX 3-B WHO Recommendations: Principles, Timing and Dosing of ARV Prophylaxis Regimens to Prevent MTCT**

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HIV-related treatment, care and support must be provided during the antenatal and postpartum periods. HIV-infected pregnant women with indications for starting ARV therapy should begin receiving therapy as soon as possible (see Appendix 3-A).

All HIV-exposed infants should be followed-up for diagnosis of HIV, prophylaxis of opportunistic infections and ongoing treatment, care and support.

**WHO 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 WHO recommendations:

- Giving ARV drugs during the antenatal period can prevent HIV transmission *in utero*.
- If NNRTI-based ARV therapy is started within 6 months of childbirth, mothers who received single-dose NVP (sdNVP) as ARV prophylaxis for PMTCT are at risk of sub-optimal response to therapy due to viral resistance that develops after receiving a single dose of NVP.
- Because women are at risk for developing NVP resistance after receiving sdNVP, strategies to reduce this risk are recommended.
  - The addition of a 7-day AZT/3TC tail beginning in labour and continuing postpartum

All regimens described in the table below are administered by mouth. Paediatric formulations are available for the main drugs used in current prophylactic regimens to prevent MTCT (AZT, 3TC, NVP). It is important to monitor for side effects and support maternal and infant adherence. For more information about choosing regimens see, “*Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants: Towards Universal Access, Recommendations for a public health approach 2006 version.*” Available at: <http://www.who.int/hiv/pub/guidelines/pmtctguidelines3.pdf>

## APPENDIX 3-B WHO Recommendations: Principles, Timing and Dosing of ARV Prophylaxis Regimens to Prevent MTCT *(continued)*

<b>CLINICAL SITUATION A: MOTHER PRESENTS DURING ANC</b>				
<b>REGIMEN</b>	<b>ANTENATAL</b>	<b>INTRAPARTUM</b>	<b>POSTPARTUM</b>	<b>POSTNATAL</b>
<b>Recommended when mother presents during ANC:</b> AZT + sdNVP <b>AND</b> 7 day maternal AZT + 3TC tail <sup>1</sup> beginning at the onset of labour 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	<b>Maternal:</b> AZT 300 mg twice a day for 7 days <sup>1</sup> <b>AND</b> 3TC 150 mg twice a day for 7 days <sup>1</sup>	<b>Infant:</b> sdNVP 2 mg/kg oral suspension immediately after birth <sup>2</sup>
		<b>or</b> AZT 300 mg at onset of labour and every 3 hours until delivery		<b>or</b> sdNVP 6 mg immediately after birth <sup>3</sup>
		<b>AND</b> sdNVP 200 mg at onset of labour <sup>1</sup> <b>AND</b> 3TC 150 mg at onset of labour and every 12 hours until delivery		<b>AND</b> AZT 4 mg/kg twice a day for 7 days <sup>4</sup>
<b>Alternative when mother presents during ANC:</b> AZT + sdNVP	AZT 300 mg twice a day starting at 28 weeks or as soon as possible thereafter	sdNVP 200 mg at onset of labour	<b>Maternal:</b> None	<b>Infant:</b> sdNVP 2 mg/kg oral suspension immediately after birth <sup>2</sup>
				<b>or</b> sdNVP 6 mg immediately after birth <sup>3</sup>
				<b>AND</b> AZT 4 mg/kg twice a day for 7 days <sup>4</sup>

## APPENDIX 3-B WHO Recommendations: Principles, Timing and Dosing of ARV Prophylaxis Regimens to Prevent MTCT *(continued)*

<b>CLINICAL SITUATION B: MOTHER PRESENTS DURING LABOUR</b>						
<b>REGIMEN</b>	<b>ANTENATAL</b>	<b>INTRAPARTUM</b>	<b>POSTPARTUM</b>	<b>POSTNATAL</b>		
<b>Recommended when mother presents during labour:</b> AZT + sdNVP <b>AND</b> 7 day maternal AZT + 3TC tail beginning at the onset of labour to reduce NVP resistance	None	AZT 600 mg at onset of labour	<b>Maternal:</b> AZT 300 mg twice a day for 7 days <b>AND</b> 3TC 150 mg twice a day for 7 days	<b>Infant:</b> sdNVP 2 mg/kg oral suspension immediately after birth <sup>2</sup>		
		<b>or</b>		AZT 300 mg at onset of labour and every 3 hours until delivery	<b>or</b>	sdNVP 6 mg immediately after birth <sup>3</sup>
		<b>AND</b>		sdNVP 200 mg at onset of labour <b>AND</b> 3TC 150 mg at onset of labour and every 12 hours until delivery	<b>AND</b>	AZT 4 mg/kg twice a day for 4 weeks
<b>Alternative when mother presents during labour:</b> AZT and 3TC only	None	AZT 600 mg at onset of labour	<b>Maternal:</b> AZT 300 mg twice a day for 7 days <b>AND</b> 3TC 150 mg twice a day for 7 days	<b>Infant:</b> AZT 4 mg/kg twice a day 7 days		
		<b>or</b>		AZT 300 mg at onset of labour and every 3 hours until delivery	<b>AND</b>	3TC 2 mg/kg twice a day for 7 days
		<b>AND</b>		3TC 150 mg at onset of labour and every 12 hours until delivery		

## APPENDIX 3-B WHO Recommendations: Principles, Timing and Dosing of ARV Prophylaxis Regimens to Prevent MTCT *(continued)*

<b>CLINICAL SITUATION B: MOTHER PRESENTS DURING LABOUR <i>(continued)</i></b>				
<b>REGIMEN</b>	<b>ANTENATAL</b>	<b>INTRAPARTUM</b>	<b>POSTPARTUM</b>	<b>POSTNATAL</b>
<b>Minimum when mother presents in labour:</b> Combination ARV prophylaxis during labour and postpartum to mother	None	AZT 600 mg at onset of labour	<b>Maternal:</b> AZT 300 mg twice a day for 7 days <b>AND</b> 3TC 150 mg twice a day for 7 days	<b>Infant:</b> sdNVP 2 mg/kg oral suspension immediately after birth <sup>2</sup>
		<b>or</b> AZT 300 mg at onset of labour and every 3 hours until delivery		<b>or</b> sdNVP 6 mg immediately after birth <sup>3</sup>
		<b>AND</b> sdNVP 200 mg at onset of labour <b>AND</b> 3TC 150 mg at onset of labour and every 12 hours until delivery		
<b>Minimum when mother presents in labour:</b> sd NVP	None	sdNVP 200 mg at onset of labour	None	<b>Infant:</b> sdNVP 2 mg/kg oral suspension immediately after birth <sup>2</sup> <b>or</b> sdNVP 6 mg immediately after birth <sup>3</sup>

## APPENDIX 3-B WHO Recommendations: Principles, Timing and Dosing of ARV Prophylaxis Regimens to Prevent MTCT *(continued)*

CLINICAL SITUATION C: MOTHER PRESENTS AFTER BIRTH HAVING RECEIVED NO ARVS DURING ANC OR LABOUR				
REGIMEN	ANTENATAL	INTRAPARTUM	POSTPARTUM	POSTNATAL
<b>Recommended when mother received no ARV prophylaxis during ANC or labour:</b> Infant sd NVP and AZT for 4 weeks	None	None	None	<b>Infant:</b> sdNVP 2 mg/kg oral suspension immediately after birth <sup>2</sup>
				<b>or</b> sdNVP 6 mg immediately after birth <sup>3</sup>
				<b>AND</b> AZT 4 mg/kg twice a day for 4 weeks <sup>5</sup>
<b>Alternative when mother received no ARV prophylaxis during ANC or labour:</b> Infant sd NVP and AZT for 1 week	None	None	None	<b>Infant:</b> sdNVP 2 mg/kg oral suspension immediately after birth <sup>2</sup>
				<b>or</b> sdNVP 6 mg immediately after birth <sup>3</sup>
				<b>AND</b> AZT 4 mg/kg twice a day for 1 week <sup>5</sup>
<b>Minimum when mother received no ARV prophylaxis during ANC or labour:</b> Infant sd NVP	None	None	None	<b>Infant:</b> sdNVP 2 mg/kg oral suspension immediately after birth <sup>2</sup>
				<b>or</b> sdNVP 6 mg immediately after birth <sup>3</sup>

<sup>1</sup> Omission of the maternal NVP dose can be considered when a mother has received at least 4 weeks of AZT during the antenatal period. If the maternal single dose of NVP is not given, AZT should still be given intrapartum but the 7 day AZT/3TC tail (which includes intrapartum 3TC) should not be given. The infant NVP dose should still be given immediately and AZT for 4 weeks.

<sup>2</sup> It is preferable to give sdNVP as soon as possible after delivery but it needs to be given within 72 hours. If a mother does not receive any ARV prophylaxis or if delivery occurs less than two hours after sdNVP, the infant dose needs to be given immediately after birth.

<sup>3</sup> A standard single dose of 6 mg of NVP can be given to infants of approximate normal weight of 3 kg. A standard dose can be used in situations where there is no access to a scale for measurement. However, weight-based dosing for ARV drugs is always preferable for newborns, infants and children.

<sup>4</sup> The infant regimen of AZT should be extended to 4 weeks if a mother received less than 4 weeks of AZT during the antenatal period.

<sup>5</sup> If a mother received no ARV prophylaxis during ANC or labour, ARV prophylaxis for the infant should be given within 12 hours of delivery.

Adapted from: WHO. *Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants: Towards Universal Access, Recommendations for a public health approach* 2006 version. Available at: <http://www.who.int/hiv/pub/guidelines/pmtctguidelines3.pdf>



## APPENDIX 3-C PMTCT Interventions for Women with HIV-2

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The woman infected with HIV-2 should have access to the entire range of antenatal, labour, and delivery, and postpartum PMTCT services as well as referrals to HIV care and treatment programmes for women infected with HIV-1. Offering the mother infected with HIV-2 ARV therapy or ARV prophylaxis for PMTCT should follow national guidelines.

- HIV-2 infections are predominantly found in Africa. West African nations with a prevalence of HIV-2 of more than 1% in the general population are Cape Verde, Côte d'Ivoire (Ivory Coast), Gambia, Guinea-Bissau, Mali, Mauritania, Nigeria and Sierra Leone. Other West African countries reporting HIV-2 are Benin, Burkina Faso, Ghana, Guinea, Liberia, Niger, São Tomé, Senegal and Togo. Angola and Mozambique are other African nations where the prevalence of HIV-2 is more than 1%.
- HIV-2 infection has the same modes of transmission as HIV-1 and is associated with similar opportunistic infections.
- HIV-2 can be transmitted from an infected mother to her child, but the rate of transmission is lower than with HIV-1.
- The development of immunodeficiency is slower when a person is infected HIV-2 when compared to infection with HIV-1.
- HIV-2 testing may be indicated for:
  - Sex partners of a person from a country where HIV-2 is endemic or who is known to be infected with HIV-2
  - People who received a blood transfusion or a nonsterile injection in a country where HIV-2 is endemic
  - People who shared needles with a person from a country where HIV-2 is endemic or with a person known to be infected with HIV-2
  - Children of women who have risk factors for HIV-2 infection or are known to be infected with HIV-2
  - People with an illness that suggests HIV infection (such as an HIV-associated opportunistic infection) but whose HIV-1 test result is not positive
- The best approach to clinical treatment of HIV-2 is unclear. The following factors should be considered:
  - ARV prophylaxis and therapy should be given to HIV-2 infected women to reduce the risk of MTCT.
  - Women who are infected with both HIV-1 and HIV-2 should receive ARV prophylaxis according to the national guidelines to prevent HIV-1
  - Because non-nucleoside reverse transcriptase inhibitors (NNRTIs), such as nevirapine, are not as effective against HIV-2, NRTI-based therapy should be used. Women should not receive NNRTI-based ARV therapy.
  - Response to ARV therapy is more difficult to monitor than in women infected with HIV-1.
  - Continued surveillance to monitor the spread of HIV-2 is necessary.

### Infant Feeding

The woman infected with HIV-2 should be advised to follow national infant feeding recommendations for women infected with HIV-1.

Adapted from: CDC. 2007. *Human Immunodeficiency Virus Type 2*. Available at: <http://www.cdc.gov/hiv/resources/factsheets/hiv2.htm>



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## **Module 4** Stigma and Discrimination Related to MTCT

**SESSION 1** Concepts of Stigma and Discrimination

**SESSION 2** Dealing with Stigma and Discrimination in Healthcare Settings and Communities

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**After completing the module, the participant will be able to:**

- Identify HIV-related stigma and discrimination.
- Discuss the impact of stigma and discrimination on people living with HIV (PLHIV).
- Discuss strategies to address stigma and discrimination in the delivery of PMTCT services.

<b>Exercise 4.1: Labels group game</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To help recognize the role of stereotypes in stigma.</li> </ul>
<b>Duration</b>	30 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ As you enter the room, the trainer will attach a “label” on your back. Each person will receive a label. <b>Please do not look at your label or tell anyone else what his/her label says as this will take away from the point of the exercise.</b></li> <li>▪ Before beginning the game, the trainer will review the definition of stereotype.</li> <li>▪ The trainer will ask participants to move around the room and talk with each other, pretending they are in the market. Interact with each individual as members of society might react to the person described by the label. Be sure to act out the prevailing societal attitudes, even though you would not typically act this way.</li> <li>▪ Be careful not to mention what the label says.</li> <li>▪ After about 5 minutes, you will be asked to return to your seat. You will be asked to guess what your label is (based on the reactions of the other participants) and discuss how you felt to be treated as a stereotype.</li> <li>▪ In the discussion, you will have an opportunity to identify ways to combat stereotypes and help decrease stigma in your clinical setting. You will also have an opportunity to consider how a person who is stigmatized can be empowered to reduce stigma.</li> </ul>

## SESSION 1 Concepts of Stigma and Discrimination

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**After completing the session, the participant will be able to:**

- Identify HIV-related stigma and discrimination.
- Discuss the impact of stigma and discrimination on people living with HIV (PLHIV).

### Introduction to the Concepts of Stigma and Discrimination

HIV is not only the greatest public health challenge of our time, but it is also one of the greatest human rights challenges. Those aware that they are HIV-infected are burdened not only with the disease but also stigma and discrimination. Stigma and discrimination remain major barriers to preventing HIV transmission and providing treatment, care and support to people who are HIV-infected and their families.

*The most effective responses to the HIV epidemic are those that work to prevent stigma and discrimination associated with HIV and protect the human rights of people living with HIV and those at risk.*

### Stigma

*Stigma* refers to unfavourable attitudes and beliefs directed toward someone or something.

### HIV-related stigma

HIV-related stigma refers to unfavourable attitudes and beliefs directed toward people living with HIV (PLHIV) and toward their family and friends, social groups and communities.

Stigmatizing attitudes are often directed toward the person with HIV **and** toward behaviours believed to have caused the infection. Stigma is particularly pronounced when the behaviour linked to the origin of a particular disease is perceived to be under the individual's control, such as sex work or injection drug use.

People who often are already socially outcast—poor people, men who have sex with men, sex workers and injection drug users—frequently bear the heaviest burden of HIV-related stigma. People who are HIV-infected are often assumed to be members of these groups, whether they are or not.

### Examples of stigma

- Avoiding those who attend a particular clinic, or have a particular symptom (such as weight loss), assuming they are HIV-infected (whether they are HIV-infected or not).
- Viewing HIV as divine punishment for moral misconduct and those with HIV-infection as immoral.
- Believing that women are responsible for transmitting HIV and other STIs within our community.
- Perceiving a woman with HIV as dirty and blameworthy because she is living with a truck driver.
- Hospital staff fear caring for patients with HIV infection.
- A daughter refuses to visit her father once she finds out he has HIV because she felt "dirtied" by contact with him.
- A woman with HIV refuses to join a support group or tell others outside the family about her HIV because she fears stigma.

## What is discrimination?

**Discrimination** is the treatment of an individual or group with prejudice. Discrimination includes the denial of basic human rights such as health care, employment, legal services and social welfare benefits.

Stigma and discrimination are linked. Stigma is an *attitude* directed towards someone—resulting in the reduction of that person’s status in the eyes of society. Discrimination, however, is a distinction made about a person that results in their being *treated* unfairly and unjustly; the unfair treatment is often based on stigma.

Stigmatizing thoughts can lead a person to

discriminate against another, i.e., to act or behave in a way that denies services or entitlements to another person. Discrimination is a way of expressing, either intentionally or accidentally, stigmatizing thoughts. Stigma and discrimination have been documented in association with other diseases, including tuberculosis, syphilis and leprosy. HIV-related stigma appears to be more severe than the stigma associated with other infectious diseases.

### Examples of discrimination

- HCW denies services to a person who is HIV-infected.
- Family or village rejects the wife and children of a man who has recently died from AIDS.
- A man loses his job because people learn that he is HIV-infected.
- A community rejects a woman who decides not to breastfeed because they assume the woman is HIV-infected.
- HIV-infected clients receive poor care and follow-up at a clinic because of HCWs’ fears about caring for people infected with HIV.
- Hospital staff quarantine a patient with HIV in a private infection control room.

### The three aspects of the HIV/AIDS epidemic

The challenge of stigma and discrimination has led to characterizing the HIV/AIDS epidemic as consisting of three epidemics:

- Epidemic of HIV
- Epidemic of AIDS
- Epidemic of stigma, discrimination and denial around HIV and AIDS: this aspect is as central to the global HIV and AIDS challenge as the disease itself

## Women and HIV Infection

Compared to the incidence of HIV among men, the numbers of infected women worldwide are growing more rapidly. Women are more vulnerable to HIV for many reasons:

- Poor access to maternal and child health care (MCH).
- Poor access to information about prevention and reliable prevention methods, such as condoms.
- Economic and social inequalities: in many societies, women are unable to negotiate safer sex with their partners because they lack the power to do so.
- Biological factors: in heterosexual sex, it is easier for a man to transmit HIV to a woman than for a woman to transmit HIV to a man.

The woman is often the first person in a couple to be tested for HIV and, if found to be positive, she may be blamed by her partner for introducing HIV into the family. Another factor that contributes to stigma is that women are implicated in mother-to-child transmission. Consequently, she may experience violence, loss of shelter and economic support and she may even lose the support of her family and community. All of these reasons may compel a woman to keep her HIV status secret.

UNAIDS-sponsored research in India and Uganda showed that women with HIV may be doubly or triply stigmatized—as women, as PLHIV, as the spouse of a person who is HIV-infected, or the widow of a person who died of AIDS.

The stigma and discrimination associated with women with HIV can limit access to effective prevention, care, treatment, and support services.

## **International Human Rights and HIV-related Stigma and Discrimination**

Freedom from discrimination is a basic human right that should be applied to all people without exception. According to recent United Nations Commission on Human Rights resolutions, "discrimination on the basis of HIV status, actual or presumed, is prohibited by existing human rights standards". In other words, discrimination against PLHIV or people thought to be infected is a clear violation of human rights.

A summary of the International Guidelines on HIV/AIDS and Human Rights, as agreed by the Second International Consultation (July 2002), can be found in Appendix 4-A. These guidelines urge governments to review laws, policies, systems and practices to ensure protection of the human rights of people at-risk of, or infected with, HIV.

### **Protect, respect and fulfil human rights in relation to HIV**

- All women and men have a right to make decisions about their sexual and reproductive lives and to have access to information and services that allow them to protect their own and their family's health.
- Children have a right to survival, development and health.
- Women and girls have a right to information about HIV and access to a means of protecting themselves against HIV infection.
- Women have the right to HIV testing and counselling and to know their HIV status.
- Women have a right to choose not to be tested or to choose not to be told the result of an HIV test.
- Women have a right to make decisions about infant feeding, on the basis of full information, and to receive support for the course of action they choose.

## **The Face of Stigma**

HIV-related stigma is complex, changing and deeply ingrained. The points below may provide PMTCT programmes and services with a framework for developing and implementing interventions to address HIV-related stigma and discrimination.

### **Attitudes and actions are stigmatizing**

A word, action, or belief may be unintentionally stigmatizing or discriminatory toward an individual who is HIV-infected. People are often unaware that their attitudes and actions are stigmatizing.

A person may have some behaviours that conflict with their beliefs. For example:

- A person who is opposed to stigmatization or discrimination may simultaneously believe that PLHIV behave immorally, "deserve what they get," or are being punished by God for their sins.
- A person who claims to know that HIV cannot be transmitted through casual contact may still refuse to buy food from a vendor who is HIV-infected or allow his/her family to use utensils once used by a PLHIV.

### **Choice of language may express stigma**

Language is central to how stigma is expressed. People may not realize that they are stigmatizing PLHIV with their choice of words when referring to the disease. One way that language can be stigmatizing is the use of insulting statements about those with HIV. In some countries people refer to HIV indirectly. For example, HIV is called "that disease we learned about" and PLHIV are referred to as "walking corpses," and as "those expected to die".

### **Lack of knowledge and fear foster stigma**

Knowledge and fear act together in unexpected ways that allow stigma to grow. Although most people have some understanding of HIV transmission and prevention, many lack complete or accurate knowledge about HIV. For example, many do not understand the difference between HIV and AIDS, how the disease progresses, how long people with HIV can be expected to live, or that HIV-related opportunistic infections (such as tuberculosis) are treatable and curable. Others connect an HIV-positive test result with certain death. The fear of death is so powerful that many people avoid others they suspect have HIV—even though they know that HIV is not transmitted through casual contact.

### **Shame and blame are associated with HIV**

Sexuality, morality, shame and blame are associated with HIV. Stigmatization often focuses on the sexual transmission of HIV. Many people assume that individuals who are HIV-infected must have been infected through sexual activities considered socially or religiously unacceptable. People who are HIV-infected are often believed to be promiscuous, careless, or unable to control themselves, and therefore responsible for their infection.

### **Stigma can exist even in caring environments**

Care and support can also exist with stigma. Caregivers who offer love and support to family members living with HIV may also exhibit stigmatizing and discriminatory behaviour (such as blaming and scolding). In many cases, the caregivers do not recognize this behaviour as stigmatizing.

- Stigmatizing attitudes exist even among individuals (including HCWs) who are opposed to HIV-related stigma.
- People can have both correct and incorrect information about HIV at the same time. For example, an individual's understanding of the routes of HIV transmission may be correct in some respects but incorrect in others.
- People express both sympathetic and stigmatizing attitudes toward PLHIV. For example, a HCW in the PMTCT setting refers to his/her HIV-infected clients as "those people".
- Families that provide genuine and compassionate care may sometimes stigmatize and discriminate against a family member with HIV.

<b>Exercise 4.2 Examples of stigma and discrimination: large group discussion</b>	
<b>Purpose</b>	<ul style="list-style-type: none"><li>▪ To encourage participants to consider examples of stigma and discrimination in their own settings.</li></ul>
<b>Duration</b>	10 minutes
<b>Instructions</b>	<ul style="list-style-type: none"><li>▪ The trainer will begin the discussion by asking the group for examples of stigmatizing or discriminatory messages or attitudes in the media (e.g., newspapers, television or radio programmes).</li><li>▪ Participants will then be asked to give examples of stigmatization or discrimination that they may have witnessed:<ul style="list-style-type: none"><li>▪ In healthcare settings</li><li>▪ In the workplace</li><li>▪ In the context of religion</li><li>▪ In the family or community</li></ul></li></ul>

### **Examples of stigmatization and discrimination**

#### **In the media**

- Suggesting that there are specific groups of people with HIV who are guilty (such as commercial sex workers or injection drug users) while others (such as infants) are innocent
- Portraying HIV as a death sentence, which leads to fear and anxiety, and to the belief that HIV is a disease that cannot be managed like other chronic diseases
- Showing stereotypical gender roles, which may keep women feeling powerless to influence sexual decisions and therefore increase their risk of getting HIV

#### **In healthcare settings**

- Refusing to provide treatment, care and support to PLHIV
- Providing poor quality of care for PLHIV
- Breaking confidentiality
- Providing care in specialized settings (such as clinics for people with sexually transmitted infections), which can further stigmatize and segregate PLHIV
- Using infection control procedures (such as gloves) only with clients thought to be HIV-infected, rather than with all clients
- Advising or insisting that PLHIV undergo procedures, such as abortion or sterilization that would not be routinely suggested for others who are not HIV-infected

#### **In the workplace**

- Requiring testing before hiring
- Refusing to hire people who are HIV-infected and HIV-affected
- Requiring periodic HIV testing
- Firing someone because of HIV status
- Breaking confidentiality
- Refusing to work with colleagues who are HIV-infected because of fear of getting the disease

#### **In the context of religion**

- Not letting PLHIV participate in religious traditions and rituals (such as funerals)
- Refusing to perform marriage ceremonies for PLHIV

#### **In the family and local community**

- Isolating people who are HIV-infected
- Restricting participation of PLHIV in local events
- Refusing to allow children who are HIV-infected or HIV-affected to go to local schools
- Not including partners and children of PLHIV in activities or gatherings
- Using violence against a spouse or partner who has tested HIV-positive
- Denying support for grieving family members, including orphans

## **Effects of Stigma**

### **Stigma deters disclosure and limits access to services**

Fear often drives stigma. Many people infected with HIV avoid disclosing—sharing their HIV status with others—for fear of the response from partners, other family members, friends and community. HIV-related stigma and discrimination, and a fear of unfair treatment, may discourage individuals from contacting health and social services, thereby increasing the risk of transmission to partners or children. People most in need of information, education and counselling may not benefit from these services—even when they are available. Avoiding disclosure can limit choices in health care and reduce access to support from partner(s),



family and/or friend(s). PLHIV may also avoid seeking proper care and treatment out of fear that this action is an admission to themselves and others that they are HIV-infected.

### **HIV-related stigma fuels new HIV infections**

- Stigma may deter people from getting tested for the disease.
- Stigma may make people less likely to recognize their risk of infection.
- Stigma may discourage those who are HIV-infected from discussing their HIV status with their sex partners and/or those with whom they share needles.
- Stigma may prevent PLHIV from adopting risk-reduction practices that may label them as HIV-infected. For example, a woman who is HIV-infected may not want to use replacement feeding (such as formula or animal milk), for fear people will find out she has HIV infection.

### **Stigma and discrimination can lead to social isolation**

People who are HIV-infected may face social isolation, rumours and gossip, being told to leave home, being rejected by partners and their community, and being physically and/or verbally abused. People may know about the routes of HIV transmission, but their emotional response to the disease may influence them more strongly than their knowledge.

- Someone may shake hands with several people in a room but fail to shake hands with a person whom they think “looks like they have AIDS”.
- Fear of catching the disease may lead someone to require that a person with HIV drink from a glass that no one else uses.

### **Stigma can occur by association (secondary stigma)**

The effects of stigma often extend beyond the infected individual to stigma by association, found in statements like, “If I sit near someone with AIDS, others will think that I have AIDS too”. This stigma may extend to family members of people living with HIV or others intimately involved in caring for someone with HIV, such as clinic counsellors who become known as “AIDS counsellors”.

## **Stigma and PMTCT Services**

Stigma and discrimination pose challenges to the delivery and uptake of PMTCT services. Women may avoid accepting PMTCT interventions (such as ARVs or safer infant feeding advice) because they believe they will be labelled as HIV-infected. Women tend to be very mindful of stigma because they know that if *they* are assumed to be HIV-infected, their children may, in turn, experience secondary stigma and be labelled HIV-infected as well.

### **Consequences of stigma in PMTCT settings**

As a result of HIV-related stigma and discrimination, women may avoid:

- Accessing antenatal care services
- Receiving HIV testing and, as a result, missing the opportunity to receive further PMTCT interventions
- Discussing their HIV test results with their partners and families
- Accepting PMTCT interventions such as ARV therapy and prophylaxis
- Accepting referrals to treatment, care and support services
- Using recommended PMTCT safer infant feeding practices (e.g., replacement feeding, exclusive breastfeeding, or early cessation of breastfeeding)

## **SESSION 2    Dealing with Stigma and Discrimination in Healthcare Settings and Communities**

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**After completing the session, the participant will be able to:**

- Discuss strategies to address stigma and discrimination in the delivery of PMTCT services.

### **Addressing Stigma in PMTCT Settings**

To increase participation in PMTCT services, interventions that address HIV-related stigma should be implemented. These efforts should occur at all levels:

- National
- Community
- PMTCT service
- Individual HCW

Because the community and culture in which they live influence HCWs and clients, it is essential that PMTCT programmes collaborate with the community to address HIV-related stigma and discrimination. Each programme should have set priorities for initial interventions and a plan that includes additional interventions over time.

### **National Level**

It is important to have national policies that address the human rights of PLHIV and that prioritize HIV-related prevention, treatment, care and support services. High-ranking politicians and other well-known individuals, such as television stars and musicians, may serve as leaders and role models to advocate for such legislation and promote its implementation and enforcement. The national media should be educated and engaged as an integral part of the process. It is essential to gain both formal and informal support for national initiatives; without this support, local initiatives will struggle to succeed.

### **Community Level**

#### **HIV education**

HCWs can play an important role in providing HIV information and education to members of the community, especially key opinion leaders, journalists, skilled birth attendants, traditional healers, healthcare staff in referring organizations, religious leaders and managers in private industry. Educational, informational and media campaigns can accomplish the following:

- Increase knowledge about HIV
- Raise awareness of issues faced by PLHIV
- Increase awareness of domestic violence faced by those newly diagnosed with HIV
- Communicate, through community leaders, that violence against women is inappropriate, immoral and illegal
- Encourage leaders to make their workplaces HIV-friendly e.g., implement policies that ban discrimination against PLHIV, provide flexi-time so that HIV-infected staff can attend clinic appointments and sponsor HIV education sessions for staff
- Promote PMTCT activities as a central part of HIV prevention, care and treatment
- Educate the community about PMTCT interventions (including HIV testing in pregnancy, ARV therapy and prophylaxis as well as safer infant feeding practices), stressing the importance of community and family support for PMTCT programmes
- Increase referrals to and from PMTCT services
- Secure the involvement of community members and PLHIV in organizing, developing and providing HIV prevention, education and support programmes

### **Community awareness of PMTCT interventions**

HIV education in the community increases awareness of PMTCT interventions to help men and women recognize their roles and responsibilities in protecting themselves and their families against HIV infection.

*Greater community awareness may strengthen support from the partner and other family members.* For example, families and close friends can remind those with HIV infection to take their medicines on time. If the person with HIV is pregnant, family members can help ensure that she gives birth at a health facility (rather than at home) and that she takes her ARV therapy or prophylaxis. They can also help ensure that the baby receives ARV prophylaxis, and they can support infant feeding methods that reduce the risk of HIV transmission.

### **Community partnerships**

Build partnerships with religious, educational, social and civic organizations as well as the media when developing PMTCT services. Promoting PMTCT services helps develop a broad base of support for the PMTCT initiative. Many communities have youth groups, theatre groups, home care programs and other local organizations that can help with community outreach.

### **Other community level interventions**

Additional community level interventions may include the following:

- Facilitating the exchange of information and ideas among healthcare professionals and other caregivers of PLHIV through roundtable case discussions and social activities
- Providing input into curricula for students in healthcare professions (e.g., nurses, midwives, physicians)

### **PMTCT Service Level**

HCWs and managers of the facilities in which the PMTCT interventions are based can take the lead in challenging long-held community beliefs and practices, including stigmatization of and discrimination against PLHIV and PMTCT clients.

### **Role of the PMTCT manager**

PMTCT managers play an important role in developing, implementing and enforcing policies and procedures, including those on discrimination and confidentiality. In addition, managers can help ensure that staff follow Standard Precautions, which may reduce the stigma due to fear of infection.

Examples of actions managers can take to reduce stigma and discrimination:

- Maintain policies against discriminatory hiring.
- Support workers who are HIV-infected so they continue to work.
- Implement policies that guarantee all clients receive equal treatment regardless of HIV status.
- Set up procedures for reporting discrimination.
- Discipline staff who violate the non-discrimination policy.
- Remind staff and clients of these policies and give clients a means to report discrimination without being identified.

### **Integrate PMTCT into MCH**

Integrate all PMTCT interventions into maternal child health (MCH) care services for all women. Offer HIV screening to all pregnant or recently delivered clinic attendees. Including HIV services as part of routine MCH services, helps to normalize HIV care and treatment.

### **Encourage participation of male partners**

Develop ways to increase the participation of partners in all aspects of PMTCT services. Educate partners about PMTCT interventions (including ARV therapy or prophylaxis and infant feeding practices). Stress the importance of partner testing, partner and family support in PMTCT, particularly with respect to ARV therapy, prophylaxis and infant feeding. Specific strategies will be discussed in Module 7 “Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection”.

### **Provide educational sessions**

Offer group or individual education sessions (on-site and off-site) that can help draw attention to the role that partners play in HIV transmission. Couple counselling offers another opportunity to emphasize the couple's shared responsibility for HIV prevention and PMTCT and reduce the blame that can be directed at women.

When male partners do not normally attend ANC clinics, PMTCT services should reach out to them in male-friendly settings such as workplaces, barbershops, taxi stands and sports stadiums.

### **Train healthcare workers**

Educate and train HCWs. The success or failure of a PMTCT programme depends on the attitudes, skills and experience of HCWs. Training HCWs at all levels (manager, nurse, midwife, physician, social worker, counsellor and outreach worker) is critical to the success of PMTCT programmes. Training should include:

- Complete and accurate information about the transmission of HIV and the risks factors for infection
- Activities that address HIV-related stigma

*In addition to presenting information, it is important for educational initiatives to address employee attitudes, correct misinformation, and teach the clinical skills to care for HIV-infected clients.*

Educate HCWs to better understand the perspectives and rights of PLHIV and their families. Without adequate education, staff may have irrational fears, practise inappropriate or substandard care and use stigmatizing language and behaviour. Education can also correct assumptions about the social and economic lifestyle of PLHIV and encourage participants to examine their attitudes and values.

During training, increase awareness of the language used to describe HIV, AIDS, and PLHIV. The training could include:

- Exercises designed to encourage participants to explore personal attitudes that might lead them to use stigmatizing language
- Summaries of clinic confidentiality, anti-discrimination, and infection control policies as well as grievance procedures and the consequences of not following these policies. If possible, at least one member of the PMTCT staff should have special training in HIV testing and counselling and infant feeding and additional training in screening, counselling, and referring women at risk of domestic violence.

### **Involve PLHIV in PMTCT services**

Invite PLHIV to become involved in PMTCT initiatives. Involving PLHIVs in PMTCT can help address stigma and discrimination issues, promote better understanding of and support for those with HIV infection and ensure PMTCT services better meet the needs of the clients receiving these services. PLHIV can become involved in any number of ways, as volunteers or paid staff, depending on their skill level and interests. PLHIV have become involved with local PMTCT services as, for example, peer counsellors, support group facilitators, peer

buddies, citizens' advisory bureau representatives. PLHIV may also participate in committees that review training curricula and guidelines for care.

### **Engage peer and community support**

Facilitate peer and community support. Support groups in the ANC setting provide an opportunity for pregnant women who are HIV-infected to share experiences and be linked to other support services. Facilitate such support groups by:

- Supporting mentoring programmes: South Africa's Mothers-to-Mothers-to-Be is a mentoring programme for pregnant women who are HIV-infected. Mothers who are HIV-infected and have recently given birth return to the ANC facility as mentors to educate, counsel and support pregnant women who are HIV-infected. Mother-mentors share personal experiences to encourage adherence to treatment, help with infant feeding decisions, and assist with negotiating care and support services. The mentoring has resulted in better understanding and greater acceptance of interventions to reduce MTCT.
- Encouraging peer support: Encourage PLHIV to pair up with another person—HIV-positive or HIV-negative—who can provide friendship, companionship and advice.

### **Ensure infection control**

Ensure infection control by providing all HCWs with the necessary equipment and supplies (including high quality, well-fitting gloves) needed to adhere to infection control policies and prevent transmission of HIV in the workplace (See Module 8, "Safety and Supportive Care in the Work Environment"). Use Standard Precautions with all clients regardless of assumed or established HIV status.

#### **PMTCT Manager's role in infection control**

- Ensure the facility's infection control policy is updated as necessary.
- Provide ongoing access to infection control supplies and equipment.
- Ensure staff members apply Standard Precautions at all times.
- Discipline and educate employees who breach the Standard Precautions guidelines.
- Ensure post-exposure prophylaxis (PEP) is accessible to all staff at all times in cases of accidental exposure to blood and body fluids as per national/facility policy.

### **Protect client confidentiality**

Safeguard client confidentiality by developing policies and procedures and establishing plans for implementing them. Confidentiality in healthcare facilities is also discussed in Module 5, "HIV Testing and Counselling for PMTCT". Confidentiality policies should:

- Include directions on how to record and securely store client information
- Ensure that medical files (whether paper or electronic) are not labelled to reveal HIV status
- Ensure all client consultations, from the initial contact with the receptionist to the healthcare provider, respect personal information

The confidentiality policy should emphasize that all personal conversations and consultations should take place in private settings. It should also establish:

- Critical importance of confidentiality and the effects that breaches may have on individual clients and the PMTCT service as a whole
- Guidance about when to disclose medical information to a client's family (which should only occur with the client's informed consent)
- Policies for addressing and disciplining those who breach the confidentiality policy
- Grievance procedures that clients can take to address breaches of confidentiality
- Requirements for confidentiality training

## Individual HCWs

Individual HCWs can address stigma in their work settings in a number of ways.

### Serve as role models

HCWs should ensure that they treat PLHIV as they would clients assumed to be HIV-negative. HCWs are role models and their attitudes toward PLHIV are often imitated in the community. The healthcare staff should aim to normalize all casual contacts with PLHIV. *Because HCWs are role models, it is important that they are aware of their feelings, thoughts and attitudes about HIV. It is their professional duty to ensure that these attitudes do not have a negative effect on the care provided to their clients.*

### Know the local community

Get to know the local community, which will help identify local HIV-related stereotypes and discrimination. Ensure that these misconceptions are addressed at appropriate times during service delivery.

### Advocate for women's rights

Ensure that HIV-infected women are educated about their rights and know where to turn for help, including legal advice, to challenge discrimination.

### Provide counselling and education for PLHIV

Ensure counselling and education are available for PLHIV. Counselling and education, provided either within the PMTCT service or by referral, can address HIV-related stigma. Counsellors can encourage, empower and support PLHIV to live positively with HIV. They can also support PLHIV to disclose their HIV status to family and eventually to friends. As more people disclose their HIV status, PLHIV come to be viewed as ordinary community members and this encourages community acceptance of PLHIV.

<b>Exercise 4.3 PLHIV Panel: large group discussion</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To give PLHIV an opportunity to share their experiences in the healthcare system and to help educate HCWs.</li> </ul>
<b>Duration</b>	45 minutes
<b>Instructions</b>	<p><b>Introduction</b> You will listen to a panel of people living with HIV who have been invited to speak about their experiences in their personal lives and within the healthcare system.</p> <p><b>The panel</b></p> <ul style="list-style-type: none"> <li>▪ The panel will be conducted by a facilitator, who will begin the presentation by introducing the panellists</li> <li>▪ Each panellist will have an opportunity to share his/her experiences</li> <li>▪ At the end of the presentation, you may be given time to ask any questions you may have for the panellists. Please remain compassionate and non-judgemental in your questions and be sure to thank the panellists; it may have been difficult for them to disclose their HIV status in a public forum.</li> </ul>

#### **Module 4: Key Points**

- While stigma reflects an attitude, discrimination is an act or behaviour.
- Stigma and discrimination are related. Stigmatizing thoughts can lead to discrimination and human rights violations.
- International and national human rights declarations affirm that all people have the right to be free from discrimination based on HIV status.
- HCWs have a responsibility to respect the rights of all women and men, regardless of their HIV status.
- As a result of HIV-related stigma and discrimination, women may avoid:
  - Accessing antenatal care services
  - Receiving HIV testing
  - Disclosing their HIV test results
  - Accepting PMTCT interventions
  - Accepting referrals to care, treatment and support services
  - Using recommended PMTCT safer infant feeding practices
- Stigma must be addressed at all levels including global, national, community, programme and individual. It is essential that PMTCT programmes collaborate with community leaders to address HIV-related stigma and discrimination that affects uptake of PMTCT services.
- HCWs are role models. PMTCT staff should treat PLHIV as they would clients assumed to be HIV-negative.
- PLHIV can become involved in PMTCT services in any number of ways, as volunteers or paid staff, depending on their skill level and interests.
- PMTCT staff should promote partner participation in PMTCT interventions and community support of PLHIV and their families.

## **APPENDIX 4-A International Guidelines on HIV/AIDS and Human Rights**

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### **GUIDELINE 1:**

States should establish an effective national framework for their response to HIV/AIDS, which ensures a coordinated, participatory, transparent and accountable approach, integrating HIV/AIDS policy and programme responsibilities across all branches of government.

### **GUIDELINE 2:**

States should ensure, through political and financial support, that community consultation occurs in all phases of HIV policy design, programme implementation and evaluation and that community organisations are enabled to carry out their activities, including in the field of ethics, law and human rights, effectively.

### **GUIDELINE 3:**

States should review and reform public health laws to ensure that they adequately address public health issues raised by HIV/AIDS, that their provisions applicable to casually transmitted diseases are appropriately applied to HIV/AIDS and that they are consistent with international human rights obligations.

### **GUIDELINE 4:**

States should review and reform criminal laws and correctional systems to ensure that they are consistent with international human rights obligations and are not misused in the context of HIV/AIDS or targeted against vulnerable groups.

### **GUIDELINE 5:**

States should enact or strengthen anti-discrimination and other protective laws that protect vulnerable groups, people living with HIV/AIDS and people with disabilities from discrimination in both the public and private sectors, ensure privacy and confidentiality and ethics in research involving human subjects, emphasize education and conciliation and provide for speedy and effective administrative and civil remedies.

### **GUIDELINE 6:**

States should enact legislation to provide for the regulation of HIV-related goods, services and information, so as to ensure widespread availability of qualitative prevention measures and services, adequate HIV prevention and care information, and safe and effective medication at an affordable price.

### **GUIDELINE 7:**

States should implement and support legal support services that will educate people affected by HIV/AIDS about their rights, provide free legal services to enforce those rights, develop expertise on HIV-related legal issues and utilise means of protection in addition to the courts, such as offices of ministries of justice, ombudspersons, health complaint units and human rights commissions.



## **APPENDIX 4-A International Guidelines on HIV/AIDS and Human Rights** *(continued)*

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### **GUIDELINE 8:**

States, in collaboration with and through the community, should promote a supportive and enabling environment for women, children and other vulnerable groups by addressing underlying prejudices and inequalities through community dialogue, specially designed social and health services and support to community groups.

### **GUIDELINE 9:**

States should promote the wide and ongoing distribution of creative education, training and media programmes explicitly designed to change attitudes of discrimination and stigmatization associated with HIV/AIDS to understanding and acceptance.

### **GUIDELINE 10:**

States should ensure that government and the private sector develop codes of conduct regarding HIV/AIDS issues that translate human rights principles into codes of professional responsibility and practice, with accompanying mechanisms to implement and enforce these codes.

### **GUIDELINE 11:**

States should ensure monitoring and enforcement mechanisms to guarantee the protection of HIV-related human rights, including those of people living with HIV/AIDS, their families and communities.

### **GUIDELINE 12:**

States should cooperate through all relevant programmes and agencies of the United Nations system, including UNAIDS, to share knowledge and experience concerning HIV-related human rights issues and should ensure effective mechanisms to protect human rights in the context of HIV/AIDS at international level.

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Source: OHCHR, UNAIDS. 2006. *International Guidelines on HIV/AIDS and Human Rights, 2006 Consolidated Version*. Available at: [http://data.unaids.org/Publications/IRC-pub07/JC1252-InternGuidelines\\_en.pdf](http://data.unaids.org/Publications/IRC-pub07/JC1252-InternGuidelines_en.pdf)

## APPENDIX 4-B Alternative Exercise 4.3

Alternative Exercise 4.3 Stigma and discrimination case study in small groups	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To explore our own feelings and attitudes about HIV-related stigma and discrimination.</li> <li>▪ To discuss any breaches of confidentiality in a healthcare setting that may have contributed to stigma and discrimination.</li> <li>▪ To consider ways that HIV-related discrimination can be combated.</li> </ul>
<b>Duration</b>	45 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ Participants will be divided into <b>four</b> small groups as follows:           <ul style="list-style-type: none"> <li>▪ First group: should take on the role of HCWs and discuss the issues of stigma and discrimination from the perspective of the <b>individual HCW</b>.</li> <li>▪ Second group: should take on the role of <b>PMTCT site managers</b>. They should address the case as if the patient (Fay) made a formal complaint against the agency and its staff.</li> <li>▪ Third group: should take on the role of <b>community, town or district leaders</b>. They should address the case as if the story was on the front page of the local newspaper and, as local leaders, they under pressured from the national government to explain what happened.</li> <li>▪ Fourth group: should take on the role of <b>national leaders</b>. They should address the case as if the story was on the front page of a national newspaper and they, as national leaders, are concerned about international criticism.</li> </ul> </li> <li>▪ In your small group, you will have 25 minutes to discuss the case study as the questions for your specific group (both the case study and questions are below).</li> <li>▪ After reconvening as a large group, one person from each of the small groups will summarize the primary points of their small group discussion.</li> </ul>

## APPENDIX 4-B Alternative Exercise 4.3

### Case study

Two PMTCT nurses, Joan and Yvette, were in the ANC clinic break room. Their conversation started with the usual discussion about family and children and evolved into a discussion about Fay, a client they saw earlier in the day. The two nurses couldn't help but discuss the fact that Fay, who is now 5 months pregnant with her first child, was just diagnosed with HIV. They also wondered whether Fay's husband (a prominent national leader) is also HIV-infected—and if he is, where he got infected.

The nurses were unaware that the window in the break room was open to the outside courtyard, where Eunice, an afternoon ANC client, was waiting for her appointment. Eunice, who was related to Fay by marriage, went straight home after her appointment and told her husband about Fay's HIV diagnosis. The next day Eunice's husband told a friend at work who, a week later, mentioned the story in front of Fay's husband. Fay's husband went home that night, accused Fay of being HIV-infected and told her to leave the house.

### Questions to consider:

Group	Question 1	Question 2	Question 3	Question 4
<b>Group 1: Individual HCWs</b>	What issues does this raise in terms of how you, as a HCW, ensure that you and your colleagues adhere to the spirit and letter of PMTCT policies? What could you, as a colleague, have done to prevent this?	What else can you, as a HCW, do to reduce the kind of stigma and discrimination faced by Fay and her husband (and, indirectly, her child)?	What training do you wish you had to better understand how to adhere to the policies?	What barriers to the implementation of your suggestions do you foresee? How can these barriers be overcome?
<b>Group 2: PMTCT site managers</b>	What issues does this raise in terms of how national and local PMTCT policies are enforced in your clinic? What could you, as a site manager, have done to prevent this?	What other facility-based initiatives should be implemented to reduce the stigma and discrimination faced by Fay and her husband (and, indirectly, her child)?	What training should be provided to ensure staff in my clinic adhere to the policies?	What barriers to the implementation of your suggestions do you foresee? How can these barriers be overcome?
<b>Group 3: Community, town or district leaders</b>	What issues does this raise in terms of community or local PMTCT? Or how national policy is implemented locally? What could you, as a local leader, have done to prevent this?	What other community-based initiatives could be implemented to reduce the stigma and discrimination faced by Fay and her husband (and, indirectly, her child)?	What training should be recommended to ensure staff working in our community's health facilities adhere to the policies?	What barriers to the implementation of your suggestions do you foresee? How can these barriers be overcome?
<b>Group 4: National Leaders</b>	What issues does this raise in terms of national PMTCT policies? Are there existing policies that should have prevented this? If not why not? If so, why did they fail? What could you, as a national leader, have done to prevent this?	What other national-led initiatives could be implemented to reduce the stigma and discrimination faced by Fay and her husband (and, indirectly, her child)?	What training should be recommended to ensure national health service staff adhere to the policies?	What barriers to the implementation of your suggestions do you foresee? How can these barriers be overcome?



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## Module 5 HIV Testing and Counselling for PMTCT

<b>SESSION 1</b>	Overview of HIV Testing and Counselling for PMTCT
<b>SESSION 2</b>	Counselling Skills
<b>SESSION 3</b>	Pre-test Information and Counselling
<b>SESSION 4</b>	HIV Testing
<b>SESSION 5</b>	Post-test Counselling

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**After completing the module, the participant will be able to:**

- Discuss the integration of HIV testing and counselling into settings where PMTCT services are provided.
- Discuss the three guiding principles for testing and counselling in settings where PMTCT services are provided.
- Explain the difference between provider- and client-initiated approaches to HIV testing.
- Describe the importance of effective communication and counselling skills when working in settings where PMTCT services are provided.
- Describe the ways to deliver pre-test information and counselling.
- Provide pre-test information.
- Provide an overview of HIV testing of women with unknown status in labour and delivery (L&D) settings.
- Describe HIV testing processes.
- Understand the procedures to perform a rapid HIV test correctly.
- Explain the meaning of positive (reactive) and negative (non-reactive) HIV test results.
- Describe the steps involved in post-test counselling.
- Discuss the disclosure process for women who are HIV-infected.

# SESSION 1 Overview of HIV Testing and Counselling for PMTCT

## After completing the session, the participant will be able to:

- Discuss the integration of HIV testing and counselling into settings where PMTCT services are provided.
- Discuss the three guiding principles for testing and counselling in settings where PMTCT services are provided.
- Explain the difference between provider- and client-initiated approaches to HIV testing.

## HIV Testing and Counselling

HIV testing provides a woman with information about her HIV status. Offering testing and counselling to pregnant or recently-delivered women provides an opportunity to identify women with HIV and empower them to make decisions to prevent MTCT and to identify women who are HIV negative and empower them to remain negative. To provide the maximum opportunity for women to benefit from PMTCT interventions, WHO recommends provider-initiated **HIV testing and counselling** as a standard part of antenatal care (ANC), labour and delivery and post-delivery care.

HIV testing and counselling offered as early as possible during pregnancy enables pregnant women to benefit from prevention, treatment and care and to access interventions for reducing transmission of HIV to their infants.

**HIV testing** refers to the process of determining whether or not a client is infected with HIV.

**HIV counselling** is the confidential dialogue between an individual or a couple and a healthcare worker (HCW) to help clients examine their risk of acquiring or transmitting HIV infection.

HIV counselling is tailored to the risk behaviour, circumstances and special needs of the client. The counselling session can improve a client's understanding of HIV and help the client make informed choices about HIV prevention and treatment.

In this module, the term **counselling** refers to discussions between HCWs and clients specific to HIV, HIV prevention, PMTCT and HIV testing. **Counsellors** in the PMTCT context may be HCWs such as nurses, midwives, doctors and social workers.

## Advantages of Testing and Counselling for PMTCT

The primary advantage of HIV testing and counselling is that it provides clients with an opportunity to learn their HIV status.

For women who test HIV-negative, HIV testing and counselling in PMTCT settings should provide:

- Information and support to remain uninfected
- Information and support to exclusively breastfeed for six months

For pregnant women who are HIV-infected, HIV testing and counselling in PMTCT settings provides an opportunity to:

- Receive appropriate and timely interventions to reduce MTCT including:
  - ARV therapy or prophylaxis
  - Information about delivering with a skilled birth attendant

- Provision of information on infant feeding options and infant feeding counselling and support
- Provision of (or referral for) prevention, treatment, care and support for women infected with HIV, their infants and their families
- Discuss the importance of partner testing and prevention
  - Discordance
  - Disclosure and partner referral
  - Prevention of sexual transmission of HIV
- Receive information on available treatment, care, nutrition, family planning and support services
- Learn about the importance of continuous health care
- Learn about the needs of HIV-exposed children:
  - HIV testing of infants and children
  - Co-trimoxazole prophylaxis
  - Referral of older children for HIV testing
- Make informed decisions about their pregnancy

## Guiding Principles for Testing and Counselling in PMTCT Settings

The guiding principles for testing and counselling in PMTCT settings are:

- Confidentiality
- Informed consent
- Post-test support and services

### Confidentiality

Maintaining confidentiality is an important responsibility of all HCWs and is essential to establishing and maintaining client trust. Information that is shared between HCWs and clients must be kept private.

Clients should be informed that personal and medical information, including HIV test results, may only be disclosed to other HCWs in order to ensure that the client receives the appropriate medical care. HCWs should emphasize, however, that only those directly involved in the client's care will have access to the medical records—and only on a “need-to-know” basis. Anyone not directly involved in a client's care, for example, a receptionist at an ANC clinic, should not have access to client medical records because they do not need to know a women's HIV status to perform their job.

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

### Informed consent

The client must give informed consent before being tested. Informed consent is the process during which clients receive clear and accurate information about HIV testing in order to make an informed decision about whether to accept or decline testing. It is the responsibility of the HCW obtaining informed consent to make certain that the following elements of informed consent are addressed:

- Ensure an understanding of the purpose and benefits of testing, counselling and PMTCT services.
- Ensure an understanding of the testing and counselling process.
- Respect for the client's testing decision.

In settings where HIV testing is offered routinely, as part of a “provider-initiated” approach, (see next section for more information on “provider-initiated” and “client-initiated” approaches), written informed consent may not be required.

### Post-test counselling support and services

The result of HIV testing should always be offered in person as part of an individual (or couple) post-test counselling session. Along with the result, appropriate post-test information, counselling and referral should also be offered.

- HIV test results and post-test counselling must be given to all women. HIV-negative women need test results and counselling that includes prevention messages, including information about safer sex practices and information and support to exclusively breastfeed.
- HCWs should ensure privacy when providing HIV test results. Whenever possible, test results should be provided in a private area or room.
- HCWs should reassure the client that the post-test conversation and the test results will be kept confidential.
- During the post-test counselling session, HCWs should inform the client that follow-up treatment, care and support are available, including support for disclosure when needed.

<b>Exercise 5.1 Confidentiality role play: large group discussion</b>	
<b>Purpose</b>	<ul style="list-style-type: none"><li>▪ To review and apply the principle of confidentiality in a post-test situation where the client tests positive for HIV.</li></ul>
<b>Duration</b>	10 minutes
<b>Instructions</b>	<ul style="list-style-type: none"><li>▪ Refer to the confidentiality role play script below this exercise.</li><li>▪ The trainer will ask for two participant volunteers to take part in a role play; one will play the part of a HCW (Mrs. Johnson) and the other a client (Mary).</li><li>▪ After the role play, the trainer will lead a discussion using the following questions:<ol style="list-style-type: none"><li>1. Why is Mrs. Johnson, the HCW, concerned about not having a separate space to meet with Mary, the client?</li><li>2. How do you think Mary felt about this space and the privacy of this space?</li><li>3. Is the space appropriate for this interaction?</li><li>4. What can be done to improve privacy in this space?</li><li>5. What can HCWs and clinics do to keep a client's HIV status confidential?</li><li>6. What other breaches of confidentiality occurred during this role play? How should this be addressed in the clinic?</li><li>7. Ask participants if they were Mary, would they come back for their next ANC appointment?</li></ol></li></ul>

<b>Exercise 5.1 Confidentiality role play: large group discussion</b>	
<p><b>Introduction:</b> Mary is returning to the ANC clinic for a follow-up visit after receiving a positive HIV test result. Today, she is 4 months pregnant. The HCW, Mrs. Johnson, is very busy this morning and is expecting the rest of the day to be at least as busy. She has asked the receptionist to organize the HIV reports. While organizing the reports, the receptionist recognizes Mary's name and notices that Mary just tested HIV-positive.</p> <p>When Mary arrives for her appointment, she notices that some of the HCWs are looking at her and whispering. When Mrs. Johnson calls Mary for her appointment, they are forced to sit in a corner of the waiting room because all of the client rooms are occupied.</p>	
Mrs. Johnson	Hello, Mary. I am glad to see you here for your follow-up appointment. Please sit down.
Mary	<p>Hello, Mrs. Johnson. I have been so sad and nervous about my recent positive HIV test. What does this mean for me and my family?</p> <p><i>Mary looks around and is very uncomfortable because she thinks other clients can hear her.</i></p>
Mrs. Johnson	I wish we had a private office to sit in Mary, but space is so limited here. I am certain that no one will hear us talking back here.
Mary	I just want you to know, Mrs. Johnson, that if my husband finds out, he will be extremely angry. Please tell me what to do.
Mrs. Johnson	<p>I'm sorry, Mary. I hear you saying that telling your husband your HIV status will be a very difficult thing to do.</p> <p><i>She pauses, giving Mary a chance to hear what she has just said.</i></p> <p>I know this is very difficult for you, but I am here to help you through this. Let us talk about your concerns around telling your husband.</p>
Mary	<p>Oh, Mrs. Johnson, what will I do? My husband and I were so excited about this pregnancy. Before we were married, I had another boyfriend, and I didn't always use protection.</p> <p><i>Mary starts to cry. All of the clinic staff are now watching Mary.</i></p>
Mrs. Johnson	You must be feeling very overwhelmed right now, Mary. Please know that everything you tell me will be held in strict confidence, including your test results. Let's now discuss some of the concerns you have about disclosing to your husband. Will that be ok?

## **“Provider-initiated” and “Client-initiated” Approaches to HIV Testing in PMTCT Settings**

HIV testing strategies and guidelines differ depending on the setting in which testing and counselling occurs. The protocols for HIV testing at voluntary counselling and testing (VCT) centres differ from the diagnostic testing protocols in hospital settings, which are also different from the HIV testing protocols in PMTCT settings. There are two approaches to HIV testing. Both approaches include the provision of basic information to the client about HIV and the risks and benefits of testing. The approaches differ in how clients agree to be tested. The differences are summarized as follows.

### **Provider-initiated approach**

In the provider-initiated approach, HIV testing is offered as a routine part of standard care much like syphilis screening in ANC. This approach, also referred to as “opt-out”, allows all women to be provided with pre-test information, tested for HIV and counselled unless they specifically decline to be tested or “opt-out”. The client is given information about the HIV



test and an opportunity to decline the test. This information may be provided individually or in a group. The provider-initiated approach emphasizes that HIV testing is an expected part of care (ANC, L&D and/or post-delivery). However, testing is still voluntary under the provider-initiated approach—the client has a right to decline testing.

### Client-initiated approach

In the client-initiated (also referred to as “opt-in”) approach, the client also receives information about HIV testing. After receiving the information, the client is given the choice of refusing or consenting to an HIV test. This option is presented in a neutral, supportive manner. Only women who specifically request to be tested or “opt-in” are tested, and their informed consent—written or verbal—must be clearly given or stated. The client-initiated approach requires an active step by the individual client to agree to be tested.

Provider-initiated	Client-initiated
<ul style="list-style-type: none"> <li>▪ Client receives information about HIV testing (either in a group or on an individual basis)</li> <li>▪ Client is given the opportunity to ask questions and the healthcare provider ensures that the client understands HIV testing in the context of PMTCT</li> <li>▪ <b>Unless client declines, HIV test is performed.</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Client receives information about HIV testing in PMTCT (either in a group or on an individual basis)</li> <li>▪ Client is given the opportunity to ask questions and the healthcare provider ensures that the client understands HIV testing in the context of PMTCT</li> <li>▪ <b>Client specifically requests the HIV test and gives verbal or written consent.</b></li> </ul>

### Preferred testing strategy: provider-initiated

The provider-initiated approach is recommended for HIV testing and counselling in the ANC, L&D and post-delivery settings. Provider-initiated testing helps normalize HIV testing and makes the test a standard component of ANC, L&D and post-delivery care. It is likely to increase the number of women who test for HIV.

**Staff in settings where HIV testing is undertaken, whether provider or client-initiated, must adhere to the guiding principles of testing and counselling (informed consent, confidentiality and the provision of post-test services).**

## SESSION 2 Counselling Skills

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**After completing the session, the participant will be able to:**

- Describe the importance of effective communication and counselling skills when working in settings where PMTCT services are provided.

### Role of the HCW in Counselling

Counselling is a way of working with people during which the HCW, or counsellor, understands how the client feels and helps the client to decide what they think is best to do in their situation. The role of an HCW during counselling is to support and assist the client's decision-making process by:

- Listening to the client
- Understanding the choices that need to be made
- Helping the client explore her/his circumstances and options
- Helping the client develop self-confidence, enabling her/him to carry out the decision made

The HCW is not responsible for solving all of the client's problems. The HCW is not responsible for the client's decisions. This session will first summarize the process of counselling and then the six listening and learning skills as the basis of communication skills for counselling.

### Counselling Skills for HCWs

#### Active listening

Active listening helps to establish trust and a relationship with the client. Active listening helps the HCW gather information and helps the client assume responsibility. It is important for the client to know that she has the whole attention of the HCW, not just physical presence but psychological and emotional attention. Active listening involves:

- Listening to and understanding the client's verbal messages
- Observing and taking note of the client's non-verbal behaviour—posture, facial expressions, movement, tone of voice
- Listening for the client's social and cultural context—trying to understand the client as a whole person and to be sensitive to her social setting.
- Listening to the client's negative comments or feelings—make note of things the client says that may have to be challenged

Barriers to active listening should be avoided. A counselling session should not be interrupted by phones, note-taking, noises or visitors.

#### Self-awareness

Listening and counselling requires that the HCW is aware of their strengths and weaknesses as HCWs, as well as their fears or anxiety about HIV. HCWs who counsel should strive to be self-aware and to understand how others affect them and their effect on others.

### Self-awareness: consider your responses to these questions

- What are my expectations of my clients?
- How do I feel about discussing HIV infection and AIDS?
- What are my feelings about people with HIV infection or AIDS?
- What are my feelings about people whose behaviour has placed them at risk?
- Which sexual practices would I find most difficult to talk about?
- Will I be judgemental of clients whose values, beliefs, attitudes, fears and views differ from mine?
- Am I ready to let clients make their own decisions?

## Listening and Learning Skills

The HCW uses verbal and non-verbal listening and learning skills to help clients through their process of exploration, understanding and action. These skills include:

- Use helpful non-verbal communication
- Ask open-ended questions
- Use responses and gestures that show interest
- Reflect back what the mother says
- Empathize—show that you understand how she feels
- Avoid words that sound judging.

Each of these skills is described in more detail below.

### Skill 1: Use Helpful Non-verbal Communication

Non-verbal communication refers to all aspects of a message that are not conveyed by the literal meaning of words. It includes the impact of gestures, gaze, posture and expressions capable of substituting for words and conveying information. Non-verbal communication reflects attitude. Helpful non-verbal communication encourages the client to feel that the HCW is interested in her, so it facilitates communication.

Non-verbal behaviour that conveys caring	
<b>R</b>	A relaxed and natural attitude with clients is important. Do not move around quickly or chat nervously.
<b>O</b>	Open posture should be adopted. Crossing one's legs or arms can signal that you are critical of what the client is saying or are not listening. Using an open posture shows that you are open to the client and to what the client is saying.
<b>L</b>	Leaning forward toward the client at times is a natural sign of involvement.
<b>E</b>	Culturally appropriate eye contact should be maintained to communicate interest; never stare or glare at the client.
<b>S</b>	Sitting squarely facing another person shows involvement. If for any reason this may be threatening, then sitting to the side is an option.

These physical behaviours convey respect and genuine caring. However, these are guidelines, and should be adapted based on cultural and social expectations.

### Skill 2: Ask Open-ended Questions

Asking questions helps the HCW to identify, clarify and break down problems into smaller, more manageable parts. Questioning involves the use of open-ended questions that begin with “how”, “what”, “when”, “where” or “why”. Open-ended questions encourage responses

that lead to further discussion. Whereas closed-ended questions tell a mother the answer that you expect, and she can answer them with a “Yes” or “No”. They usually start with words like “are you?”, “did he?”, “has he?”, “does she?”

HCWs should try to avoid questions that have a yes or a no answer. For example, instead of asking, “Are you concerned about your HIV test results?” a HCW may ask, “What concerns do you have about your HIV test?” Or, instead of “Did you breastfeed your last baby?” a HCW may ask “How did you feed your last baby?”

### **Skill 3: Use Gestures and Responses that Show Interest**

Another way to show that you are interested and encourage a client to talk is to use gestures such as nodding and smiling, responses such as “Mmm”, or “Aha” and skills such as clarifying and summarizing. These skills, also referred to as attending skills, demonstrate that the HCW is actively listening to the client. These behaviours invite the client to relax and talk about herself and her problems.

#### **Clarifying**

Prevents misunderstanding and helps sort out what has been said. For example, if a client says, “I can’t exclusively breastfeed my baby,” the HCW may ask, “In what way is exclusive breastfeeding a concern for you?”

#### **Summarizing**

Summarizing pulls together themes of the counselling discussion so that the client can see the whole picture. It also helps to ensure that the client and the HCW understand each other.

- HCW should review the important points of the discussion and highlight any decisions made.
- HCW can summarize key points at any time during the counselling session, not only at the end.

Summarizing can offer support and encouragement to clients to help them carry out the decisions they have made.

### **Skill 4: Reflect Back What the Mother Says**

Reflecting back, also referred to as paraphrasing, means repeating back what a client has said to encourage her to say more. Try to say it in a slightly different way. For example, if a client says, “I’m not able to tell my partner about my HIV test result,” the HCW may paraphrase by saying, “Talking to your partner about your result sounds like something that you are not comfortable doing.” The HCW can then say, “Let’s talk about that”. Another example is if the client says: “I don’t know what to give my child, she refuses everything.” The HCW might reflect these feelings back by saying: “Your child is refusing all the food you offer her?”

Reflecting back shows that the HCW is actively listening, encourages dialogue and gives the HCW an opportunity to understand the client’s feelings in greater detail.

### **Skill 5: Empathize—Show that You Understand How She Feels**

Empathy or empathizing is a skill used in response to an emotional statement. Empathy shows an understanding of how the client feels and encourages the woman to discuss the issue further. For example if a client says, “I just can’t tell my partner that I have HIV,” the HCW could respond by saying “You sound like you are afraid to tell your partner your HIV test result.” Another example is if the client says: “My baby wants to feed very often and it makes me feel so tired,” the HCW could respond by saying: “You are feeling very tired all the

time then?” If the HCW responds with a factual question, for example, “How often is he feeding? What else do you give him?” the HCW is not empathizing.

## Skill 6: Avoid Words that Sound Judging

Judging words are words like: right, wrong, well, badly, good, enough, properly. If a HCW uses these words when asking questions, the HCW may make a client feel that she is wrong, or that there is something wrong with her baby. However, sometimes a HCW needs to use the “good” judging words to build a mother’s confidence (see box below for examples of “good” judging words and actions).

<b>Building confidence and giving support</b>	
<ul style="list-style-type: none"> <li>▪ Accept what a mother thinks and feels: respond in a neutral way, don’t agree or disagree. “Reflecting back” and “responses and gestures that show interest” are both useful ways to show acceptance.</li> <li>▪ Recognize and praise what a mother and baby are doing right: HCWs are trained to look for problems and try to correct them. HCWs must learn to look for and recognize what clients do right and should praise or show approval of the good practices.</li> <li>▪ Give appropriate practical help, for example, give her a drink or something to eat, hold or entertain her child while she gets comfortable.</li> <li>▪ Give a little, relevant information: tell the client things that she can do today, not in a few weeks time Try to give only one or two pieces of information at a time, especially if the client is tired, and has already received a lot of advice.</li> <li>▪ Use simple language: remember that most people do not understand the technical terms that HCWs use.</li> <li>▪ Make one or two suggestions, not commands: suggest what she could do differently, then she can decide if she will try it or not. This leaves her feeling in control, and helps her to feel confident.</li> </ul>	

<b>Exercise 5.2 Listening and learning skills: demonstration (in the large group) and practice (in small groups)</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To practise listening and learning skills.</li> </ul>
<b>Duration</b>	60 minutes
<b>Instructions:</b>	<p><b>Part 1—Demonstration in large group</b></p> <ul style="list-style-type: none"> <li>▪ Refer to Appendix 5-A, Listening and Learning Skills Checklist, and use the list as you observe the demonstration.</li> <li>▪ The trainer will ask for a volunteer from the group to role play a client as the trainer demonstrates basic listening and learning skills.</li> <li>▪ After the demonstration, the trainer will take 5 minutes to lead a discussion; during this time you will be asked to share your observations.</li> </ul> <p><b>Part 2—Small group practice</b></p> <ul style="list-style-type: none"> <li>▪ Participants will be divided into groups of three.</li> <li>▪ Within your groups, you will be asked to identify:               <ul style="list-style-type: none"> <li>▪ A “HCW,” “client” and “observer” for your group</li> <li>▪ Also identify someone to record key points observed from the role play on flipchart paper. Key points should focus on things that the “HCWs” did to improve their counselling. The recorder</li> </ul> </li> </ul>

<b>Exercise 5.2 Listening and learning skills: demonstration (in the large group) and practice (in small groups)</b>	
	<p>should be prepared to report the observations to the larger group.</p> <ul style="list-style-type: none"> <li>▪ Each group will practise the listening and learning skills demonstrated using the Appendix 5-A checklist as a reference. <ul style="list-style-type: none"> <li>▪ The “client” will take 5 minutes to talk to the “HCW” about their concerns about HIV. The “client” can make up a story based on a scenario in the clinic or use one of the role plays below.</li> <li>▪ The “HCW” will practise as many of the listening and learning skills possible.</li> <li>▪ After 5 minutes, the exercise will be stopped and the “observer” will be asked to provide feedback on each of the skills and techniques observed using the Listening and Learning Skills Checklist (4 minutes will be allowed for this feedback).</li> <li>▪ This process will be repeated and roles rotated until everyone has had an opportunity to be a “HCW”. <b>Roles should be rotated every 9-10 minutes!</b></li> </ul> </li> </ul> <p><b>Part 3—Presentation and discussion</b></p> <ul style="list-style-type: none"> <li>▪ The trainer will ask all participants to rejoin the larger group</li> <li>▪ The recorder from each group will report key findings from their group with a focus on what HCWs can do to improve their counselling skills.</li> <li>▪ The trainer will then lead an interactive discussion to generate more ideas on possible ways to improve listening and learning skills.</li> </ul>

### **Exercise 5.2 Listening and learning skills: demonstration (in the large group) and practice (in small groups), optional role plays**

Participants can either make up a story based on a real-life scenario from the clinic or use one of the role plays below.

#### **Role play 1**

Matilda is at ANC for the first time. She is 16, still in school, and just found out that she is pregnant. She is concerned that being pregnant will mean giving up her dream of becoming a nurse.

#### **Role play 2**

Catherine is pregnant with her first baby and has found out she has HIV. She says: “I am so frightened that my mother-in-law might find out”.

#### **Role play 3**

Maia is 25 weeks pregnant. She is very concerned that this baby, her fifth in eleven years, will be more than she can handle, particularly as her mother-in-law is no longer well enough to help and her sister is extremely ill with AIDS.

#### **Role play 4**

Angelique is 18 weeks pregnant with her second child. She has been extremely nauseous for the last three months and is worried that she will have to quit her job within the month if she doesn't start feeling better. She is the sole wage-earner in the family, so her income is essential to the family's well being.

## Common Mistakes

The principles of listening and learning are easy to learn but difficult to apply. Some common mistakes include:

- Controlling the discussion, instead of encouraging the client's open expression of feelings and needs.
- Judging the client—making statements that show that the client does not meet the HCW's standards.
- Preaching to a client—telling clients how they should behave or lead their lives, for example, saying: “you never should have trusted that guy, now you have created a big problem for yourself.”
- Labelling a client instead of finding out their individual motivations, fears or anxieties.
- Reassuring a client without even knowing his or her health status—for example, telling a client, “you have nothing to worry about”.
- Not accepting the client's feelings—saying “you shouldn't be upset about that”.
- Advising, before the client has collected enough information or taken enough time to arrive at a personal solution.
- Interrogating—asking accusatory questions. Questions that start with “why...?” can sound accusatory.
- Encouraging dependence—increasing the client's need for the HCW's presence and guidance.
- Persuading or coaxing—trying to get the client to accept new behaviour by flattery or fakery. “I know you are a smart girl and you will just break up with your boyfriend, like I have told you.”

## SESSION 3 Pre-test Information and Counselling

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**After completing the session, the participant will be able to:**

- Describe the ways to deliver pre-test information and counselling.
- Provide pre-test information.
- Provide an overview of HIV testing of women with unknown status in labour and delivery (L&D) settings.

### Steps in Testing and Counselling for PMTCT

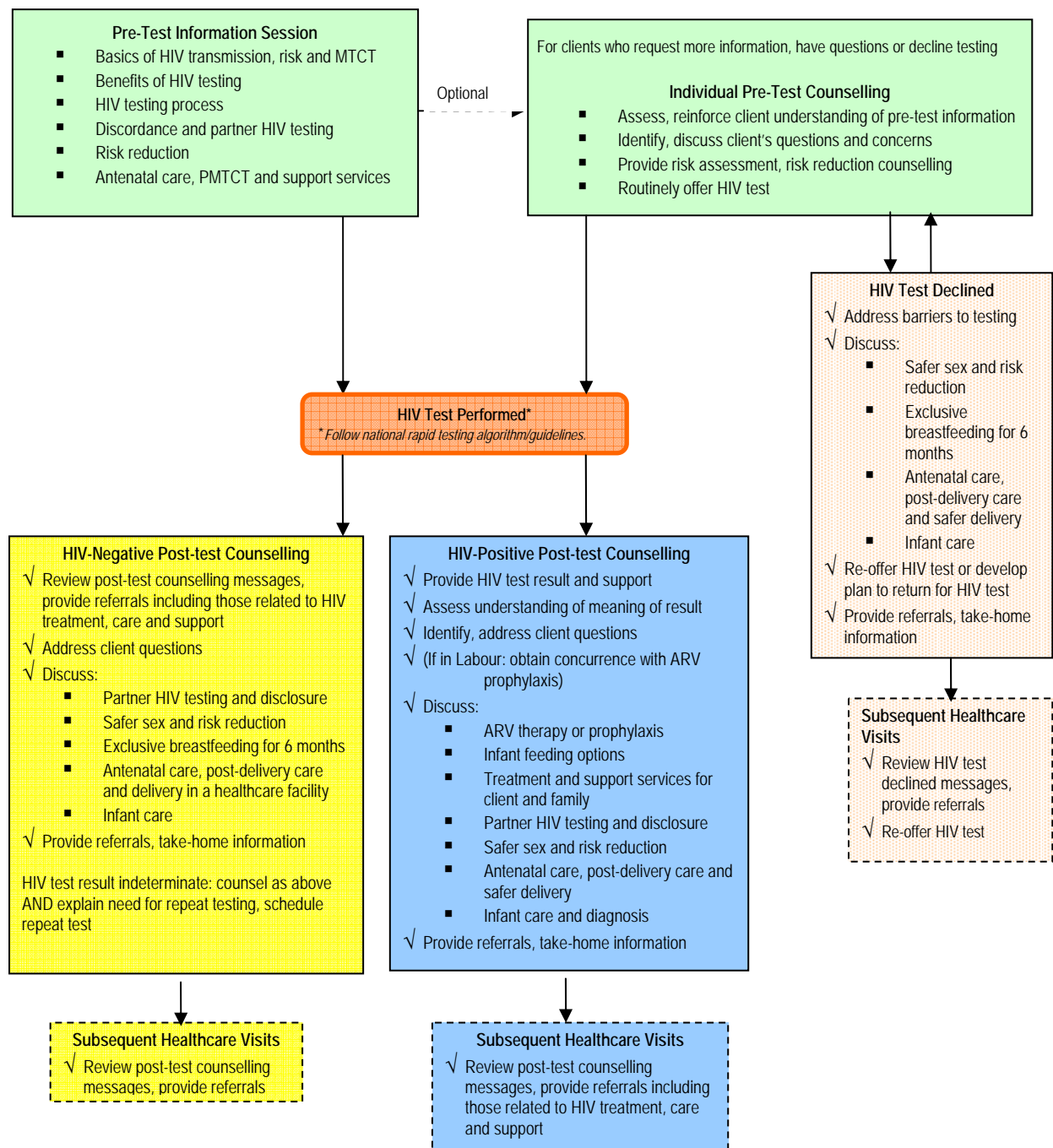
The steps in testing and counselling for PMTCT are summarized in Figure 5.1<sup>1</sup>. Each step of this process will be discussed in more detail in the next sessions of this module.

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<sup>1</sup> Figure 5.1 is adapted from: CDC, WHO, UNICEF, USAID. 2005. *Testing and Counselling for Prevention of Mother-to-Child Transmission of HIV (TC for PMTCT) Support Tools*. Available at: <http://www.womenchildrenhiv.org/wchiv?page=vc-10-00>



**Figure 5.1 Testing and Counselling for PMTCT Protocol for Antenatal Care Settings**



## Pre-test Information

The purpose of the pre-test session in PMTCT settings is to provide the woman or couple with adequate information to make an informed decision about HIV testing.

The objectives of the pre-test session in all PMTCT settings, including ANC and post-delivery settings, are to:

- Help the client understand HIV.
- Explain the importance and benefits of HIV testing.
- Explain HIV testing procedures.
- Explain importance of partner testing.
  - Discordance
  - Disclosure and partner referral
- Explain risk reduction and available services.
  - Prevention of sexual transmission of HIV
  - PMTCT interventions, including ARV therapy or prophylaxis and safer infant feeding
  - Referral for treatment, care and support
- Encourage continuous healthcare attendance.

For additional detail, see Appendix 5-B, Group or Individual Pre-test information Session Checklist.

The pre-test information session begins with offering basic information about HIV. Printed materials such as flipcharts<sup>2</sup> or videos may be used to present content. It is important to present all key PMTCT information at the initial visit.

A HCW with basic training in HIV counselling and PMTCT can provide the pre-test information in group sessions. HCWs and trained lay or peer counsellors should work together to identify clients who need individual pre-test counselling and referral. Individual pre-test counselling provides clients with an opportunity to explore personal HIV risk behaviours and related concerns.

### Components of the pre-test information session

- Basics of HIV transmission, risk and MTCT
- Benefits of HIV testing
- HIV testing process
- Discordance and partner HIV testing
- Risk reduction
- Importance of antenatal care and continuous post-delivery care

## Delivery of Pre-test Information

The model of delivery selected for the pre-test session depends on many factors, including the number of clients, staff availability, PMTCT setting and facility and national guidelines. All models should:

- Optimize the staff available
- Integrate HIV testing and counselling into clinic routine without disrupting client flow
- Maximize the number of women tested for HIV and counselled about PMTCT services during their first visit

<sup>2</sup> The *Testing and Counselling for Prevention of Mother-to-Child Transmission of HIV (TC for PMTCT) Support Tools* (developed by CDC, WHO, UNICEF, USAID) include pre- and post-test flipcharts for antenatal, labour and delivery as well as post-delivery settings. The flipcharts can be viewed and downloaded at: <http://www.womenchildrenhiv.org/wchiv?page=vc-10-00>

Three models of pre-test information and counselling sessions are:

- Group information
- Individual counselling
- Couple counselling

Regardless of the model used, the content of the session is similar.

## Group Pre-test Information Session

Group information sessions for testing and counselling are efficient because they optimize human resources, allow for interaction among participants and can be easily integrated into the clinic flow. Group information sessions enable HCWs to provide the basic testing and counselling messages to many women at one time. Group information sessions are recommended for ANC settings but can be used in post-delivery settings as well; however, group sessions are not practical or recommended for the L&D setting.

Key considerations for providing information to groups include:

- Adjusting the information covered to fit the group's level of knowledge
- Emphasizing behaviour change, including safer sex practices
- Setting aside time for questions and answers
- Having enough knowledge and skills to comfortably answer questions
- Referring for individual counselling, when requested

HCWs should support and encourage women to be tested at their first ANC visit because many women begin care late in pregnancy or are seen only once in their pregnancy. The decision to be tested may need support from family members and involve a return visit with family decision-makers. HCWs should welcome family members, especially those involved in decision-making, and provide the same HIV pre-test information given to the client.

<b>Exercise 5.3 Providing pre-test information: demonstration (in the large group) and practice (in small groups)</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To review pre-test information and practise presenting this information to a group.</li> </ul>
<b>Duration</b>	60 minutes
<b>Instructions</b>	<p><b>Demonstration</b></p> <ul style="list-style-type: none"> <li>▪ The trainer or someone experienced in providing the group pre-test session will model part of the pre-test session using either a flipchart or the script in Appendix 5-C.</li> <li>▪ Participants will be asked to take roles as “clients” in a busy ANC setting. The trainer will ask questions, as would be done in a typical group pre-test session. Try to respond to the questions as clients in your clinic would respond.</li> </ul> <p><b>Small group practice</b></p> <ul style="list-style-type: none"> <li>▪ Participants will be divided into 2 groups.</li> <li>▪ Refer to either Appendix 5-C or a pre-test session flipchart (if available), as instructed by the trainer.</li> <li>▪ Within your groups, choose one person to start as “HCW” while the rest of the members will role play “clients”.</li> <li>▪ As the “HCW,” you will role-play an ANC HCW who will present part of (maybe two pages—if working from the flipcharts—or two sections—if working from Appendix 5-C) the pre-test script pre-test session to a group of “clients” (the participants in your small group). Try to use at least two of the “probing questions” (see the flipcharts or Appendix 5-C) or your own questions to engage your “clients”.</li> </ul>

<b>Exercise 5.3 Providing pre-test information: demonstration (in the large group) and practice (in small groups)</b>	
	<ul style="list-style-type: none"> <li>▪ “Clients” should be polite and listen but should feel free to become their role as appropriate to give the “HCW” practice dealing with a range of participants. “Clients” should also feel free to ask questions typically asked by clients in their settings.</li> <li>▪ After the first “HCW” has had an opportunity to role play, rotate roles so that 2-3 other group members assume the role of “HCW”, each presenting part of the pre-test script to the “clients”.</li> <li>▪ At the end of each pre-test session and within small groups, debrief as follows: <ul style="list-style-type: none"> <li>▪ The “HCW” should state how the session went, what went well and what will he/she change the next time.</li> <li>▪ Participants should provide the “HCW” with feedback on: <ul style="list-style-type: none"> <li>▪ What were each “HCW’s” strengths?</li> <li>▪ Did the “HCW’s” movements and speech help the presentation?</li> <li>▪ Did the “HCW” involve the clients in discussion and answer questions clearly?</li> <li>▪ Did the “HCW” explain the content clearly?</li> <li>▪ Did the “HCW” include all of the important content?</li> <li>▪ Did the “HCW” handle difficult participants appropriately?</li> </ul> </li> </ul> </li> <li>▪ After the pre-test presentations, the trainer will bring the large group back together and lead a group discussion to debrief the small group work.</li> </ul>

## Individual Pre-test Information Session

Individual pre-test counselling is a one-to-one session that is used:

- **To provide the pre-test information (rather than the group pre-test information session):** There may be situations or settings where one-to-one individual pre-test counselling sessions are feasible (e.g. health care worker/patient ratio is high or a high resource setting where there is time to undertake individual pre-test counselling). If a facility does not use the group pre-test information session delivery model, then the HCW would use the individual pre-test information session to offer the basic components of the pre-test information session.
- **To provide information that complements the group pre-test information session:** Regardless of how pre-test information is delivered, the individual pre-test session provides an opportunity to explore the client’s personal HIV risk behaviours and concerns. In facilities where the group pre-test session is used, individual pre-test counselling should be made available to anyone who requests it and to those who initially decline the offer of testing.
- **To follow up with the client who initially declines testing:** The individual session provides an opportunity for the HCW to explore with the client her reasons for not wanting HIV testing, address barriers and review the benefits for the client and her child of learning her HIV status. The counselling supports the client in making an informed decision about whether or not to test.

Ideally, individual pre-test counselling should be available in all PMTCT settings. In the ANC setting, individual counselling may be incorporated into routine ANC visits to any woman who attends the group pre-test session and requests individual counselling. HCWs may refer clients to individual pre-test counselling to clarify information provided in group sessions.

### **Additional components of the *individual* pre-test counselling session**

- Assess, reinforce client understanding of pre-test information
- Identify, discuss client's questions and concerns
- Address barriers to testing
- Provide risk assessment, risk reduction counselling
- Routinely offer HIV test

*When testing and counselling is part of ANC services, each client must be reassured that declining an HIV test will not affect her access to ANC or related services. The HCW should emphasize that if the client changes her mind and wants to be tested, an HIV test can be provided during a later visit.*

## **Couple Pre-test Counselling**

HCWs should encourage clients to invite male partners to participate in HIV testing and counselling services. Engaging male partners provides an opportunity to:

- Stress the man's responsibility for protecting the health of his wife or partner and their family.
- Reduce the chances that the woman will be blamed for bringing HIV infection into the family.
- Encourage couples to practise safer sex by using condoms and limiting the number of other sexual partners.
- Gain the male partner's support for PMTCT interventions.
- Support adherence to PMTCT interventions, since HIV-infected pregnant women who are tested with their partners are more likely to adhere to PMTCT interventions.
- Refer the couple (if the male partner is HIV-infected) together for treatment, care and support services.
- Identify discordant couples and support the HIV-negative partner to stay negative through risk-reduction. The HIV-negative partner in a discordant couple is at extremely high risk of acquiring HIV infection.
- Support women and men who test HIV-negative to stay negative through risk-reduction.

### **Discordance in couples**

Discordance means that one partner is HIV-positive and the other partner is HIV-negative. This situation can occur for many reasons. A client often believes that her test results reflect her partner's status but this is not always the case. There are many factors involved in the transmission of HIV that may account for the discordance.

In counselling HIV-negative pregnant women, HCWs should emphasize the heightened risk of MTCT if they become newly infected with HIV during pregnancy. It is important to tell a woman that the chances of MTCT are much higher if she is exposed during pregnancy because there is an increase in HIV viral load with new infection.

### **Advantages of couple counselling**

In couple counselling, partners receive HIV counselling together. The HCW provides the same messages as in a group pre-test session, but specifically addresses the couple's concerns. The advantages of couple counselling and testing include:

- Partners hear information and messages together, enhancing the likelihood of a shared understanding.
- Environment is safe for couples to discuss concerns.
- HCW has the opportunity to ease tension and diffuse blame.
- Post-test counselling messages reflect the test results of both the man and the woman.
- Neither partner is burdened with the need to disclose results and persuade the partner to be tested.

- Couple counselling facilitates the communication and cooperation required for risk reduction such as condom use.
- Prevention, care and treatment decisions can be made together, including decisions about PMTCT interventions such as infant feeding.

Couple counselling is appropriate in all PMTCT settings. If it is not available on-site, it should be available by referral. Where possible, couple counselling should be available in maternity and post-delivery wards. HCWs may need to be innovative, particularly if the woman was tested during labour, to develop ways to test and counsel the male partner.

### **Responsibilities of the HCW when working with couples**

HCWs can encourage clients to involve their partners in ANC services and get tested for HIV, whether the client is HIV-negative or HIV-positive. Skill-building, problem-solving and practising what the client will say to her partner may help a client disclose (tell) her results to her partner and suggest the partner be tested. Information about agency hours, location and services may be given. If either the client or her partner has a positive HIV test result, refer the couple for treatment, care and social support.

### **Considerations in counselling couples**

- Establish a relationship with each partner.
- Assure them of confidentiality.
- Assess each person's understanding of HIV.
- Do not allow one person to dominate the conversation.
- Explain the testing process.
- Discuss post-test counselling:
  - Ask whether the couple would prefer to receive the results separately or together. Most experts recommend receiving results together as a condition for couple counselling.
  - Mention the possibility of discordant results, and prepare them for this possibility.
  - Provide information on available PMTCT interventions: ARV therapy and prophylaxis and safer infant feeding practices.
  - Confirm the benefits of knowing one's HIV status; discuss concerns or the possible risk of such knowledge.
  - Ask who else might be affected by the test results.
  - Confirm the couple's willingness to be tested.
  - Be prepared to refer the couple for further counselling if indicated.
  - Be prepared to refer the couple for HIV care and treatment, when appropriate.

## **Testing and Counselling for Women of Unknown HIV Status at the Time of L&D**

In some settings, women who have not been screened for HIV during ANC or did not attend ANC may present at the time of labour with unknown HIV status. National guidelines usually provide guidance on how to test and counsel, or make decisions about ARV prophylaxis for women of unknown HIV status during L&D.

The L&D environment presents unique challenges for the HCW and the woman—the L&D setting is typically busy and has very little privacy; women are often anxious and in pain. The HCW should make the woman as comfortable as possible and provide counselling in as confidential a manner as the situation permits. Following are some common scenarios for women of unknown HIV status arriving in labour:

- **Woman presents to L&D in early labour:** This woman is provided pre-test information and rapid testing. HCWs should provide the HIV test results as soon as they are available (whether positive or negative). If the woman is HIV-positive, offer emotional support and ARV prophylaxis according to national guidelines. If the HCW is not able to discuss some of the post-test counselling information during labour, it is important to

continue the discussion as soon as possible after childbirth, when the woman can better consider the information and ask questions, including those about infant feeding options.

- **Woman presents to L&D in advanced labour with time for the pre-test session but insufficient time to give results:** Depending on the woman's comfort level, the HCW may conduct the pre-test session and draw the blood for testing as early as possible during labour. Every attempt should be made to obtain the results before delivery and provide the mother with ARV prophylaxis. If this is not possible, the HCW should obtain the results in time to inform decisions about infant feeding and infant ARV prophylaxis. Infant ARV prophylaxis will still reduce risk of transmission of MTCT if provided within 72 hours of birth.
- If the test results of a woman tested in L&D are not available within 1 hour of delivery, breastfeeding should be initiated. Breastfeeding should *not* be withheld pending results of the HIV test.
- **Woman presents to L&D late in labour with insufficient time for the pre-test session:** If the woman cannot be given pre-test information and tested during labour, the pre-test session, rapid testing and post-test counselling should be done after delivery. An infant can be given ARV prophylaxis up to 72 hours after birth.

Content of the pre-test session in L&D	
Objective	Possible script
Introduce yourself	<ul style="list-style-type: none"> <li>▪ Hello. My name is _____. I am a _____ (title) here.</li> <li>▪ Your card shows that you have not been tested for HIV infection during this pregnancy. Do you know what HIV infection is?</li> <li>▪ <b>If NO:</b> HIV is an infection that can lead to a serious illness called AIDS. Not everyone who has HIV looks or feels sick, but if you have HIV you can pass it to your baby.</li> </ul>
Explain MTCT	<ul style="list-style-type: none"> <li>▪ A mother with HIV can pass HIV to her baby during pregnancy, L&amp;D and breastfeeding. That is why we recommend that all pregnant women have an HIV test.</li> </ul>
Discuss importance of testing	<ul style="list-style-type: none"> <li>▪ If the test shows that you have HIV, we can give you medicine immediately to lower the chance of passing HIV to your baby. After you give birth, the baby will also receive medicine and we will provide or refer you to where you can get care and treatment services for you and your family.</li> </ul>
Explain testing process	<ul style="list-style-type: none"> <li>▪ The HIV test will be done by drawing blood/fingerprick/mouth swab</li> <li>▪ HIV testing is private. This means that only HCWs who are caring for you will know your HIV test result.</li> <li>▪ You have the right to refuse HIV testing, but we strongly recommend you are tested for HIV to help protect your baby.</li> <li>▪ Unless you refuse, we will test you now and give you and your baby the best care based on your test results.</li> </ul>

### Conducting the Pre-Test Session in L&D

The following is guidance on conducting the pre-test session, including practical tips to help protect confidentiality in a busy L&D ward.

- Before beginning the pre-test session, ensure that the woman is between contractions and comfortable. Agree on a signal that the woman can use to indicate when a contraction begins and when it ends; wait until the contraction is over before resuming the session.
- If there is no record that the patient had an HIV test during this pregnancy, inform her that she will receive information about HIV testing.
  - Ask her whom, if anyone, she would like present for the session.

- If she would like to be alone, ask the family to leave the room for a few moments and use this time to conduct the pre-test session.
- Ask whom she would like to be present when she receives the test results.
- Speak in soft tones, but make sure she can hear.
- Use a temporary screen or curtain around the bed for privacy, if available,
- The session can be conducted in a corridor, waiting area or any other quiet place where some privacy is possible.



## Session 4 HIV Testing

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**After completing the session, the participant will be able to:**

- Describe HIV testing processes.
- Understand the procedures to perform a rapid HIV test correctly.
- Explain the meaning of positive (reactive) and negative (non-reactive) HIV test results.

### Overview of HIV Testing

HIV tests detect antibodies or antigens associated with HIV in whole blood, saliva, or urine. Blood sampling is the most common method of testing. The results of different tests can be combined to confirm HIV test results. When properly administered, HIV tests offer a high degree of accuracy. However, those who administer or handle the HIV tests must be trained so that accuracy is preserved.

Several factors influence the selection of an HIV test by individual facilities and national policymakers:

- National guidelines/policies
- Availability and expertise of laboratory or other trained personnel
- Availability of supplies and laboratory support
- Evaluation of specific tests in the country
- Cost of test kits and supplies

### HIV Tests

There are two types of tests:

- Antibody tests
- Viral tests

#### Antibody tests

Shortly after infection with HIV, the body starts to make antibodies to fight the virus. It may take 4 to 6 weeks, but occasionally takes up to 3 months for these antibodies to become detectable in the blood. During this time, a person can still transmit the virus to others, even if he or she looks and feels completely healthy.

Rapid HIV tests and the ELISA (enzyme-linked immunosorbent assay) are the most commonly used antibody tests in PMTCT settings.

#### Rapid HIV tests

Rapid HIV tests give accurate results within 20-40 minutes, allowing clients to receive their test results on the same day the sample is taken and do not require a laboratory. All rapid HIV tests have the following characteristics:

- Can be done in the clinic setting (e.g., the antenatal clinic, VCT centre or in L&D)
- Highly accurate when performed correctly
- Usually performed on serum or whole blood (either by fingerprick or venous sample); there are some rapid HIV tests that can be used on saliva
- Can be done on a single specimen with no batching required
- HCWs can be trained to perform the tests
- Some rapid tests do not require special equipment, electricity or refrigeration.

#### Benefits of rapid HIV testing include:

Rapid HIV tests have many benefits that make it practical for use in PMTCT settings:

- **On-site testing and same day results:** clients can receive their test results the day they are tested. This is important if clients present late in pregnancy, do not return for a second visit, or do not know their HIV status at L&D.

**Point-of-care testing** or “near-patient” testing refers to performing a medical test at a location near the client and outside the facility’s clinical laboratory. Locations may include nursing stations, examination rooms, counselling room, blood drawing stations or small “satellite” laboratories.

- **Lower risk of administrative error:** when the specimen is drawn, tested and results provided at the point-of-care, there is less risk of specimen loss, delay or mix-up, all of which are more likely to occur when samples are sent to a lab.
- **Accepted by clients:** availability of same-day results increases the uptake of HIV testing substantially, reduces transportation time and costs for clients and reduces the anxiety of waiting for the result.
- **Fewer resources required:**
  - **Human resources:** any HCW who has received training can perform the rapid test. Trained laboratory technicians are not required.
  - **Resources at the facility:** most rapid test kits can be stored at room temperature (20 to 30°C), but the ELISA reagents require refrigeration (2–8°C). If testing volume is low, a single specimen can be analysed with rapid testing. ELISA testing is most economical when 40–90 specimens are run at a time, this batching increases the time clients have to wait for results.
  - **Financial resources:** rapid tests, when compared with other HIV tests, have a lower cost per client who receives results. They do not require investment in and maintenance of equipment or hiring of skilled laboratory technicians.
- **Lower risk of occupational exposure:** because rapid testing requires only a few drops of whole blood, a fingerprick is sufficient. Fingerprick samples are easy to obtain, require minimal equipment and can be carried out by an appropriately trained HCW. The risk of occupational exposure is substantially reduced with fingerprick blood collection (in comparison to venipuncture). Additional information on infection prevention can be found in Module 8, “Safety and Supportive Care in the Work Environment”.

Although most rapid tests can detect HIV-1 and HIV-2, they usually do not differentiate between the two types of HIV. This is significant for PMTCT programmes in places where HIV-2 is common because nevirapine (NVP), which is used for both ARV therapy and prophylaxis, is not effective against HIV-2. In places where HIV-2 is common, different testing procedures are needed to screen for HIV-1 and HIV-2 and to distinguish between them. For more information on HIV-2 see Appendix 3-C “PMTCT Interventions for the Woman Who is Infected with HIV-2”.

## Rapid HIV Testing Algorithms

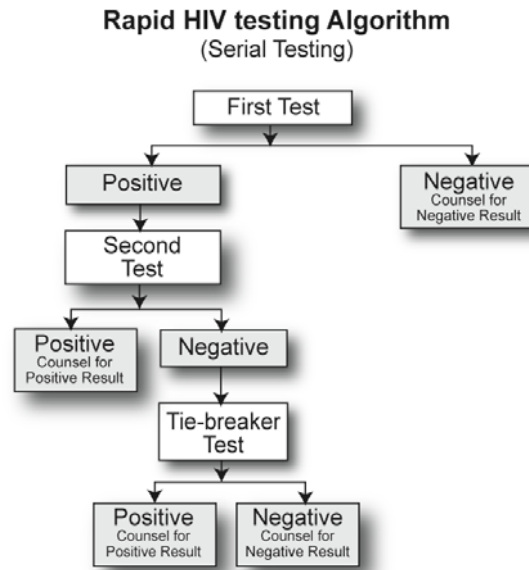
There are many rapid HIV testing technologies and two commonly used algorithms for rapid testing—serial and parallel testing. National guidelines determine the rapid test technology and algorithm used.

### Serial testing

In serial testing, which is presented in the algorithm below, a blood sample is taken and tested once using the initial rapid test.

- If this first test result is non-reactive it is said to be HIV-negative, there is no need to perform a second test; the result is given to the client as HIV-negative.
- If the first test result is reactive or positive, the blood sample is tested again using a different brand of rapid HIV test:
  - If the second test is reactive, the result is given to the client as HIV-positive.
  - If the second test is negative, a third test known as a “tiebreaker” is performed; the result of the tiebreaker is the final HIV result.

**Figure 5.2**



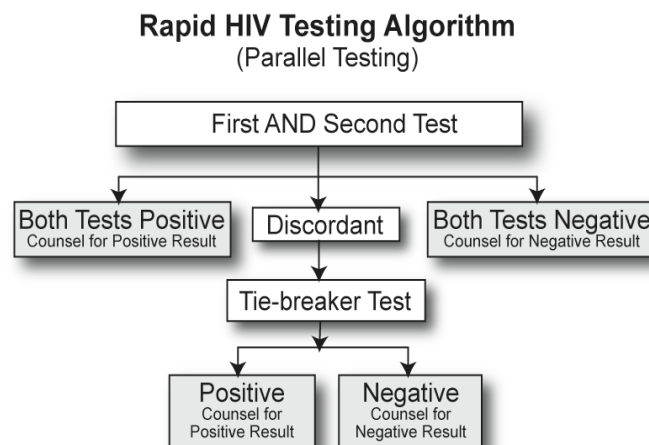
*In the L&D setting, a single positive rapid test is adequate to start ARV prophylaxis for the woman during labour and for the infant upon delivery. The test should be repeated and the result confirmed after delivery.*

**Parallel testing**

Parallel testing involves testing a blood sample with two HIV tests that are performed at the same time, i.e., in parallel.

- If both test results are non-reactive, the result is said to be HIV-negative.
- If both test results are reactive, the result is HIV-positive.
- If one test is reactive and the other non-reactive, a third test known as a “tiebreaker test” is performed; the result of the tiebreaker is the final test result.

**Figure 5.3**



*In the L&D setting, when the test result is either positive or discordant, it is advisable to start ARV prophylaxis for the woman during labour and for the infant upon delivery. The testing should be repeated and the results confirmed after delivery.*

WHO recommends serial testing in most settings because it is more economical as a second test is performed only if the initial test result is positive.

## ELISA

The ELISA is also used to identify antibodies to HIV in blood, urine or saliva. Generally, a blood specimen is drawn and sent to a laboratory for testing by technicians.

The limitations of the ELISA are:

- Tests must be done in batches of 40–90 specimens.
- Positive results must be confirmed either with another ELISA (using a test kit from a different manufacturer) or by Western blot, another antibody test. Both confirmatory tests can be done on the initial blood specimen.
- Results may take several days to weeks and women may not return for results or may give birth before results are ready.
- Laboratories and trained technicians are required.
- Test is sensitive to temperature and requires refrigeration.
- Test requires that reagents (the chemicals needed to process the test) are available at all times.

### Rapid test accuracy

The accuracy of the ELISA and rapid testing are comparable, but rapid testing makes it possible to provide essential post-test counselling PMTCT messages to the client on the same day that she is tested.

## Interpreting HIV Antibody Tests

It is important for the HCW to clearly convey the meaning of a positive or negative HIV test result.

A positive HIV test (one that has been confirmed by more than one reactive test) means that antibodies to HIV are present in a person's body and that the person is infected with the virus. HCWs must communicate to the client that a positive HIV test confirms infection with HIV. It does not mean that the client has AIDS—the advanced stage of HIV infection when a person becomes sick. Most people with HIV infection are healthy for most of the time they are infected.

A negative test does not mean that person will never become infected with HIV. There is no such thing as immunity to HIV infection.

A negative test results can mean one of two things:

- Either the person is not infected with HIV,
- or
- Person is infected with the virus but the body has not had enough time to make a detectable amount of antibodies

## HIV Viral Tests

Viral assays or tests directly detect the presence of HIV in blood specimens. This is different from the antibody test, which detects the presence of antibody as an indirect measure of the presence of virus. Viral assays/tests must be done by trained personnel in the laboratory.

There are two main types of viral tests:

- p24 antigen tests measure one of the proteins found in HIV (antigen).
- PCR (polymerase chain reaction) tests detect viral DNA or RNA:
  - DNA PCR detects the presence of the virus in the blood and is used for diagnosis of the infant less than 18 months.
  - RNA PCR detects and measures the amount of virus in blood (viral load).

## Interpreting HIV Viral Tests

It is important to clarify the meaning of virologic test results. p24 antigen tests are primarily used for screening the blood supply for HIV. p24 antigen tests are sometimes used to diagnose HIV in infants.

A positive DNA PCR test result means that the person is infected with HIV, but it does not indicate how much virus is present. DNA PCR can be used to diagnose HIV infection in infants. For more information see Module 7 “Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection”.

The RNA PCR is a highly reliable test for someone who has recently been exposed to the virus. If the virus is present, the PCR test result reveals how much virus is in a person's bloodstream, also known as the viral load.

## Five Basic Steps to HIV Testing

1. A specimen is obtained. Most often, blood is taken from a person's fingertip or arm. Specimens must be handled with care. Those administering the test should wear gloves. See Appendix 5-D for a step-by-step guide on collecting fingerprick specimens.
2. The specimen is processed. This can be done on-site, at an ANC clinic, in the labour ward, or in a laboratory.
3. The test is conducted by a HCW or laboratory technician trained in HIV testing procedures.
4. The client is told their result.
  - When a test is first conducted, it either reacts to the chemical agents in the test kit or it doesn't react. A “reactive” test means that the person might be HIV-positive; a reactive test result needs to be confirmed with another test (see Figures 5.2 and 5.3).
  - In an adult, a positive result must be confirmed with a second HIV antibody test. If this second test result is positive, the person is infected with HIV. In an adult, a confirmed reactive test is considered a “positive” result.
  - If the test result is negative, it is considered “non-reactive”. A non-reactive test does not need to be confirmed.
  - A negative (non-reactive) result usually means that the person is not infected with HIV. However, in rare instances, a person with a negative or inconclusive result may be in the “window period”. This is the period of time between the onset of infection and the appearance of detectable antibodies in a specimen. People infected with HIV usually develop antibodies 4 to 6 weeks after being infected, but it may take as long as 3 months for antibodies to develop. Persons at high risk who initially test negative should be retested three months after exposure to confirm results.
5. The HCW provides post-test counselling, support and appropriate referrals.

## Testing Procedure for HIV Infection

In order to test a person for HIV infection, a HCW must handle the testing devices properly. The following are important points to be observed:

- Infection control and Standard Precautions
- Proper labelling
- Proper specimen collection procedures
- Required volume per test
- Proper reagents per test
- Correct timing per test
- Interpretation of results
- Proper record-keeping
- Proper disposal procedures

The client should be as comfortable as possible during the test. The HCW performing the test should reassure the client that certain factors may affect the test results. Some of the factors affecting test performance are:

- Storage and handling of test kits
- Changes in the environment

- Accuracy of equipment; external and internal controls
- Shelf-life of the chemicals for the tests (reagents)
- Technique for sample collection
- Quality of sample
- Use of equipment

The client should be reassured that all efforts have been made to ensure the accuracy of the test result. This is part of basic quality assurance.

<b>Exercise 5.4 Rapid testing: demonstration in the large group</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To review the steps involved in rapid testing.</li> </ul>
<b>Duration</b>	60 minutes
<b>Instructions</b>	<p><b>Demonstration using one of rapid HIV tests</b></p> <p>The trainer will select one rapid HIV test to demonstrate the steps involved in collecting and processing a specimen</p> <ul style="list-style-type: none"> <li>▪ One participant will be asked to volunteer to play the role of “client”.</li> <li>▪ The trainer will play the role of the HCW who is collecting the blood sample for testing (he/she will not actually draw blood).</li> <li>▪ All other participants will observe the steps of rapid testing and the interaction between participant volunteer and healthcare worker.</li> </ul>

## SESSION 5 Post-test Counselling

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**After completing the session, the participant will be able to:**

- Describe the steps involved in post-test counselling.
- Discuss the disclosure process for women who are HIV-infected.

### Post-test Counselling

All HIV test results, whether positive or negative, must be given in person. Initial post-test counselling is provided to each client (or couple) privately.

During post-test counselling, it is important to put the client or couple at ease. The HCW should make every effort to provide a quiet and private room for the discussion. Ideally, the same HCW who conducted the pre-test session will also conduct the post-test counselling session. This may be difficult due to workload and staff.

### When the Client Tests HIV-negative

Post-test counselling provides an opportunity for a client who is HIV-negative to learn how to protect him/herself and infant from HIV infection. It is important that women know that if they become infected during pregnancy or while breastfeeding, they face an increased risk of MTCT. Post-test counselling—even for those who test negative for HIV—provides clients with a powerful incentive to adopt safer sex practices.

**For HIV-negative clients, the objectives of the post-test session are:**

- Provide HIV test result.
- Assess understanding of meaning of result.
- Identify and address client questions.
- Discuss:
  - Partner HIV testing and disclosure
  - Safer sex and risk reduction
  - Exclusive breastfeeding
  - Antenatal care, post-delivery care
  - Importance of delivering in a healthcare facility
  - Infant care
- Provide referrals, take-home information

HIV test result indeterminate: counsel as above AND explain the need for repeat testing; schedule repeat test.

Detailed steps in providing post-test counselling for women who are HIV-negative are in Appendix 5-E, “Post-test Counselling, HIV-negative”.

### When the Client Tests HIV-positive

Counselling clients who test positive for HIV is challenging for HCWs. Client reactions to results can range from acceptance to disbelief. The HCW must remain non-judgemental, supportive and confident throughout the counselling process. HCWs should remember that they have the skills to provide difficult information to clients.

All key PMTCT messages will need to be provided to the client during the initial post-test counselling session in case this is her only ANC visit. The HCW should strongly encourage the client to return for her ANC visits and follow-up HIV post-test counselling. Future visits will provide the opportunity to reinforce key PMTCT messages, provide follow-up counselling and review referrals for HIV treatment, care and support as necessary.

**For HIV-positive clients, the objectives of the post-test session are:**

- Provide HIV test result and support.
- Assess understanding of meaning of result.
- Identify, address client questions.
- Discuss:
  - ARV therapy or prophylaxis
  - Infant feeding options
  - Treatment and support services for client and family
  - Partner HIV testing and disclosure
  - Safer sex and risk reduction
  - Antenatal care, post-delivery care
  - Importance of delivering in a healthcare facility
  - Infant care and diagnosis
- Provide referrals, take-home information.

See the post-test counselling checklist for women who test HIV-positive in Appendix 5-F.

HIV-positive pregnant women and their partners will also need to think about HIV testing for their child. Appendix 5-G provides guidance for HCWs to address the child's HIV test results with the parents. Diagnosis of infants and children is discussed further in Module 7.

### Disclosure of HIV Status

During the initial post-test counselling session, the HCW may begin the discussion about disclosure—informing others of a test result. By disclosing her HIV status to her partner and family, the client may be in a better position to:

- Encourage the partner(s) to be HIV tested.
- Prevent the transmission of HIV to her partner(s).
- Access PMTCT interventions.
- Receive support from her partner(s) and family when accessing PMTCT and HIV care and support services.

It is important to respect the client's choice regarding the timing and process of disclosure. A client may perceive disadvantages in disclosing her HIV diagnosis. In some communities, clients who are HIV-infected and their families may face stigma and discrimination. In some situations, women may face abuse and violence when they disclose their HIV status. If the client has indicated that her partner(s) and family may react negatively to her HIV status, the HCW can help the client build skills to use when she discloses her HIV status.

#### Exercise 5.5 Post-test Counselling role play: demonstration (in the large group) and practice (in small groups)

<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To demonstrate and practise post-test counselling through role play.</li> </ul>
<b>Duration</b>	70 minutes
<b>Instructions</b>	<p><b>Demonstration</b></p> <ul style="list-style-type: none"> <li>▪ The trainer and a co-trainer will demonstrate the skills needed in post-test counselling so that participants are clear on both the assignment and process. The trainer will use the following scenario to demonstrate:           <ul style="list-style-type: none"> <li>▪ <i>Rosemary and David are expecting their first child. David works in the city and is away most of the week. At Rosemary's second ANC visit, she learned about PMTCT during one of the group information meetings. Although she decided not to test the first</i></li> </ul> </li> </ul>



**Exercise 5.5 Post-test Counselling role play: demonstration (in the large group) and practice (in small groups)**

*time, after thinking about it more carefully, she has returned to be tested for HIV. (Rosemary's test result is positive.)*

- Note your observations as you watch the demonstration. You may want to use Appendix 5-F for reference.

**Small group work**

- The trainer will divide the group into teams of three participants each.
- As a team, choose a scenario from those that appear below. Select one participant to play a “client,” one to play the “HCW” and one to be an “observer”. The “HCW” may want to refer to Appendix 5-E or 5-F to guide the post-test counselling session.
- When the role play is finished, the group should spend a few minutes reviewing the experience by asking such questions as, “Was anything important left out of the session?”
- If the “HCW” has difficulty figuring out what to say or how to answer the client, they should ask the observer for ideas.
- Once the session is finished, exchange roles and repeat the process using another scenario.
- Continue switching roles and practising scenarios until each member has had a chance to practise providing post-test counselling as a “HCW”.

**Exercise 5.5 Post-test Counselling role play: demonstration (in the large group) and practice (in small groups), role play scenarios**

**Scenarios for HIV-negative test results**

**Scenario 1**

Lila is 17 years old and has been dating her boyfriend for one year. She started having unprotected sexual relations with him three months ago and is now pregnant. She suspects that her boyfriend may be at risk for HIV since he has not been faithful to her, although he denies this. During her first visit to ANC, she decided to be tested, just in case she is infected. Her result is negative. What points should be brought up in post-test counselling? What infant feeding advice should be included in this post-test counselling session?

**Scenario 2**

Emeri has been married for more than a year and her husband is a seafarer. She is in her third trimester. Although she has been faithful to her husband, her husband is away for work for weeks at a time and she is worried that he might have other sexual partners and engage in unprotected sex. After attending her first ANC visit, she understood that she might be at risk for HIV and she does not want to put her baby at risk. She decides to be tested. Her result is negative. What messages should be included in the post-test counselling session?

**Scenarios for HIV-positive test results**

**Scenario 1**

Anna is a commercial sex worker and sees many men each week. She has tried to get them to use condoms but many of them refuse. She is in her 28<sup>th</sup> week of pregnancy; this is her first visit to the ANC clinic. She is worried about her baby's safety and has agreed to be tested for HIV. Her result is positive. What aspects of her risk behaviours and the health of her baby should the post-test counselling session emphasize?

### **Scenario 2**

Florence and Richard have been married for six years and have three children. She is now in her second trimester and suspects they may be having twins. Last year, the couple had separated for approximately four months. During that time, Richard had sexual relations with someone whom, he later found out, was HIV-infected. Florence is aware of this and, because of the pregnancy, knows that the baby is at risk for HIV-infection if Florence has HIV. Richard has refused testing, but she was tested and he has accompanied her to the clinic today to hear her results. Florence has tested positive. Emphasizing aspects of couple counselling, what are the messages that should be communicated to Florence and Richard?

### **Scenario 3**

Lela works in housekeeping at the ANC clinic. She is well-liked by all the staff and recently found out she is going to have her first baby. She knows, because of previous unprotected sex, that she needs to be tested for HIV. She approached one of the HCWs and asked for her help getting tested. She is very concerned that other staff may find out and wants test results kept confidential between her and the one HCW that she approached about testing.

### **Subsequent ANC Visits**

In most countries, pregnant women are encouraged to attend scheduled ANC visits throughout their pregnancy. The following topics should be addressed in the first ANC visit and reinforced during subsequent ANC visits:

- Interventions for PMTCT (Module 3, “Specific Interventions for the Prevention of Mother-to-Child Transmission of HIV (PMTCT)”)
- Infant feeding options (Module 6, “Infant Feeding in the Context of HIV Infection”)
- Follow-up care and treatment for the woman and her infant (Module 7 “Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection”).
- Family planning options (Module 2, “Overview of HIV Prevention in Mothers, Infants and Young Children”)

However, in many places, pregnant women attend ANC once, often late in pregnancy. If the pregnant woman is unlikely to make a subsequent ANC visit, the above topics should be addressed during the first ANC visit.

See Appendix 5-H for a referral assessment tool that can be used in subsequent ANC visits to evaluate if a client requires further support and/or referral.

### **Module 5: Key Points**

- Pre-test information, individual pre-test counselling, HIV testing and post-test counselling should be available to all pregnant women.
- There are three guiding principles for testing and counselling in PMTCT settings: confidentiality, informed consent and post-test support and services.
- WHO recommends the provider-initiated approach to HIV testing and counselling in ANC, labour and delivery and post-delivery settings. With the provider-initiated approach, HIV testing is a standard, or routine, part of patient care.
- Partner testing and couple counselling are encouraged.
- Rapid HIV tests with same day results are highly recommended in PMTCT settings. Rapid tests are accurate and enable HCWs to provide post-testing counselling during the same visit.
- There are two processes for rapid HIV testing: parallel and serial testing. Serial testing is a more cost-effective process in which a positive (reactive) antibody test is tested again using a different brand of rapid HIV test. Initial negative test results do not require confirmation.
- Post-test counselling is important for all women:
  - For women who are HIV-negative, to emphasize the prevention of HIV infection.
  - For women infected with HIV, to give information on PMTCT and referrals for HIV care, treatment and social services, where available.
- An important component of the post-test session is the offer of subsequent healthcare visits and referrals for HIV prevention, treatment, care and support services. All women should be encouraged and assisted to return for subsequent healthcare visits, particularly those who test HIV-positive.

## APPENDIX 5-A Listening and Learning Skills Checklist

As you observe your colleagues role play, indicate the listening and learning skills they use by placing a check in the appropriate box.		
<b>SKILLS AND TECHNIQUE CHECKLIST</b>		
Skill	Specific Strategies, Statements, Behaviours	(✓)
<b>Skill 1: Use helpful non-verbal communication</b>	▪ Shows a relaxed and natural attitude	
	▪ Adopts an open posture	
	▪ Leans forward when talking	
	▪ Makes eye contact	
	▪ Sits squarely facing client	
	▪ Other (Specify)	
<b>Skill 2: Ask open-ended questions</b>	▪ Uses open-ended questions to get more in-depth information from the client	
	▪ Asks questions that reflect interest, care and concern rather than interrogation	
	▪ Other (Specify)	
<b>Skill 3: Use responses and gestures that show interest</b>	▪ Nods, smiles reassuringly; uses encouraging responses (such as “yes,” “okay,” “Mmm,” or “aha”)	
	▪ Clarifies statements effectively	
	▪ Takes time to summarize information the client shares	
	▪ Comments on client’s challenges while also indicating client’s strengths	
	▪ Other (Specify)	
<b>Skill 4: Reflect back what the mother says</b>	▪ Reflects emotional responses back to the client using different words	
	▪ Other (Specify)	
<b>Skill 5: Empathize—show that you understand how she feels</b>	▪ Demonstrates empathy: shows an understanding of how the client feels	
	▪ Avoids sympathy. Sympathy is when the HCW moves the focus to her self (“I know how you feel, my sister has HIV.”) whereas empathy focuses on the client (“You’re really worried about what’s going to happen now that you’ve tested HIV-positive.”)	
	▪ Other (Specify)	
<b>Skill 6: Avoid words that sound judging</b>	▪ Avoids judging words such as good, bad, correct, proper, right, wrong, adequate, inadequate, satisfied, sufficient, fail, failure, succeed, success, etc	
	▪ Used words that build confidence and gives support (e.g., recognizes and praises what a mother is doing right)	
	▪ Other (Specify):	

## APPENDIX 5-B Group or Individual Pre-test Information Session Checklist

The following checklist is a job aid for use by HCWs providing the group or individual pre-test session. For the group session this checklist can be used as a reminder of the points to include in the session. For the individual session, this checklist can be used not only as a reminder of the important points to include, but also as a record of the session and to support tracking of follow-up.

Tick (✓)	Topic (optional discussion questions)
	1. Introduce yourself and the session. (What are the health concerns for women who are pregnant? During this session we will discuss antenatal care, HIV testing and options for reducing mother to baby transmission.)
	2. Provide an overview of HIV including local prevalence and the importance of testing. (What is HIV? What is AIDS?)
	3. Note that HIV testing is part of routine care offered to all women. Explain why it is important to know one's HIV status.
	4. Discuss HIV transmission. (How is HIV transmitted? Which of the body fluids transmit HIV? What questions do you have about how HIV is passed from mother to her baby?)
	5. Discuss the benefits of HIV testing.
	6. Discuss the HIV testing process, confidentiality and right to refuse, refusal will not affect your care. (How do you find out if you are infected with HIV? What concerns do you have at this point?)
	7. Discuss discordance. Explore clients' understanding of how one partner can have HIV and the other not have it.
	8. Discuss partner testing and HIV prevention/risk reduction. (Are you comfortable asking your partner to be tested for HIV? How do you think he will react? Have you taken steps to protect yourself from HIV? What methods have you used?)
	9. Discuss services available to the client, her baby, partner and family if she tests HIV-positive. (ANC settings only: remind the client of the importance of delivering the baby in a health facility.)
	10. Inform the woman who refuses testing that she will be offered further opportunities to test during her pregnancy. 11. Refer clients that require further support and information for additional support, individual or couple counselling.
	For women who refuse HIV testing (individual session only): 12. Ask why she did not want to be tested. (What are your reasons for not wanting to have an HIV test today?) 13. Reinforce benefits of HIV testing. 14. Review risk reduction. 15. Encourage exclusive breastfeeding, encourage continuous healthcare. (Shall we set an appointment for you to come back to discuss testing for HIV?)  <b>Document refusal to test so that during future visits, HIV testing will be re-offered and/or referrals made for individual or couple counselling.</b>

## APPENDIX 5-C Suggested Script for ANC and Post-delivery Pre-test Session

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### Key

Text = script for ANC clients only  
[Text] = script for post-delivery clients only  
Text = script for all clients

### HIV is in the community and it can affect anyone.

- Welcome, my name is \_\_\_\_\_. I am a \_\_\_\_\_ (*title*) here at the clinic.
- [Before you leave, it is important to make sure you received all the tests you need. There is no record that you received an HIV test during this pregnancy or during labour.]
- Today, as part of your visit, we will be discussing HIV, HIV testing and ways you can protect your health, the health of your baby and your family.
- HIV affects families and our community. HIV is an infection that can lead to a serious illness called AIDS. \_\_\_\_\_ (*number*) out of 100 adults in the country have HIV.
- As you can see in this picture, you cannot tell who has HIV. Most people who have HIV do not feel or look sick.
- Everyone should learn if he/she has HIV, especially pregnant women, because if a pregnant woman has HIV, she can pass it to her baby. [including women who have had a baby. A woman who has or gets HIV while breastfeeding her baby, can pass HIV to her baby.]
- The only way to know if you have HIV is to be tested. If you are tested and do not have HIV, you will learn how to protect yourself and your baby from getting HIV. If you are tested and have HIV, you will learn how to lower the chance of passing HIV to your baby and how to get care and treatment for yourself, your baby and your family so you can live healthy lives.

### How can I get or pass HIV?

- One of the main ways you can get HIV is by having unprotected sex (sex without a condom). All pregnant women [All women with children] have had unprotected sex and are therefore at risk for HIV.
- You can also get HIV when receiving a blood transfusion if the blood has not been tested for HIV.
- You can also get or pass HIV by sharing sharp objects such as razor blades or piercing equipment that puncture or cut the skin. It can also be transmitted by sharing needles and syringes, to inject drugs or any other substance.
- HIV *cannot* be passed in the following ways:
  1. Mosquito bites
  2. Sharing food and utensils
  3. Hugging and holding
  4. Shaking hands
  5. Using toilets

### Probing Questions:

- What do you know about how HIV is passed from one person to another?
- What questions do you have about how HIV is passed?
- Do you have some HIV risks or concerns you would like to talk about today? (*for individual or couple counselling only*)

## APPENDIX 5-C Suggested Script for ANC and Post-delivery Pre-test Session *(continued)*

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### If I have HIV, can I pass it to my baby?

- A mother with HIV can pass HIV to her baby during pregnancy, labour and delivery and breastfeeding.

#### Probing Question:

- What questions do you have about how HIV is passed from a mother to her baby?

### Why should I test for HIV?

- Not all women who have HIV will pass it to their babies. Without care, 1 out of 3 women with HIV will pass HIV to her baby. This is why it is important to get tested for HIV and receive medical care to lower the chance of passing HIV to your baby.
- There are many benefits to testing.
- If you are tested and you do *not* have HIV, you will learn how to protect yourself and your baby from getting HIV.
- Most women who are tested will not have HIV.
- If you are tested and you have HIV, you will learn how to lower the chance of passing it to your baby and how to get treatment and care services so you and your baby can both live healthy lives.
- **[If baby was born within the past 72 hours (and rapid testing is available):** If you are tested and you have HIV, the baby will receive medicine to lower the chance of getting HIV. You will also learn how to feed your baby more safely and how to get treatment and care services so you and your baby can both live healthy lives.
- **If baby was born more than 72 hours ago:** If you are tested and you have HIV, you will also learn how to feed your baby more safely and how to get treatment and care services so you and your baby can both live healthy lives.]
- We will give you more information after the test to help you make these choices.

#### Probing Question:

- Before we continue, what questions do you have about how to protect your baby from HIV?

### How will the HIV test be done?

- HIV testing will be offered as part of the basic services you will receive today.
- HIV testing is private. This means that only healthcare workers who are caring for you will know your HIV test result.
- You have the right to refuse HIV testing, but we strongly recommend you are tested for HIV to help protect your baby. Unless you refuse, we will test you for HIV along with the other tests we do today.
- *Read only the option that applies:* The HIV test will be done by drawing blood **OR** the HIV test will be done by a simple fingerprick **OR** the HIV test will be done by swabbing your mouth.
- *Read only the option that applies:* You will be tested here and get your result today **OR** you will be tested \_\_\_\_\_ (state when and where). You will get your result \_\_\_\_\_ (state date).
- If your HIV test result is negative, it means you do not have HIV. If your HIV test result is positive, it means you have HIV.

#### Probing Question:

- Before we go any further, what concerns or questions do you have about HIV testing?

## APPENDIX 5-C Suggested Script for ANC and Post-delivery Pre-test Session *(continued)*

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### My partner's test result could be different from mine.

- Regardless of your HIV test result, it is very important for your partner to get tested for HIV. In couples, it is common for one person to have HIV (i.e., HIV-positive) while the other person does not have HIV (i.e., HIV-negative).
- In this picture, there are four couples:
  1. In one couple, both partners are HIV-positive.
  2. In another, both partners are HIV-negative.
  3. In the other two couples, the partners' results are different: one partner is HIV-negative and the other is HIV-positive.
- When couples have different test results, the HIV-negative partner is at high risk of getting HIV. Sometimes couples have been together for years, have been faithful, have had children and still have different HIV test results. If an HIV-negative partner continues to have unprotected sex with a partner who is HIV-positive, then he or she is very likely to get HIV.

#### Probing Questions:

- Do you understand how one partner can have HIV and the other not have it?  
**Suggested Response:** Similar to how you may not get pregnant every time you have sex, HIV transmission may not happen every time you have sex with an HIV-positive person. It is not possible to know when HIV will be passed, but every time you have sex with an HIV-positive person there is a chance that you could become infected.
- What questions or concerns do you have?

### Why should my partner test for HIV?

- The only way to know your partner's status is for him to get tested for HIV. Your partner should be tested so you can protect each other and your baby from HIV.
- Another important reason why your partner should get tested is because if you are HIV-negative now and get HIV later in your pregnancy, or while you are breastfeeding, the risk of passing the virus to your baby is very high.
- If you prefer to be counselled and tested as a couple, you can be tested together at \_\_\_\_\_ (*name of site*). Your partner can also be tested at \_\_\_\_\_ (*name of site*).

#### Probing Questions: *(for individual or couple counselling only)*

- Are you comfortable asking your partner to be tested for HIV? How do you believe he will react?
- What do you think about receiving HIV testing and counselling with your partner?
- What questions or concerns do you have?



## APPENDIX 5-C Suggested Script for ANC and Post-delivery Pre-test Session *(continued)*

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### How can I protect myself from HIV?

- There are three main ways to protect yourself and your partner from HIV.
- If you and your partner are both tested for HIV and are both HIV-negative, you can protect each other from HIV by being faithful and only having sex with one another. If either of you has sex with anyone else, you could become infected with HIV and pass it to your partner.
- Another way to protect yourself is by using condoms. When used correctly every time you have sex, condoms help protect against HIV. It is particularly important to use condoms if your partner is HIV-positive, if you don't know if your partner has HIV or if your partner has other partners.
- We can provide you with condoms and information on how to use a condom correctly. You and your partner can also get additional information about condoms at \_\_\_\_\_ *(name of site)*.
- Another option is not to have sex, particularly until your partner is tested for HIV. This can be difficult, but it is the most effective way to protect each other from HIV.

#### Probing Questions: *(for individual or couple counselling only)*

- Have you taken steps to protect yourself from getting HIV? What methods have you used?
- What questions or concerns do you have?

### If I have HIV, how do I protect my baby?

- If you are HIV-positive, there are medicines that we will give you and your baby to lower the chance of passing HIV to your baby.
- Your healthcare provider will decide with you when you need to take medicines for HIV (antiretrovirals), which can help protect you from becoming ill and can help you have a long, healthy life.

#### Probing Question:

- Before we continue, what questions do you have about how to protect your baby from HIV?

### If I have HIV, what help can I get?

- More and more services are becoming available to help HIV-positive people and their families stay healthy.
- If you are HIV-positive, there are medicines available to help you live a long and healthy life.
- Additional counselling, prevention, nutrition and support services are also available.
- After the test, we will give you more information about the services available to help you.
- [No matter what your test result is, it is very important for you and your baby to continue receiving healthcare services.]

### Why is it important to continue with my healthcare visits?

- No matter what your test result is, it is very important for you to continue receiving antenatal care.
- You should also plan to deliver your baby in a health facility, where there are skilled providers who can help in case of problems. This is especially important if you are HIV-positive because there are steps we can take at the health facility to help protect your baby from HIV; steps that might not be available if you have your baby outside of a health facility.

#### Probing Questions: *(for individual or couple counselling only)*

- Do you plan to continue antenatal care?
- How likely is it that you will deliver your baby in a health facility?

## **APPENDIX 5-C Suggested Script for ANC and Post-delivery Pre-test Session** *(continued)*

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### **By testing for HIV, I will have a good chance to have a healthy child and a healthy life.**

- We have talked about five main points today:
  1. It is important that you test for HIV.
  2. If you are HIV-negative, you will learn how to stay negative.
  3. If you are HIV-positive there are medicines and ways to feed your baby to lower the chance of passing HIV to your baby. You and your family can also receive care, treatment and support services to stay healthy.
  4. Whether your test result is positive or negative, your partner needs to be tested for HIV since your result could be different from his.
  5. You should continue with your care during pregnancy and plan to deliver in a health facility [postnatal and well-baby care].
- Remember, by taking the HIV test, you can protect your baby and family from HIV and you can stay healthy.
- If you have specific questions or concerns, we can discuss them privately.

#### **Probing Questions:**

What additional questions or concerns do you have?

## APPENDIX 5-D Fingerprick Graphic

### Fingerprick

Always use Standard Precautions.



1. Collect supplies.



2. Position hand palm-side up. Choose whichever finger is least calloused.



3. Apply intermittent pressure to the finger to help the blood to flow.



4. Clean the fingertip with alcohol. Start in the middle and work outward to prevent contaminating the area. Allow the area to dry.



5. Hold the finger and firmly place a new sterile lancet off-center on the fingertip.



6. Firmly press the lancet to puncture the fingertip.



7. Wipe away the first drop of blood with a sterile gauze pad or cotton ball.



8. Collect the specimen. Blood may flow best if the finger is held lower than the elbow.



9. Apply a gauze pad or cotton ball to the puncture site until the bleeding stops.



10. Properly dispose of all contaminated supplies.



Use of trade names and commercial sources is for identification only and does not imply endorsement by WHO, the Public Health Service, or by the U.S. Department of Health and Human Services (2005).



Adapted from: CDC, WHO. 2005. HIV Rapid Testing Training Package. Available at: <http://www.phppo.cdc.gov/dls/ila/hivtraining>

## APPENDIX 5-E Post-test Counselling, HIV-negative

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The following checklist is a job aid for use by HCWs providing the post-test counselling. This checklist can be used as a reminder of the important points to include in the session, as a record of the session and to support tracking of follow-up.

Tick (✓)	Topic (optional discussion questions)
	1. Provide test result: "Your test result is negative." (What does the negative test result mean?)
	2. Explain window period and encourage re-testing in 6 weeks if client was possibly exposed to HIV within the past 6 weeks.
	3. Discuss disclosure to partner and discordance.
	4. Suggest that the client refer her partner for HIV testing (Are you comfortable asking your partner to be tested for HIV? How do you believe he will react? What do you think about receiving HIV testing and counselling with your partner?)
	5. Discuss HIV prevention/risk reduction: mutual faithfulness, condom use and/or abstinence. (Do you know how to prevent getting HIV/STIs? Explain safer sex. What, if any, difficulties do you anticipate in using condoms with your partner/s?)
	6. Encourage exclusive breastfeeding (if woman is pregnant or has a child less than 6 months of age) and continuous healthcare. (Shall we set an appointment for your return (post-natal) visit?) Reinforce the importance of delivery in a health facility.
	7. Ask if client has any questions (What questions do you have? If you have any further concerns, please contact us so we can help.)

## APPENDIX 5-F Post-test Counselling, HIV-positive

The following checklist is a job aid for use by HCWs providing the post-test counselling. This checklist can be used as a reminder of the important points to include in the session, as a record of the session and to support tracking of follow-up.

Tick (✓)	Topic (optional discussion questions)
	1. Provide test result: "Your test result is positive; this means you have HIV." (What does the positive test result mean? What concerns do you have about the test result? What concerns do you have about your pregnancy and HIV?)
	2. Discuss ARV therapy (for the mother) and ARV prophylaxis (for mother and infant).
	3. Stress importance of delivering at a health facility.
	4. Discuss infant feeding: <ul style="list-style-type: none"> <li>▪ Provide information on the advantages and disadvantages of available options</li> <li>▪ Explore home and family situation</li> <li>▪ Help the mother choose an appropriate feeding option (or refer her to an infant feeding counsellor if available)</li> <li>▪ Demonstrate how to practise the chosen feeding option (or refer her to an infant feeding counsellor if available)</li> </ul>
	5. Provide advice on staying healthy and make referrals. Advise on: <ul style="list-style-type: none"> <li>▪ Regular healthcare visits</li> <li>▪ Accessing HIV-related care, treatment and support (Are you aware of the benefits of ARV therapy? What questions do you have about HIV care and treatment?) and taking medicine to prevent or treat illnesses such as TB and malaria as prescribed</li> <li>▪ Drinking safe water and eating well</li> <li>▪ Family planning</li> </ul>
	6. Discuss disclosure to partner and discordance.
	7. Suggest client refers partner for HIV testing. (Are you comfortable asking your partner to be tested for HIV? How do you believe he will react? What do you think about receiving HIV testing and counselling with your partner?)
	8. Discuss HIV prevention/risk reduction: mutual faithfulness, condom use and/or abstinence. (Do you know how to prevent getting HIV/STIs? What is safer sex? What, if any, difficulties do you anticipate in using condoms with your partner/s?)
	9. Stress the importance of getting support. (How are you feeling right now? Do you have any family members or friends who can provide support to you? What are your plans on leaving here today?)
	10. Discuss health promotion for her child: <ul style="list-style-type: none"> <li>▪ Regular healthcare for mother and child</li> <li>▪ Infant/child HIV testing</li> <li>▪ Encourage her to support the child to live an active life</li> <li>▪ Daily co-trimoxazole prophylaxis</li> <li>▪ HIV testing of older children</li> </ul>
	11. Summarize the session: <ul style="list-style-type: none"> <li>▪ ARV therapy or prophylaxis to prevent MTCT</li> <li>▪ Infant feeding</li> <li>▪ Daily co-trimoxazole dose for baby</li> <li>▪ HIV testing of older children</li> <li>▪ Partner testing</li> <li>▪ Delivery in a health facility</li> <li>▪ Importance of regular attendance at mother and baby healthcare visits</li> <li>▪ Further support</li> </ul>

## **APPENDIX 5-G Talking with Parents about their Child's HIV Test Results**

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### **Prepare for the talk with parent or guardian.**

- Make sure you have the child's test result and inform the parent that you have the result.
- Schedule an appointment.

### **Greet the parent and establish rapport.**

- Ask if the parent or guardian has had any questions since the child's blood test. Answer the questions and let the client know that counselling will continue to be available to help with important decisions.

### **Inform the parent of the test result.**

- Ask, "Are you ready to receive your child's HIV test result?"
- State, in a neutral tone, "The baby's test result is positive. That means that the baby has HIV infection."
- Pause and wait for the parent to respond before continuing. Give the parent time to express any emotions.
- If the parent would like to see proof of the result, provide it.
- Check the parent's understanding of the result's meaning. Discuss and support the parent's feelings and emotions.
- Explain that the blood test revealed evidence of HIV, the virus that causes AIDS, in the baby's body. Review the testing procedure with the parent and check to be sure that he or she understands the test results. Explain the accuracy of the test. Allow time for silence.
- Reassure the family that, although there is no cure, there are treatments for infections that the child can receive. Emphasize that children can live many years before they become sick with AIDS-related illnesses if they receive ongoing treatment, care and support. Talk about available ARV therapy for children.
- Recognize that many people may interpret this diagnosis as a death sentence. Anticipate reactions of grief, shock, disbelief, denial and anger. Offer appropriate support.

### **Discuss ways to keep the child healthy.**

- Emphasize the need for immunizations.
- Talk about good nutrition.
- Stress that the child should be allowed to live an active life and play like other children whenever possible.
- Review the importance of prompt medical attention as well as preventive care. Stress the importance of co-trimoxazole prophylaxis and discuss how the medication is given (tablets given once/day).
- Refer the child for HIV treatment and care if not provided in your facility.

### **Review Standard Precautions.**

- Reassure the family that close contact with family members and normal baby care do not transmit HIV.
- Review measures for diaper/nappy changing (no gloves are necessary), blood spills (use a barrier) and open sores (they should be covered).

### **Identify other family members who may be at risk of HIV infection.**

- Identify, counsel and test siblings who may be at risk. Families must be given the time and support to do this.

## **APPENDIX 5-G Talking with Parents about their Child's HIV Test Results** *(continued)*

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### **Identify a support system.**

- Identify a personal support system for the family.
- Assess the psychological status of mother and other family members.
- Refer family to a support group, if they are interested.
- Provide the family with written material that they can take home, if they are interested.

### **Review issues of confidentiality.**

- Introduce disclosure issues.
- Explain how confidentiality is handled in the clinical setting.

### **Assess the family's understanding of the diagnosis, treatment and care at each visit.**

- Review and offer additional information as appropriate.

## APPENDIX 5-H Follow-up Counselling and Referral Assessment

The following checklist is a job aid for use by HCWs to evaluate if clients require further support and/or referral. Not all clients will require follow-up counselling and referral assessment and it may not be necessary to cover all questions on this list. This checklist can be used as a reminder of the key questions in the evaluation, as a record of the session and to support tracking of follow-up.

Tick (✓)	Referral assessment question:	Consider referring client
<b>1. Reactions to test result</b>		
	What is the meaning of your HIV-positive test result?	If she has difficulty accepting the HIV-positive result—refer for further counselling.
	How are you coping with your HIV-positive result? What did you do after you received your result?	If she reacts severely to the HIV-positive result, e.g., depression, suicidal ideation, high levels of emotional distress, difficulty coping—refer to psychiatrist or other mental health professional.
<b>2. Disclosure to others</b>		
	Who have you told? What concerns do you have about telling your partner about your HIV-positive result?	If she fears her partner will reject or abandon her or has fears of partner violence—refer for further counselling.
	Who in your family have you told about your HIV-positive result? What concerns do you have about telling family about your HIV-positive result?	If she fears that family will reject or abandon her or fears violence by family—refer for further counselling.
<b>3. Safer sex</b>		
	What is safer sex? How often do you use condoms? What will you say to your partner to ask him to use a condom? How do you think he will react?	If she is unable to negotiate safer sex after extensive support and continues to be at risk of transmitting HIV (e.g., no condom use, multiple sexual partners, sex work, partner condom refusal)—refer for further counselling.
<b>4. Mood and coping</b>		
	How is your mood now? Do you feel sad or depressed? What changes have you noticed in your eating habits? In your sleeping pattern? Do you have less energy than usual? Have you lost interest or pleasure in things you usually enjoy?	If she is in a persistently low mood, exhibits a loss of appetite, sleep disturbance, loss of energy, loss of interest, hopelessness—refer to psychiatrist or other mental health worker.
	Have you experienced problems with your moods before? How did you cope with this? Are you concerned these problems might occur again?	If she exhibits prolonged episodes of low moods, is vulnerable to further emotional difficulties and has limited coping strategies—refer to counsellor and/or support group.
	Do you currently use alcohol or take drugs that are not prescribed? How often are you using alcohol or drugs? What, if any, problems has this caused for you, your partner or family?	If alcohol or drug use is heavy—refer for counselling. Advise that excessive alcohol or drug use is not advised if HIV positive.



## APPENDIX 5-H Follow-up Counselling and Referral Assessment

(continued)

<b>5. Social concerns</b>		
	How many children are you caring for? What problems, if any, are you having?	If she has no support, financial difficulties, difficulties managing home arrangements, or if child abuse is suspected—refer for further counselling or support if available.
	How is your diet? What have you eaten so far today? Is that typical? Do you have any financial support?	If nutritional intake (or weight/weight gain) is inadequate: explore difficulties—refer to nutritionist or counsellor.
	What social support are you receiving at the moment, e.g., church, friends, or support groups?	Refer to a support group, particularly if she has limited supportive network.
	Has anyone caused you harm in the past; e.g., hurt you physically or unwanted sexual encounters?	If she has experienced physical harm repeatedly and recently (within past year) and is not coping and has not sought support—refer for counselling.



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## **Module 6** Infant Feeding in the Context of HIV Infection

**SESSION 1** Global Infant Feeding Recommendations

**SESSION 2** Infant Feeding Options

**SESSION 3** Supportive Counselling for Safer Infant Feeding Choices

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**After completing the module, the participant will be able to:**

- Provide an overview of the Global Strategy for Infant and Young Child Feeding.
- Summarize the global infant feeding recommendations.
- Discuss the advantages and disadvantages of the main infant feeding options.
- Provide general information on infant feeding.
- Describe the steps in providing initial infant feeding information to HIV-infected mothers.

This module is designed to provide the healthcare worker (HCW) with the basic knowledge for providing information on infant feeding in settings where PMTCT services are offered. Infant feeding counselling training is strongly encouraged and should be considered whenever possible.

## SESSION 1 Global Infant Feeding Recommendations

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**After completing the session, the participant will be able to:**

- Provide an overview of the Global Strategy for Infant and Young Child Feeding.
- Summarize the global infant feeding recommendations.

### Introduction

Without intervention, 5% to 20% of infants breastfed by mothers who are HIV-infected acquire HIV infection through breastfeeding. Although antiretroviral (ARV) therapy and prophylaxis have substantially reduced mother-to-child transmission (MTCT) of HIV, ARV prophylaxis does not provide long-term protection for the infant who is breastfeeding. Infant feeding practices that carefully follow national or global guidelines for infant and young child feeding can reduce the likelihood of MTCT through breastfeeding and reduce the risk of infant death from diarrhoea and other childhood infections.

### Key Infant Feeding Terms

- **Exclusive breastfeeding:** the infant is given only breast milk and no other liquids or foods, not even water. However, the infant may be given drops or syrups consisting of vitamins, mineral supplements or medicine as directed by a HCW. The exclusively breastfed child may receive expressed breast milk.
- **Wet-nursing:** having another woman breastfeed an infant; to prevent MTCT, it is important that the wet-nurse has been tested and is HIV-negative and has no risk factors for acquiring HIV.
- **Expressing and heat-treating breast milk:** removing the milk from the breasts manually or with a pump, and then heating it to kill HIV.
- **Replacement feeding:** the infant who is receiving no breast milk is given a diet that provides all the nutrients the infant needs until the age at which he/she can be fully fed with family foods. During the first 6 months of life, replacement feeding should be with a suitable breast-milk substitute such as commercial infant formula. After 6 months, the suitable breast-milk substitute should be complemented with other foods.
- **Commercial infant formula:** specially formulated powdered milk made specifically for infants. Commercial infant formula is sold in shops/stores or provided to HIV-infected mothers to prevent HIV transmission to infants.
- **Home-modified animal milk:** fresh or processed animal milk that is modified by adding water, sugar, oil and micronutrient supplements.
- **Mixed feeding:** feeding an infant breast milk along with other liquids and/or solid foods during the first six months of life. Giving commercial infant formula, animal milk, water or tea to an infant who is breastfed are examples of mixed feeding. Other examples are introducing foods such as porridge or rice to the breastfed infant before the age of 6 months.
- **Complementary feeding:** the infant or child receives both breast milk, or a breast-milk substitute, and solid or semi-solid food.

### Basic Facts on Malnutrition, Infant Feeding and Child Survival

- Malnutrition is the underlying cause of about 60% of child deaths (children younger than 5 years old) worldwide and in about 50% of children younger than 5 years old in Africa.
- Being underweight was associated with 3.7 million deaths worldwide in the year 2000, and most of the deaths occurred in children younger than 5 years old.

- Inadequate feeding practices, such as late initiation of breastfeeding, inadequate and/or insufficient complementary feeding, early mixed feeding, or poor hygiene contributing to diarrhoea, are a major cause of low weight and morbidity and mortality in children.
- Counselling and support for infant feeding can improve feeding practices and, in turn, prevent malnutrition and reduce the risk of death in children.
- For mothers who are HIV-infected, counselling and support may lead to improved infant feeding practices that may also help prevent MTCT.

## **The Global Strategy for Infant and Young Child Feeding**

WHO's and UNICEF's Global Strategy for Infant and Young Child Feeding (IYCF) aims to promote, protect and support appropriate infant and young child feeding. This strategy builds upon past initiatives—including the Baby-Friendly Hospital Initiative and the International Code of Marketing of Breast-milk Substitutes. The IYCF strategy calls for action in the following areas:

- All governments should develop and implement a comprehensive policy on infant and young child feeding.
- All mothers should have access to skilled support to initiate and sustain exclusive breastfeeding for 6 months and the timely introduction of adequate and safe complementary foods.
- HCWs should be empowered to provide effective feeding counselling.
- There should be global implementation of the International Code of Marketing of Breast-milk Substitutes
- Legislation should be enacted to protect the breastfeeding rights of working women

The International Code of Marketing of Breast-milk Substitutes and the Baby-Friendly Hospital Initiative are summarized below.

## **International Code of Marketing of Breast-milk Substitutes**

The International Code of Marketing of Breast-milk Substitutes (1981) bans all promotion of formula feeding and sets out requirements for labelling and information on infant feeding (see Appendix 6-A for additional information). Any activity that undermines breastfeeding also violates the aim and spirit of the Code. This Code helps provide safe and adequate nutrition for infants and children by:

- Protecting and promoting breastfeeding
- Supporting proper and informed use of breast-milk substitutes when necessary
- Promoting acceptable marketing and distributing practices

Even in countries that provide infant formula to HIV-infected mothers, HCWs should resist all commercial promotion of formula under the Code; for example, HCWs can remove advertisements from health facilities; refuse to accept free samples of formula and equipment (e.g., bottles), refuse to accept or use other gifts or equipment with brand names and make sure that any formula used in a healthcare facility is kept away from mothers who do not need it.

## **The 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 WHO to ensure that all maternities, whether free-standing or in a hospital, become centres of breastfeeding support. The Ten Steps to Successful Breastfeeding, which can be found in Appendix 6-B, are a summary of practices to improve conditions for all mothers and their infants including those who are not breastfeeding. A list of frequently

asked questions about integrating PMTCT interventions with the Baby-Friendly Hospital initiative is also included in the same appendix.

## **Infant Feeding Recommendations for Mothers who are HIV-negative and Mothers with Unknown HIV Status**

Breast milk alone is the ideal nourishment for infants for the first six months of life as it contains all the nutrients, antibodies, hormones and other factors an infant needs to thrive. It protects babies from diarrhoea and respiratory infections and stimulates the development of their immune system, which allows children to fight off disease.

Breastfeeding also has many health and emotional benefits for the mother, including decreased blood loss postpartum, delayed return to fertility and decreased risk of cancer of the breast and ovaries. Immediate postpartum breastfeeding helps the bonding between mother and infant. Because of the benefits of breastfeeding, the following are the recommendations for women who are *not* HIV-infected or who do not know their status:

- Breastfeed **exclusively** for the first six (6) months of life.
- Continue breastfeeding for up to 2 years or longer.
- After the infant reaches 6 months of age, introduce safe, nutritious complementary foods.

### **Preventing HIV infection during pregnancy or breastfeeding**

If a woman is recently infected with HIV, the risk of MTCT is very high. Therefore, it is very important that mothers receive information about the risk of becoming infected with HIV during pregnancy or breastfeeding. Women with unknown HIV status should be encouraged to test for HIV and counselled on HIV prevention or HIV-related care, treatment and support.

## **Infant Feeding Recommendations for Mothers who are HIV-infected**

- The most appropriate infant feeding option for an HIV-infected mother should continue to depend on her individual circumstances, including her health status and the local situation, but should take greater consideration of the health services available and the counselling and support she is likely to receive.
- Exclusive breastfeeding is recommended for HIV-infected women for the first 6 months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS—see “Definitions” below) for them and their infants before that time.
- When replacement feeding is AFASS, avoidance of all breastfeeding by HIV-infected women is recommended.
- At six months, if replacement feeding is still not acceptable, feasible, affordable, sustainable and safe, continuation of breastfeeding with additional complementary foods is recommended, while the mother and baby continue to be regularly assessed. All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided.
- All mothers who are HIV-infected should receive counselling, which includes general information about the risks and benefits of each infant feeding option and specific guidance on selecting the option most suitable for their situation.
- Whatever choice a mother makes, she should be supported.

### AFASS

- **Acceptable:** The mother and family perceive no barrier to replacement feeding. Barriers may have cultural or social causes, or be due to fear of stigma or discrimination.
- **Feasible:** The mother and family have adequate time, knowledge, skills and other resources to prepare the replacement food and feed the infant up to 12 times in 24 hours.
- **Affordable:** The mother and family, with community or other support if necessary, can pay the cost of purchasing/producing, preparing and using replacement feeding, including all ingredients, fuel, clean water, soap and equipment, without compromising the health and nutrition of the family.
- **Sustainable:** The mother and family have access to a continuous and uninterrupted supply of all ingredients and products needed for safe replacement feeding for as long as the infant needs it, up to one year of age or longer.
- **Safe:** The mother and family are able to correctly and hygienically store, prepare and feed the baby with nutritionally adequate quantities with clean hands using clean utensils, preferably by cups. According to this concept, the mother and family:
  - Have access to a reliable supply of clean water (from a piped or protected well source)
  - Prepare replacement feeds that are nutritionally sound and free of pathogens (germs)
  - Are able to wash hands and utensils thoroughly with soap and to regularly boil the utensils to sterilize them
  - Can boil water for preparing each of the infant's feeds
  - Can store unprepared feeds in clean, covered containers and protect them from rodents, insects and other animals.

### Risks Associated with Mixed Feeding Before 6 Months of Age

Mixed feeding is the feeding of both breast milk and other foods or liquids. Risks associated with mixed feeding before 6 months of age include:

- Breast milk is replaced with less nutritious foods
- Increased risk of diarrhoea in infants
- Increased risk of HIV transmission to the infant, which may be due to irritation of infant's intestinal mucosa

Recent studies have suggested that the risk of HIV transmission from mother to infant from about 6 weeks up to six months of exclusive breastfeeding is about 4%. If the infant is given formula in addition to breast milk, that risk appears to double. The breastfed infant given solid foods in the first six months has a risk of HIV infection **eleven** times as high as the exclusively breastfed infant.

Exclusively breastfed babies have fewer episodes of infection compared to babies who are mixed-fed.

Given the risks involved with mixed feeding, it is essential that HCWs emphasize the importance of exclusive breastfeeding for HIV-infected mothers who choose to breastfeed. Even vitamin or mineral supplements should only be provided when medically appropriate. HIV-infected women who choose to breastfeed will need additional counselling to avoid (prolonged) mixed feeding if they transition to replacement feeding before six months.

## SESSION 2 Infant feeding Options

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**After completing the session, the participant will be able to:**

- Discuss the advantages and disadvantages of the main infant feeding options.

### Infant Feeding Choices for HIV-infected Mothers

#### Making decisions about infant feeding

HIV-infected mothers must consider many factors when deciding which feeding option is best for their infant. HCWs can guide their decision-making by providing infant feeding counselling that includes the following:

- Information about the risk of HIV transmission through breastfeeding
- Advantages and disadvantages of each available option
- Respect for local customs, practices and beliefs when helping a mother make infant feeding choices

HCWs share in the responsibility to protect, promote and support safe and appropriate feeding practices. They should support women's infant feeding decisions and provide continued support during the first two years of a child's life. Once a woman selects an infant feeding method, she will need ongoing support from HCWs to maximize success and ensure proper growth and development of the child. The infant feeding options available to an HIV-infected pregnant or newly-delivered woman are guided by national policy. This session reviews the main infant feeding options:

- Exclusive breastfeeding
- Replacement feeding

#### Exclusive Breastfeeding

**Exclusive breastfeeding** is when the infant is given *only* breast milk and no other liquids or foods, not even water. However, the infant may be given drops or syrups consisting of vitamins, mineral supplements or medicine as directed by a HCW. The exclusively breastfed child may receive expressed breast milk.

#### Mothers who choose to breastfeed should be made aware that:

- 5% to 20% of infants breastfed by HIV-infected mothers may acquire HIV infection through breastfeeding.
- ARV prophylaxis does not provide long-term protection for the infant who is breastfeeding.
- The risk of transmitting HIV to the infant during breastfeeding is greater:
  - When the woman has a high viral load or low CD4 count (new infection or advanced HIV disease)
  - When a woman has mastitis, a breast abscess, nipple sores or other breast problem. If she has one of these conditions she should feed the infant from the unaffected breast and express and then discard the milk from the affected side to ensure continuous milk supply and to prevent engorgement. She should resume feeding from the affected side when the condition resolves. She can express milk and heat-treat (see page 6-8) before giving to the infant if both breasts are affected, particularly if formula feeding is not AFASS.
  - When the infant or child has ulcers or open sores in the mouth
  - When the child is mixed fed

See Appendix 6-C, "Breastfeeding Basics" for information on breastfeeding, management of breast conditions and good breastfeeding technique.

Advantages and disadvantages of exclusive breastfeeding are presented in Table 6.1.

**Table 6.1 Exclusive breastfeeding**

<b>Table 6.1 Exclusive breastfeeding</b>	
<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>▪ Breast milk is the perfect food for babies and protects them from many diseases, especially diarrhoea and respiratory illnesses and the risk of dying of these diseases.</li> <li>▪ Breastfeeding improves brain growth and development.</li> <li>▪ Breast milk gives babies all of the nutrition and hydration they need. They do not need any other liquid or food for the first 6 months.</li> <li>▪ Breast milk is always available and does not need any special preparation.</li> <li>▪ Breastfeeding provides the close contact that deepens the emotional relationship or bond between mother and child.</li> <li>▪ Exclusive breastfeeding for the first few months lowers the risk of passing HIV, compared to mixed feeding.</li> <li>▪ Many women breastfeed, so people will not ask the mother why she is doing it.</li> <li>▪ Exclusive breastfeeding helps the mother recover from childbirth (promotes uterine involution, i.e., the return of the uterus to a non-pregnant state) and protects her from getting pregnant again too soon.</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>▪ Risk of MTCT exists as long as the mother who is HIV-infected breastfeeds because breast milk contains HIV.</li> <li>▪ Mother may be pressured to give water, other liquids or foods to the infant while breastfeeding. This practice, known as mixed feeding, increases the risk of HIV, diarrhoea and other infections.</li> <li>▪ Breastfeeding requires feeding on demand at least 8–10 times per day, and working mothers may find it difficult to breastfeed exclusively once they return to work unless they have adequate support (alternatively, they can express milk during the workday and arrange to store milk in a cool place).</li> <li>▪ Breastfeeding mothers require an additional 500 kcal/day to support exclusive breastfeeding during the infant's first 6 months. This is the equivalent of one extra meal a day. See Appendix 6-D for information on nutrition and the HIV-infected breastfeeding mother.</li> </ul>

### **Exclusive breastfeeding with early cessation**

To minimize the risk of HIV transmission through breast milk, mothers who are HIV-infected should discontinue breastfeeding when the infant is 6 months of age, *if* replacement feeding is AFASS for them and their infants—given local circumstances, the individual woman's situation and the risks of replacement feeding for the infant's age. Early cessation may be initiated *before* 6 months, if replacement feeding is AFASS.

The transition from breast milk to replacement feeding should take place over a period of 2-3 days to 2-3 weeks. Before starting the process of early cessation, mothers who are infected with HIV should receive psychosocial support, infant nutrition information and support and guidance to maintain breast health.

Early cessation of breastfeeding is *not* recommended for infants who are already infected with HIV. If the infant is diagnosed with HIV infection based on a presumptive diagnosis or through HIV testing, the mother should be encouraged to continue *exclusive* breastfeeding until 6 months and then continue breastfeeding with the introduction of safe, nutritious complementary foods.

Early cessation may not be advisable, even after 6 months, if replacement feeding is not AFASS and the risk of malnutrition is high because the mother does not have adequate other foods to give the infant. The advantages and disadvantages of early cessation of breastfeeding are presented in Table 6.2. See Appendix 6-E for guidance on how to stop breastfeeding early.



**Table 6.2 Early cessation of breastfeeding**

<b>Table 6.2 Early cessation of breastfeeding</b>	
<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>▪ Cessation of breastfeeding ends the risk of transmitting HIV to the infant through breastfeeding.</li> <li>▪ Other responsible family members can help feed the infant.</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>▪ Infants may become malnourished after breastfeeding stops if suitable breast-milk substitutes are unavailable or are not provided appropriately.</li> <li>▪ An infant who is fed breast-milk substitutes is more likely to get diarrhoea, especially if the breast-milk substitutes are not prepared safely.</li> <li>▪ Infants may become anxious and dehydrated if they stop breastfeeding too rapidly.</li> <li>▪ The infant will need to drink from a cup. Infants can learn how to do this even when they are very young, but it may take time to learn. (See Appendix 6-F for a summary of the advantages of cup feeding and practical suggestions for cup feeding an infant.) If possible, mothers should be taught how to feed infants, using a cup and expressed breast milk, before they stop breastfeeding.</li> <li>▪ Mothers' breasts may become engorged and infected during the transition period if some milk is not expressed and discarded.</li> </ul>

**Expressing and heat-treating breast milk**

Expressing milk means removing it from the breast, usually by hand. The milk must then be heated to the boiling point to kill the HIV before the milk is fed to the infant. Expressing and heat-treating breast milk *can* be used as a long-term feeding strategy; but because expressing and heating breast milk is time consuming, it is more likely to be used as a short-term strategy to reduce the risk of HIV transmission:

- While the mother is sick to avoid the risks associated with breastfeeding when HIV viral load may be high
- While the mother is experiencing breast problems such as mastitis, a breast abscess or nipple sores that increase transmission risk
- While transitioning from breastfeeding to replacement feeding to avoid mixed feeding

See Appendix 6-G for additional information on how to heat-treat and store breast milk and Table 6.3, below, for a summary of the advantages and disadvantages.

**Table 6.3 Expressing and heat-treating breast milk**

<b>Table 6.3 Expressing and heat-treating breast milk</b>	
<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>▪ HIV is killed by heating the milk and ends the risk of transmitting HIV through breast milk.</li> <li>▪ Breast milk is the perfect food for babies, and most nutrients remain in breast milk after heating.</li> <li>▪ Other responsible family members can help feed the infant.</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>▪ Although heated breast milk does not contain HIV, it may not be as effective as unheated breast milk for protecting the infant from other diseases. However, it is still better than replacement feeding.</li> <li>▪ Expressing and heating breast milk takes time and must be done frequently. It can be hard to do for a long time.</li> <li>▪ The infant will need to drink from a cup. Infants can learn how to do this even when they are very young, but it may take time to learn.</li> <li>▪ Heat-treated breast milk needs to be stored in a cool place and used within two hours of heating because it could spoil.</li> <li>▪ Untreated breast milk may be stored up to 8 hours at room temperature or up to 24 hours if stored in a refrigerator at 5°C or less.</li> <li>▪ Preparation requires fuel to heat the breast milk, clean water (boiled until big bubbles rise to the surface for 1 to 2 seconds) and soap to wash the infant's cup and a container to store the breast milk will be needed.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ In some settings, family, neighbours or friends may question a mother who expresses her milk about her HIV status.</li> </ul>
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### Wet-nursing

Wet-nursing can be considered in some instances, but wet-nursing brings the risk of HIV infection to the infant (if the wet-nursing mother is HIV infected) or transmission of HIV to the wet-nursing mother (if the infant is HIV infected). Wet-nursing is further discussed in Appendix 6-H.

### Replacement Feeding

The infant who is replacement fed is given a diet that provides all the nutrients the infant needs until the age at which he/she can be fully fed with family foods. During the first 6 months of life, replacement feeding should be with a suitable breast-milk substitute such as commercial infant formula. Infants who receive replacement feeding should receive no breast milk.

- During the first 6 months of life, infants receiving breast-milk substitute should receive no other foods or liquids.
- After 6 months, the suitable breast-milk substitute should be complemented with nutritious local foods.

Unlike breastfeeding, replacement feeding does not provide immunity against infection but it does eliminate the risk of HIV transmission in breast milk.

### Replacement feeding with commercial infant formula

Commercial infant formula is powdered milk made especially for infants and young children. It is important to observe strict hygiene in preparing commercial infant formula. Prepare commercial infant formula fresh for each feed; give any left-over milk to an older child. Commercial infant formula should be used within 2 hours if not stored in a refrigerator, or within 24 hours if stored in a refrigerator at 5°C or less. Information on making replacement feeding safer is included in Appendix 6-I. It is recommended that commercial infant formula is fed by cup rather than bottle (see Appendix 6-F). Advantages and disadvantages of commercial infant formulas are presented in Table 6.4. Table 6.5 summarizes the number of tins of commercial infant formula required to feed an infant each month.

<b>Table 6.4 Commercial infant formula</b>	
<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>▪ Commercial infant formula poses no risk of transmitting HIV to the infant.</li> <li>▪ Commercial infant formula includes most of the nutrients that an infant needs.</li> <li>▪ Other responsible family members can help feed the infant.</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>▪ Commercial infant formula does not contain antibodies, which protect infants from infection.</li> <li>▪ An infant who is fed commercial infant formula is more likely to get diarrhoea (which can be severe), respiratory infections and malnutrition, especially if the formula is not prepared correctly.</li> <li>▪ Commercial infant formula is expensive.</li> <li>▪ Preparation requires fuel and clean water (water must be brought to a rolling boil for 1-2 seconds) to prepare the formula and soap to wash equipment and hands.</li> <li>▪ Formula must be made fresh for each feed, according to directions, day and night, unless stored in a refrigerator at 5°C or less.</li> <li>▪ Continuous, reliable formula supply is required to prevent malnutrition.</li> <li>▪ The infant will need to drink from a cup. Infants can learn how to do this even when they are very young, but it may take time to learn. (See Appendix 6-F.)</li> <li>▪ In some settings, family, neighbours or friends may question a</li> </ul>

	<p>mother who does not breastfeed about her HIV status. (See Session 3 of this module.)</p> <ul style="list-style-type: none"> <li>▪ Mother may get pregnant again sooner than she would if she was breastfeeding.</li> </ul>
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Additional information about the preparation of commercial infant formula can be found in Appendix 6-J.

<b>Table 6.5 Commercial infant formula requirements in first 6 months</b>			
<b>Month</b>	<b>Approximate age in Days</b>	<b>500 g Tins/Month**</b>	<b>450 g Tins/Month**</b>
First month	0-30 days	4	5
Second month	31-60 days	6	6
Third month	61-90 days	7	8
Fourth month	91-120 days	7	8
Fifth month	121 days to 150 days	8	8
Sixth month	151 days to 180 days	8	9
<b>Total</b>		<b>40</b>	<b>44</b>
<p>**As commercial infant formula tin sizes vary from place-to-place, this table will need to be revised according to tin size of locally available brands and the number of tins needed per month re-calculated.</p> <p>In general, clients should be instructed to follow directions on formula tins over generic instruction. HCWs should, however, carefully review preparation instructions printed on formula tins: messages given by manufacturers can occasionally conflict with the educational messages provided by HCWs (e.g., tins may feature pictures of bottles rather than cups).</p>			

HCWs in programs using commercial infant formula should be trained to prepare home-modified animal milk in case commercial infant formula is unavailable or no longer affordable. For information on home-modified animal milk, see Appendix 6-K.

## Summary

In summary there are two main infant feeding options available to HIV-infected women: exclusive breastfeeding and replacement feeding. Both options have their advantages and disadvantages. The disadvantages of each option can be minimized through patient education. The primary disadvantage of breastfeeding is the risk of transmitting HIV from mother to child, a risk that can be minimized by:

- Prevention and early treatment of breast conditions
- Breastfeed exclusively during the first six months of life
- Cessation of breastfeeding at about six months of age, or earlier, if AFASS
- Express and heat-treat breast milk during the transition period.

The primary disadvantage of replacement feeding is risk of illness, which can be minimized through education on safe preparation.

## Infant Feeding 6-24 Months

Infants/children still need to drink milk after complementary foods are introduced.

- Breastfeeding mothers with HIV should consider stopping breastfeeding completely—if replacement feeding is AFASS—so that the infant is no longer exposed to HIV. If replacement feeding is not AFASS or the infant is known to be HIV-infected, then the mother should continue to breastfeed on demand, even while providing complementary foods.

- Commercial infant formula: continue to use commercial infant formula, prepared as instructed on the tin, until the child is 12 to 24 months of age. Alternatively, switch to full cream/whole (undiluted) animal milk. If switching to undiluted animal milk, the child *will* need an iron-containing micronutrient supplement. For additional information on feeding the infant over 6 months of age, see Appendix 6-L.

Mothers who are not HIV-infected or who do not know their HIV status should continue to breastfeed for up to 2 years or longer.

Appendix 6-L includes guidance on approximately how much milk a child 6 to 24 months of age needs to drink each day, as well as guidance on complementary feeding after 6 months of age.

<b>Exercise 6.1 Infant feeding demonstration (optional)</b>	
<b>Purpose</b>	<p><b>If demonstrating breastfeeding:</b></p> <ul style="list-style-type: none"> <li>To demonstrate how to help a mother position a baby at the breast</li> <li>To demonstrate how to help a mother attach her baby to the breast</li> </ul> <p><b>If demonstrating preparation of commercial infant formula:</b></p> <ul style="list-style-type: none"> <li>To demonstrate the preparation of commercial infant formula. This exercise provides an overview of the complexity of teaching clients to prepare infant formula but does not fully prepare participants to take on this responsibility.</li> <li>To discuss barriers to a ready supply of commercial infant formula.</li> <li>To discuss safety and replacement feeding.</li> </ul>
<b>Duration</b>	60 minutes
<b>Instructions</b>	<p><b>Breastfeeding demonstration (large group)</b></p> <ul style="list-style-type: none"> <li>The trainer will ask either a co-trainer or a willing participant to play the role of the new mother. A trainer experienced in infant feeding counselling will play the role of the “HCW” and will demonstrate how to help the new mother attach and position her baby for breastfeeding.</li> </ul> <p><b>Commercial infant formula preparation demonstration (small group)</b></p> <ul style="list-style-type: none"> <li>Participants will be divided into three or four groups. All groups will participate in all activities.</li> <li><b>Group 1</b> will discuss barriers to formula feeding (the group should record their responses on a sheet of paper):                             <ul style="list-style-type: none"> <li>What are the biggest barriers to formula feeding in your community?</li> <li>If stigma and discrimination are important barriers, describe an incident with which you are familiar. In retrospect, what could you—as the HCW—have done to help the mother deal with the stigma?</li> <li>List the possible factors that may challenge a mother’s ready supply of commercial infant formula (once she has started replacement feeding). Participants should think of all the barriers that could make commercial infant formula no longer acceptable, feasible, affordable, sustainable or safe.                                     <ul style="list-style-type: none"> <li>What is the cost of a month’s supply of commercial infant formula?</li> <li>How should a HCW advise her to prevent an interruption in supply?</li> <li>How would you advise her if there was an interruption in supply?</li> </ul> </li> </ul> </li> <li><b>Group 2</b> will discuss safety and replacement feeding (you may use Appendix 6-L as a guide):                             <ul style="list-style-type: none"> <li>How can water be made safer for feeding babies? How should</li> </ul> </li> </ul>

### Exercise 6.1 Infant feeding demonstration (optional)

- water be stored once it is boiled?
- How do you clean the utensils used for preparing feeds and cup feeding?
- How should commercial infant formula be stored—both before it is mixed with water and after (where, in what container, for how long)?
- How would you advise a mother who insisted on bottle feeding—e.g., how to wash and sterilize bottles and teats and how to hold the infant while bottle feeding?
- **Group 3** (and 4, if there is a fourth group) will gather at the demonstration table(s) and observe the steps in preparing commercial infant formula. Demonstrators will discuss questions that their clients ask most frequently as well as common problems and misunderstandings.
- Each group spend 10 minutes in each of the above three activities. The groups will rotate every 10 minutes so that each group will have spent time doing all of the activities.
- All of the participants will then rejoin the large group. The trainer will ask each group to provide responses to the discussion questions on barriers to formula feeding and replacement feeding safety.

## **SESSION 3 Supportive Counselling for Safer Infant Feeding Choices**

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**After completing the session, the participant will be able to:**

- Provide general information on infant feeding.
- Describe the steps in providing initial infant feeding information to HIV-infected mothers.

### **Introduction to Infant Feeding Counselling**

The delicate balance between the benefits of breastfeeding and the risk of HIV transmission complicates optimal infant feeding in communities affected by HIV. All HIV-positive women need counselling that includes information about the risks and benefits of the main infant feeding options, guidance in selecting the most suitable option for their situation and support to carry out their choice.

To make a counselling session successful, the counsellor needs to establish a rapport with her client and engage her in an open and honest discussion. Counselling is a way of working with people in which you try to understand how they feel and help them to decide what they think is best to do in their situation. When assessing the woman's situation and helping her choose an infant feeding option, the counsellor will use "listening and learning skills" to build the client's confidence and enable her to carry out her decision. The counselling principles and skills summarized in Module 5 are applicable to the infant feeding counselling session.

### **Counselling about Infant Feeding**

A woman who is HIV-infected should receive counselling that includes:

- Information on advantages and disadvantages of replacement feeding and breastfeeding
- Information about the risk of HIV transmission through breastfeeding and how breastfeeding can be made safer through early cessation and possibly expressing and heat-treating breast milk
- Information about the risk of mixed feeding
- Information about the risk of unsafe replacement feeding and how replacement feeding can be made safer
- Information about the other infant feeding options (home-modified animal milk and wet-nursing) if she has questions or if this information may be needed
- Guidance based on the woman's individual circumstances, including her health, social and financial status, local customs and beliefs
- Instruction on the skills needed to feed her infant safely, including demonstrations and/or opportunities for practice
- Encouragement for partner or family involvement in infant feeding decisions, when safe and appropriate
- Support for disclosure of her HIV status to family and friends
- Need for follow-up care (such as further counselling; support groups; HIV-related care, treatment and support; ANC)

### **Dealing with Infant Feeding Pressure**

HIV-infected women who choose to breastfeed may be pressured to give their infants other fluids and foods, making it hard for them to breastfeed exclusively. Women who choose not to breastfeed may be pressured to breastfeed. Some suggested advice that HCWs can give to their clients to help them cope with pressure from others:

- She can tell them that breast milk is the perfect food and drink for infants and infants do not need anything else until they are 6 months old. This is true for ALL infants, not just

infants of HIV-infected women, so people in the community should not associate exclusive breastfeeding with HIV status.

- If the mother is being pressured to breastfeed and she has chosen another option, here are some suggestions:
  - If they know her HIV status, she should explain that the option she has chosen decreases the risk of passing HIV to her baby.
  - If they do not know her HIV status, she may consider telling them that she is having difficulties with breastfeeding and her HCW advised her to feed her baby using \_\_\_\_\_ (fill in the chosen feeding method).
  - If people are persistent, she can say: “I am on special medication that can go through the milk and affect the baby” or “My own health is preventing me from producing milk that is good and sufficient for the baby”.
  - It is best to choose one simple reason that she can remember and use every time.
- Encourage the mother to turn to her family for support if she is having difficulty dealing with the pressure from community members. She may also want to join an infant feeding support group (for HIV-infected women), a support group for people living with HIV (PLHIV) or a support group for breastfeeding women.<sup>1</sup>

As PMTCT interventions become more widely available, community education and mobilization activities should be developed to help women undertake the choice of not breastfeeding or stopping breastfeeding early. They should also be aimed at helping mothers who choose to exclusively breastfeed to maintain that choice. The final decision about infant feeding choice should be the woman's, and the HCW provides support for her choice.

For information on stigma related to replacement feeding or early cessation of breastfeeding, see Module 4, “Stigma and Discrimination Related to MTCT”.

#### **Additional training and information on infant feeding counselling and support**

Infant feeding counselling for HIV-infected women is central to PMTCT. HCWs who counsel women need many specific skills. There are WHO/UNICEF courses that HCWs who will be giving infant feeding counselling should consider taking to improve their skills

- 5 day WHO/UNICEF *Breastfeeding Counselling: A training course*, which is available at: <http://www.who.int/child-adolescent-health/publications/NUTRITION/BFC.htm>
- 3-day WHO/UNICEF/UNAIDS *HIV and Infant Feeding Counselling: A training course*, 2000, which is available at: <http://www.who.int/child-adolescent-health/publications/NUTRITION/HIVC.htm>
- 3 day *Complementary Feeding Counselling: A Training Course*, 2003, (see <http://www.who.int/nutrition/publications/infantfeeding/en/index.html> for additional information)
- 5 day *Infant and Young Child Feeding Counselling: An integrated course*, 2006, includes content taken or adapted and updated from the above three courses. Available at WHO's Nutrition for Health and Development website: [http://www.who.int/nutrition/iycf\\_intergrated\\_course/en/index.html](http://www.who.int/nutrition/iycf_intergrated_course/en/index.html).

These courses are available at the Department of Child and Adolescent Health and Development website: <http://www.who.int/child-adolescent-health/publications/pubnutrition.htm>

Documents used by many countries in developing national guidelines include the following:

- WHO, UNICEF and USAID (2004-2005) “HIV and infant feeding” series, which includes counselling cards, take-home flyers, reference guide, orientation guide, framework for priority action, a review of available evidence and guidelines for decision makers and for healthcare managers and supervisors. These documents are available from WHO or on the WHO website at the following addresses:

<sup>1</sup> Adapted from WHO, UNICEF and USAID. 2005. *HIV and Infant feeding Counselling Tools: Reference Guide*. Available at: <http://whqlibdoc.who.int/publications/2005/9241593016.pdf>

- [http://www.who.int/child-adolescent-health/publications/NUTRITION/HIV\\_IF\\_CT.htm](http://www.who.int/child-adolescent-health/publications/NUTRITION/HIV_IF_CT.htm)
- [http://www.who.int/child-adolescent-health/NUTRITION/HIV\\_infant.htm](http://www.who.int/child-adolescent-health/NUTRITION/HIV_infant.htm)
- WHO. 2004. *What are the options? Using formative research to adapt global recommendations on HIV and infant feeding to the local context.* Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/ISBN\\_92\\_4\\_159136\\_6.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/ISBN_92_4_159136_6.pdf)
- WHO. 2001. Breastfeeding and replacement feeding practices in the context of mother-to-child transmission of HIV: An assessment tool for research. Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/Tool-breast\\_feeding.htm](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/Tool-breast_feeding.htm)

## Overview of Infant Feeding Counselling and Support

All mothers, regardless of HIV status, benefit from infant feeding counselling. Infant feeding counselling should take place:

- Antenatal: At least one counselling session should take place during the antenatal period. Mothers who are HIV-infected should receive infant feeding counselling over the course of several sessions. If possible, the infant feeding counselling should be provided some time after post-test counselling, but not immediately after the mother learns her test results. If a mother is unlikely to return to ANC, provide her with all the essential infant feeding information during the first visit.
- Postnatal: A HCW should ideally visit the mother and infant immediately after the birth (either in the maternity ward or at home) and schedule another visit within seven days to monitor infant feeding progress. Schedule follow-up infant feeding counselling sessions for times when the mother brings the child to the clinic for well-baby care or immunizations. Additional counselling sessions may be required when the:
  - Child is sick
  - Mother returns to work
  - Mother decides to change feeding methods
  - Child's HIV test results become available

When possible, infant feeding counselling for HIV-infected women should occur in a private, one-on-one session, particularly if the woman has chosen replacement feeding for her child. It is important that other women in the healthcare setting are not encouraged to choose replacement feeding for their children. If infant feeding counselling is usually given in a group setting, the HCW may have to incorporate additional infant feeding counselling for women with HIV into the private consultation or a follow-up session.

## Infant Feeding Counselling Steps for Women Who are HIV-infected

The flowchart in Figure 6.1 illustrates six steps for counselling mothers infected with HIV about infant feeding. Below are instructions for how to use the flowchart.

### If this is the mother's first infant feeding counselling session and...

*She is pregnant:*

- Follow Steps 1–5.
- If she needs time to decide which feeding option to choose, follow Steps 1–4 and ask her to return to discuss Step 5.
- If she is early in her pregnancy, counsel her but also ask her to return again closer to her delivery date to review how to implement the feeding method.

*She already has a child:*

- Follow Steps 1–4. If the mother is not breastfeeding at all, do not discuss the advantages and disadvantages of breastfeeding.
- Continue with Steps 5 and 6.



**If the mother has already been counselled and chosen a feeding method, but has not yet learned how to implement it and....**

*She is pregnant:*

- Do step 5 only.

*She already has a child:*

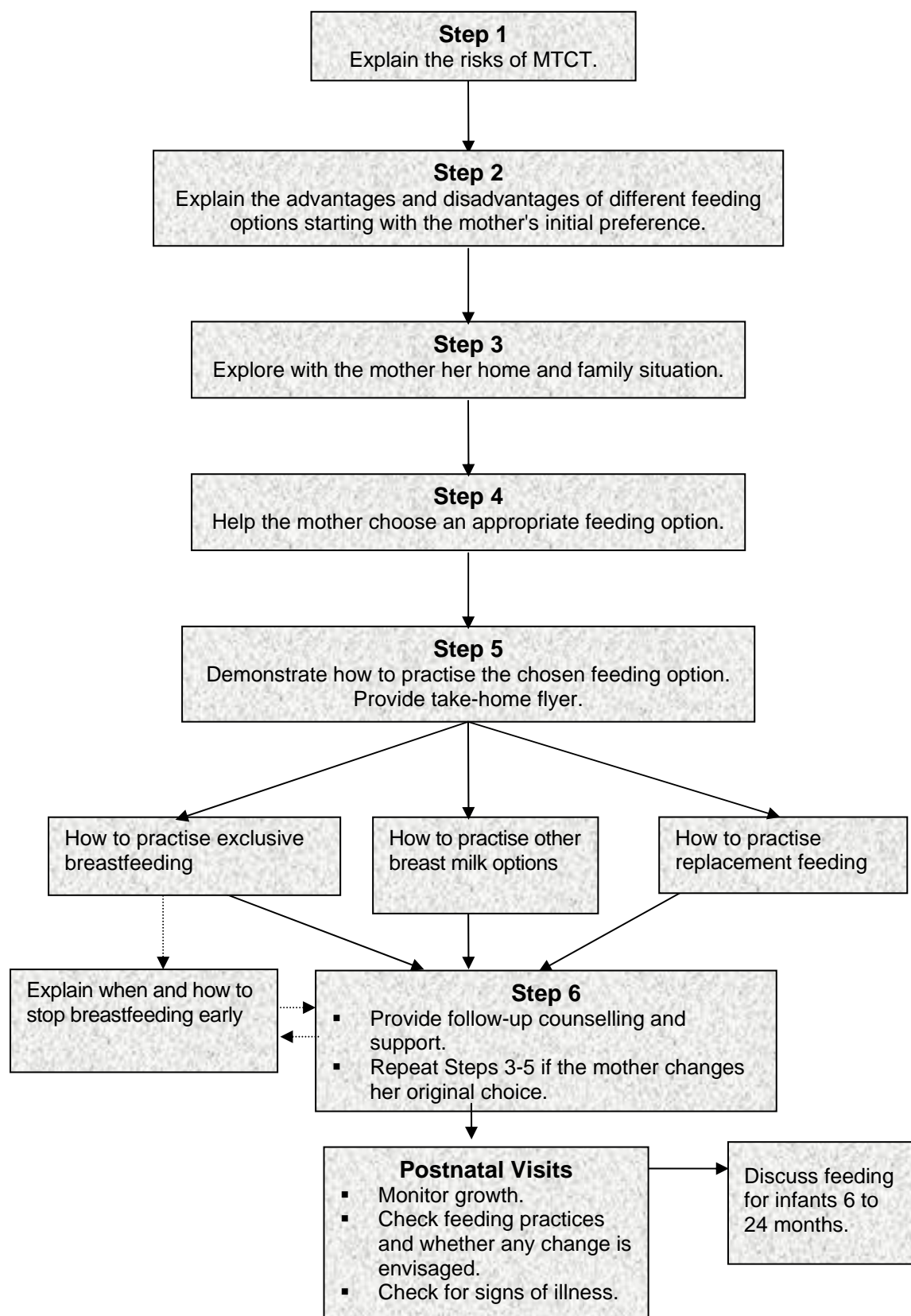
- Begin with Step 5, and then continue with Step 6.

**If this is a follow-up visit...**

- Begin with Step 6.
- Review how to implement the feeding method.

A more detailed explanation of what to say and ask at each step can be found in Appendix 6-M.

**Figure 6.1 Infant feeding counselling flowchart for women who are HIV-infected**



<b>Exercise 6.2 Infant feeding counselling and support role play: demonstration (in the large group) and practice (in small groups)</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>To practise the infant feeding counselling session.</li> </ul>
<b>Duration</b>	55 minutes
<b>Instructions</b>	<p><b>Part 1—Demonstration in large group</b></p> <ul style="list-style-type: none"> <li>The trainer, or someone experienced in providing infant feeding counselling, will demonstrate the skills needed in the infant feeding counselling session.</li> <li>Participants should refer to Appendix 6-M when responding to the demonstration debriefing questions.</li> </ul> <p><b>Part 2—Small group practice</b></p> <ul style="list-style-type: none"> <li>Refer to the “Infant Feeding Counselling Flowchart for Women who are HIV-infected” in Figure 6.1 and to Appendix 6-M.</li> <li>For this exercise, you will need to pair up with one other person; one will play the role of “mother” and the other the role of the “HCW”. The trainer will assign suggested client roles to your pair.</li> <li>The person playing the “mother” should introduce him/herself to the “HCW” and tell the “HCW” how far she is in her pregnancy (e.g. number of weeks).</li> <li>The “HCW” will guide the mother during the role play, combining previously learned counselling skills with the materials from Appendix 6-M and the flowchart steps from Figure 6.1, as appropriate for the “mother’s” situation. The “HCW” should include demonstrations of techniques where applicable (for example, breastfeeding positioning, cup feeding and the preparation of commercial infant formula).</li> <li>After 25 minutes, the participants will rejoin the large group to debrief and the trainer will lead a discussion.</li> </ul>

**Suggested client roles for Exercise 6.2 Infant feeding counselling and support role play: demonstration (in the large group) and practice (in small groups)**

**Role 1**

Your name is Salama and you are 28 weeks pregnant with your first baby. You are a teacher, married to a lawyer. You live in your own house, which has running water and electricity.

You were tested and found to be HIV-positive. You have not told your husband yet as you are worried about what he might think if you avoid breastfeeding. You are confused about how to feed your baby but think you could manage to formula feed. You plan to take three months off from your job when the baby is born and then go back to work. You will employ a nanny to look after the baby.

**Role 2**

Your name is Leyla and you are 35 weeks pregnant with your second baby. You have been tested and found to be HIV-positive. You have not told anyone else at home that you are HIV-infected. You live with your partner, your sister and your mother.

You breastfed your first baby—giving him breast milk and glucose water for the first two months of life. Then, at the suggestion of your mother, you introduced solid foods when he was three months of age as he started to cry a lot.

You have to walk half a kilometre to collect water from a well. You have a paraffin/kerosene stove, but sometimes use wood for fuel if you run out of money. Your

mother receives a small pension. Your sister works part-time as a domestic worker. Neither you nor your partner is working. You are not sure how to feed this baby, and are frightened to disclose your status to your family.

### **Role 3**

Your name is Precious and you are 39 weeks pregnant with your third baby. You found out you were HIV-infected when you were 28 weeks pregnant. You are married and live with your in-laws.

You work as a clerk in an office. You will be off work for six weeks after you deliver and then you are planning to return to your job. When you are working, you are away from the house for 10 hours each day, and your mother-in-law will look after the baby.

You breastfed your other two children, giving them breast milk only for the first four weeks and then giving them breast milk and formula when you went back to work. You introduced solids at three months and continued to breastfeed at night until they were about one year of age.

Everyone in the family will expect you to breastfeed this baby. Only your husband knows your HIV status. You are worried about your family and friends suspecting that you are infected with HIV. Your husband works as a mechanic. You have piped water to your kitchen and electricity to your home.

### **Role 4**

Your name is Jackie and you are 34 weeks pregnant. You have not been tested for HIV. This is your first visit to the antenatal clinic. Your husband has been very sick for a few months. You think that he may be infected with HIV and you are worried that you may be infected as well. You have received information about preventing HIV infection and were encouraged to breastfeed.

You have come to the infant feeding counsellor because you want to know how to get formula for your baby as you think that it will be safer than breastfeeding.

Statements that you might use:

- “My baby is due soon and I want to find out about getting infant formula for him”.
- “I am really worried because my husband is ill—he has been sick for a long time now. I don’t know what the illness is, but it might be HIV so I think that I had better give my baby formula”.
- “I think it would be better if I didn’t breastfeed at all—then the baby would be protected”.

### **Module 6: Key Points**

- Without interventions, 5-20% of infants born to mothers infected with HIV may become HIV-infected during breastfeeding.
- International recommendations defend the right of the mother to choose how to feed her infant and uphold her right to counselling and support.
- Exclusive breastfeeding is recommended for HIV-infected women for the first 6 months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe for them and their infants before that time.
- When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected women is recommended.
- Mixed feeding, i.e., feeding both breast milk and other foods or liquids to an infant less than 6 months of age is strongly discouraged as it is associated with an increased risk of HIV transmission to the infant.
- There are two main infant feeding options available to HIV-infected women: exclusive breastfeeding and replacement feeding. Both options have their advantages and disadvantages. The disadvantages of each option can be reduced through patient education.
- A woman will benefit from the support of an infant feeding counsellor to make the decision that is right for her and to learn how to implement that decision.
- Infant feeding counselling should be offered before the woman gives birth and then again during the postpartum period. Additional counselling sessions may be required when the child is sick, when the mother returns to work, when the child's HIV test results become available and when the mother is transitioning to a new feeding method.

## **APPENDIX 6-A International Code of Marketing of Breast-milk Substitutes**

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### **Summary of International Code**

The International Code of Marketing of Breast-milk Substitutes helps provide safe and adequate nutrition for children by:

- Protecting and promoting breastfeeding.
- Supporting proper and informed use of breast-milk substitutes when necessary.
- Promoting acceptable marketing and distributing practices and controlling marketing practices so they do not inappropriately promote products for artificial feeding.

The Code applies to artificial milk for babies and to other products used to feed babies, especially when they are meant for use in a feeding bottle. The Code also applies to feeding bottles and teats.

### **Provisions of the Code**

The Code forbids virtually all forms of advertisements and marketing methods for breast-milk substitutes, especially against advertisements claiming health benefits from the substitutes. The Code also outlines the ways in which companies can communicate with mothers and healthcare workers about their infant milk products.

- The Code forbids direct contacts between commercial representatives and medical personnel or mothers or pregnant women.
- Baby food companies may not distribute free samples of substitute milk in hospitals and other places providing public health services.
- Advertisements for infant foods must not target infants younger than six months or distribution of dummies or bottles for babies.
- Manufacturers of breast-milk substitutes may not distribute promotional gifts to healthcare workers.
- Images of mothers and children on the packets or labels are forbidden.
- The information required by the Code to be printed on labels must be printed in simple and easy to understand terms in the language of the area where the product is sold. Certain wordings, such as 'motherly', cannot be used. The labels must state that breastfeeding is the best way of feeding babies and that a substitute should only be used after consultation with health professionals.
- All products should be of a high quality and take account of the climatic and storage conditions of the country where they are used.

Adapted from the Kenya National PMTCT Training Curriculum, 2005.

## APPENDIX 6-B The Baby-Friendly Hospital Initiative

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### Ten steps to successful breastfeeding

#### **Step 1: Have a written breastfeeding policy that is routinely communicated to all health care staff.**

Why have a policy?

- It requires a course of action and provides guidance.
- It helps establish consistent care for mothers and babies.

How should it be presented?

- It should be written in the most commonly used language.
- It should be available to all staff caring for mothers and babies.
- It should be displayed in areas where mothers and babies are cared for.

#### **Step 2: Train all health care staff in the skills necessary to implement this policy.**

Areas of knowledge to emphasize:

- Explain the advantages of breastfeeding.
- Explain the risks of replacement feeding and mixed feeding.
- Explain the mechanisms of lactation and suckling.
- Show how to help mothers initiate and sustain breastfeeding.
- Demonstrate how to breastfeed.
- Explain how to resolve breastfeeding difficulties.
- Describe hospital breastfeeding policies and practices.

#### **Step 3: Inform all pregnant women about the benefits and management of breastfeeding.**

What should antenatal education include?

- It should emphasize the importance of exclusive breastfeeding.
- It should explain the risks of artificial feeding and use of bottles and pacifiers, soothers, teats, nipples.
- It should *not* include group education on formula preparation.

#### **Step 4: Help mothers initiate breastfeeding within half an hour of birth.**

Why should we initiate early feeding for the newborn?

- It increases the overall duration of breastfeeding.
- It allows skin-to-skin contact for warmth and bonding of the infant with the mother.
- It provides colostrum which is rich in protective antibodies.
- It takes advantage of the first hour of alertness.
- The infant learns to suckle more effectively.
- Delayed breastfeeding initiation is associated with greater neonatal mortality.

#### **Step 5: Show mothers how to breastfeed and how to maintain lactation even if they are separated from their infants.**

How does supply and demand in breastfeeding work?

- Milk removal stimulates increased production. The more a child breastfeeds, the more milk is produced.
- The amount of breast milk removed at each feed determines the rate at which milk will be produced in the next few hours.
- Milk removal must be continued during separation to maintain supply.

## **APPENDIX 6-B The Baby-Friendly Hospital Initiative** *(continued)*

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### **Step 6: Give newborn infants no food or drink other than breast milk unless medically indicated.**

What is the impact of giving the infant other foods and liquids?

- It decreases the frequency or efficiency of suckling.
- It decreases the amount of milk removed from the breast.
- It delays milk production or reduces the milk supply from the breast.
- Some infants have difficulty attaching to the breast if they receive formula by bottle.

Medically indicated exceptions for breastfeeding are instances in which the infant may require other fluids or food in addition to, or in place of, breast milk. This includes when a mother is HIV-infected and decides not to breastfeed. The feeding programme of these babies should be determined on an individual basis.

### **Step 7: Practice rooming in—that is, allow mothers and infants to remain together 24 hours a day. This allows unlimited contact between mother and infant.**

Why should babies room in?

- It reduces costs.
- It requires minimum equipment.
- It requires no additional personnel.
- It reduces infection.
- It helps establish and maintain breastfeeding.
- It facilitates the bonding process.

### **Step 8: Encourage breastfeeding on demand.**

What is breastfeeding on-demand?

- Breastfeeding on-demand means breastfeeding whenever the infant wants, with no restrictions on the length or frequency of breastfeeds.

Why on-demand breastfeeding?

- It minimizes weight loss in the first few days of life.
- Breast milk flow is established sooner.
- The volume of milk intake by day 3 is larger.
- It lowers the incidence of jaundice in the newborn.

### **Step 9: Give no artificial teats or pacifiers (also called dummies and soothers) to breastfeeding infants.**

### **Step 10: Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.**

Why is breastfeeding support important?

- The key to best breastfeeding practices is continued day-to-day support for the breastfeeding mother within her home and community.

What do we mean by breastfeeding support? Examples:

- Early postnatal or clinical check-up
- Home visits by community health workers
- Telephone calls
- Peer counselling programmes
- Mother support groups—help set up new groups and establish a working relationship with existing groups
- Family support systems



### **Frequently Asked Questions about the Integration of PMTCT into the Baby-Friendly Hospital Initiative**

#### **Does the hospital breastfeeding policy need to change?**

Hospital policies do not need to change although additional points can be added:

- It is important that pregnant women are tested for HIV so that they can make informed decisions about infant feeding.
- Mothers infected with HIV will be supported in their infant feeding decision.
- Most women are not HIV-infected and breastfeeding should continue to be promoted, protected and supported for these women.
- It will remain important to ensure that the healthcare facility does not receive free supplies of formula from manufacturers, give mothers free samples, or allow any promotion of formula, even if some mothers are giving replacement feeds.

#### **Do HCWs need additional training in how to assist women who are HIV-infected to decide how to feed their infant?**

- HCWs will need additional training in breastfeeding counselling, to support all women who choose that option.
- HCWs should also receive training about how HIV is transmitted and the risks associated with breastfeeding and not breastfeeding.
- Stigmatizing and discriminatory attitudes of HCWs toward PLHIV may need to be addressed with an emphasis on the mother as the ultimate infant feeding decision-maker.
- HCWs will need information on the safe preparation and use of replacement feeds and the skill to teach this to mothers and other caregivers.

#### **Should mothers who are HIV-infected have early skin-to-skin contact if they are not breastfeeding?**

- Yes, cuddling the infant cannot transmit HIV.
- Mothers who have chosen not to breastfeed still need encouragement to hold, cuddle and have physical contact with their babies from birth onwards. This helps a mother to feel close and affectionate toward her infant.
- Mothers who are HIV-infected and who have decided to breastfeed should be assisted to put the infant to the breast soon as possible after delivery.

#### **Regarding Step 5, should HCWs show HIV-infected mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants?**

- First determine the mother's infant feeding choice. If the mother has decided to breastfeed, she needs assistance and support to establish breastfeeding, to use good breastfeeding techniques to prevent nipple damage and mastitis and to breastfeed exclusively.
- Mothers who choose not to breastfeed need to discuss what alternative feeding method they will use and how they will prepare it and give it to the infant. Instruction should be given privately and confidentially to avoid stigmatizing the mother.
- Mothers who have decided not to breastfeed may need help with breast care while waiting for their milk production to cease.

## **APPENDIX 6-B The Baby-Friendly Hospital Initiative** *(continued)*

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### **How does Step 6, “give newborn infants no food or drink other than breast milk, unless medically indicated” apply to a mother who is HIV-infected?**

- When a mother has been counselled, tested and found to be HIV-infected and has decided not to breastfeed, it is medically indicated to give the infant replacement feedings in place of breast milk
- If a mother chooses to breastfeed she needs help to do so exclusively.

### **How does Step 7, rooming-in, apply to an HIV-infected mother?**

- All healthy babies benefit from being near their mother. Mothers who are HIV-infected do not need to be separated from their babies.
- Mothers who are not breastfeeding need to have plenty of physical contact with their infants, which reinforces the bond between mother and child.

Mothers who are not breastfeeding should practise preparing replacement feeds and cup feeding while their infant is in hospital. The HCW should assist the mother in the consistent and accurate preparation of feeds.

### **How does Step 8, “encourage breastfeeding on demand” apply to HIV-infected women?**

- All babies differ in the timing and amount of feedings. Mothers should be taught to recognize the visual and verbal cues that indicate the infant is hungry and to feed on the infant’s demand.

### **Does Step 9 “give infants no artificial teats or pacifiers” still apply?**

- Teats, bottles and pacifiers (dummies) can carry infection and are not needed, even for the non-breastfeeding infant.
- Cup feeding is recommended for infants who are replacement-fed.
- If an infant receives a nipple other than its mothers, a condition known as nipple confusion can result. The infant uses an entirely different technique to suck on an artificial nipple than for breastfeeding.
- For soothing, infants can be encouraged to suck on the mother’s clean finger, if not breastfeeding.

### **Step 10, “foster the establishment of breastfeeding support groups and refer mothers to them on discharge from hospital or clinic”, how does this step apply?**

- Many mothers need support regardless of their feeding method. Mothers with HIV who are not breastfeeding in a community where most mothers breastfeed may need extra support from a group concerned particularly with HIV.

*Adapted from: Ministry of Health, The United Republic of Tanzania. 2004. PMTCT Manual.*

## APPENDIX 6-C Breastfeeding Basics

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### Basics facts about breastfeeding

Exclusive breastfeeding can be challenging. All mothers require education and support to help ensure a successful breastfeeding experience. Helping the mother understand the stages of lactation and composition of human milk can help her appreciate the process of breastfeeding.

#### Duration of the feed

The average length of a breastfeeding session varies greatly to allow the infant to get enough milk. During breastfeeding, *foremilk* is produced at the beginning of a feed. Foremilk contains important proteins, vitamins and minerals. *Hind milk* is produced at the end of the feed; it contains the fat that helps babies gain weight.

Mothers should breastfeed the child whenever the child seems hungry (breastfeed on demand). The more the infant suckles the more breast milk will be produced.

*It is important that the infant finishes feeding from the first breast and comes off on its own before the second breast is offered. This ensures that the infant benefits from the hind milk and prevents breast engorgement.*

#### Stages of lactation

Breast milk changes to meet the needs of the infant as it grows. There are three kinds of breast milk: early milk, transitional milk and mature milk.

#### Early milk or colostrum

Colostrum is a thick, yellowish milk that is produced by a woman's breast in the first days after delivery. It has high levels of antibodies, calcium, potassium, proteins, fat-soluble vitamins and micronutrients, which are critical to an infant's immune system. Colostrum also contains digestive enzymes and can help the passage of meconium and reduce the risk of jaundice.

#### Transitional milk

Transitional milk is produced between day 4 and 10. It is an intermediary between colostrum and mature milk. Transitional milk contains more water and less protein.

#### Mature milk

Mature milk is produced from approximately day 10 after delivery until the end of breastfeeding. Mature milk contains whey protein which is easily digested, fat, digestive enzymes, carbohydrate, minerals and antibodies. In addition, mature milk has hormones, prostaglandins and growth factors that can benefit the infant.

#### Gestational age at birth

The composition of breast milk changes according to infant need. Breast milk produced by a mother who has delivered a pre-term infant typically has more protein and fat.

### Identification and Management of Breast Conditions

#### Engorgement

Full breasts that become engorged are painful and swollen, which makes it difficult for the infant to latch correctly. Should breasts become engorged, manage as follows:

- Express some breast milk to reduce engorgement
- Support the breasts, but avoid binding
- Alternate warm shower and cold/warm compresses for pain relief
- Relieve pain with paracetamol
- For ongoing prevention, consider increasing the number of feedings

## APPENDIX 6-C Breastfeeding Basics *(continued)*

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### **Sore or cracked nipples**

The main cause of sore or cracked nipples is poor attachment and poor positioning. Tips for managing and preventing sore nipples include:

- Check positioning and encourage your baby to open wide when latching on
- Offer your baby short, frequent feedings to encourage a less vigorous suck
- Nurse on the least sore side first, if possible
- When removing your baby from your breast, break the suction gently by pulling on baby's chin or corner of mouth
- Change feeding position at each feeding

Cracked nipples should be assessed for candida and treated.

### **Blocked ducts**

Milk flows through a duct system in the mother's breasts. Sometimes an area of the ducts becomes blocked and milk no longer flows as well. Blocked ducts are often the result of inconsistent feeding or incomplete emptying of the hind milk. Management includes these steps:

- Offer the affected breast first to ensure strong suckling
- Gently massage lump towards the nipple
- Use warm compresses and showers, and nurse the baby immediately after

### **Mastitis**

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

- Sudden, unilateral, localized tenderness and soreness
- Heat and swelling
- Fever
- Chills, body aches and fatigue

HIV-infected women with mastitis may have increased levels of HIV in their breast milk and may therefore be at higher risk of transmitting HIV to their infants through breastfeeding. Women with mastitis should avoid breastfeeding from the affected breast while mastitis is present. They should express and discard the milk from the affected breast(s) to prevent the mastitis from becoming worse, to help the breast(s) recover and to maintain milk production.

- If only one breast is affected the woman may continue to breastfeed from the healthy breast.
- If the milk from the healthy breast is not enough to cover the infant's needs, the woman may express and pasteurize milk from the affected breast and give it to the infant.
- If both breasts are affected the woman should consider stopping breastfeeding (while expressing breast milk frequently) until the mastitis is healed. The counsellor should help her choose an alternative feeding method for this period.

Prevention and early management of breast conditions can ensure a more successful breastfeeding experience, help promote exclusive breastfeeding and decrease the risk of MTCT.

## APPENDIX 6-C Breastfeeding Basics *(continued)*

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### Good breastfeeding technique

Breast problems such as mastitis, cracked nipples and breast abscesses facilitate HIV transmission from mother-to-child through breast milk. Instruction in good breastfeeding technique including correct positioning and attachment can help avoid pain and damage to the nipples, engorgement and a poor milk supply.

#### How to help a mother position her baby

- Greet the mother and ask how breastfeeding is going.
- Assess a breastfeed.
- Explain what might help, and ask if she would like you to show her.
- Make sure that she is comfortable and relaxed.
- Sit down yourself in a comfortable, convenient position.
- Explain how to hold her baby, and show her if necessary. The four key points are:
  - Baby's head and body in line
  - Baby held close to mother's body
  - Baby's whole body supported
  - Baby approaches breast, nose to nipple.
- Show her how to support her breast:
  - With her fingers against her chest wall below her breast
  - With her first finger supporting the breast
  - With her thumb above
  - Her fingers should not be too near the nipple.
- Explain or show her how to help the baby to attach:
  - Touch her baby's lips with her nipple
  - Wait until her baby's mouth is opening wide
  - Move her baby quickly onto her breast, aiming his lower lip below the nipple.
- Notice how she responds and ask her how her baby's suckling feels.
- Look for signs of good attachment. If the attachment is not good, try again.

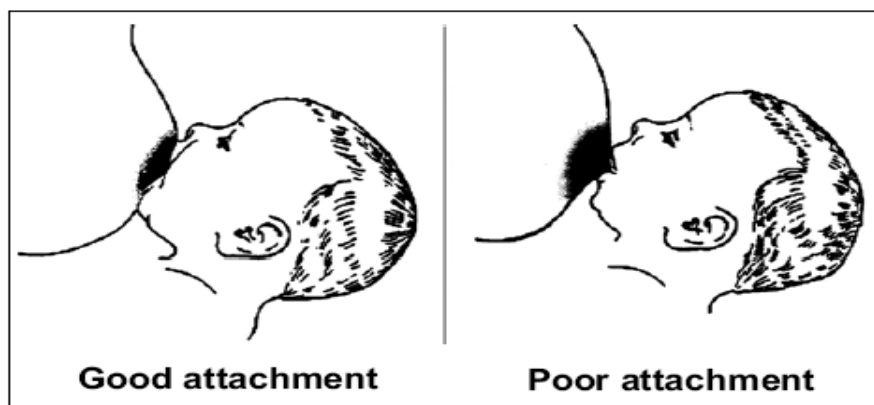
#### Positioning the baby

- Baby's whole body should be held close to the breast and face the breast
- If baby is young, mother should support baby's whole body
- Baby's arms should not be wedged between the baby and mother's body
- Baby's head and body should be in line
- Baby's bottom should be supported and not resting on her lap

#### Attachment

- Support the breast
  - Bring baby quickly to the breast
  - Look for signs of proper attachment:
    - Mouth wide open
    - More areola seen above the baby's top lip than below the bottom lip
    - Chin almost touching the breast
    - Lower lip turned outward
    - Baby takes slow deep sucks
-

**APPENDIX 6-C Breastfeeding Basics** *(continued)*



**Mother's position**

Mother should sit or lie comfortably

**Types of positions<sup>2</sup>**

	<p><b>Cradle hold</b></p> <p>This is a commonly used position that is comfortable for most mothers and commonly used with newborns. Hold your baby with his head on your forearm and his/her whole body facing yours</p>
	<p><b>Clutch Hold</b></p> <p>This is good for mothers with large breasts, inverted (flat) nipples, as well as for mothers with twins. Hold your baby at your side, lying on his/her back, with his/her head at the level of your nipple. Support baby's head with the palm of your hand at the base of his/her head.</p>
	<p><b>Side-Lying Position</b></p> <p>This allows mothers to rest or sleep while baby nurses. Good for mothers who have had caesarean births. Lie on your side with baby facing you. Pull baby close and guide his/her mouth to your nipple.</p>

Adapted from:

- Kenya National PMTCT Training Curriculum, 2005.
- WHO and UNICEF. 2006. Infant and Young Child Feeding Counselling: An integrated course.

<sup>2</sup> Adapted from The National Women's Health Information Center, *An Easy Guide to Breastfeeding U.S.* Department of Health and Human Services, Office of Women's Health. May, 2004. Available at: <http://www.4woman.gov/pub/BF.General.pdf>

## **APPENDIX 6-D Nutrition and the HIV-infected Breastfeeding Mother**

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### **Nutritional requirements during lactation and postnatal period**

#### **Maternal nutrition affects lactation performance**

- Lactation burns a lot of energy. Lactating women need an additional 500 kcal every day. This is the equivalent of one extra meal a day (a small meal such as: 1 piece of fried chicken, 1 cup of rice and a serving of spinach).
- Women who are breastfeeding exclusively have the highest energy requirements.

#### **These additional nutritional requirements are met by:**

- Increasing nutritional intake
- Using the energy the body has stored during pregnancy.
- Decreasing the level of physical activity.

When the mothers do not get enough nutritious food, the body uses its nutritional stores to maintain breast milk production and milk production declines.

### **Nutritional considerations for mother**

HCWs can offer counselling and support to enhance the nutritional needs of mothers and their children. Important things that can affect maternal nutrition that should be discussed in infant feeding counselling:

- Mother's cultural beliefs
- Amount and quality of the food she eats every day
- Her daily workload
- HIV-related symptoms that can affect appetite or eating e.g., painful swallowing from candidiasis

### **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. Examples include: milk, fish, octopus, spinach, certain fruits, beans and peas.

Beliefs around what a pregnant or lactating woman should or should not eat can lead to a poor diet. HCWs should be conscious of food beliefs and traditions and be prepared to address them.

It is essential that the HCWs counsel women on eating a balanced diet based on her economic situation. Women's work requires energy from food. Even a light work load over a long period of time is demanding on a pregnant or lactating woman's body. The competing needs of women's physical work and lactation can lead to malnutrition or undernutrition.

Micronutrient requirements increase during pregnancy and lactation and can affect the overall health of a pregnant or lactating woman.

## APPENDIX 6-D Nutrition and the HIV-infected Breastfeeding Mother *(continued)*

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**Signs of Malnutrition** or under nutrition include the following:

- **Weight:** Weight loss, reduced muscle mass and weakness
- **Bones:** Painful bones and joints, bone fractures and distortions in the shape or size of bones (e.g., rachitic rosary)
- **Skin:** Severe dryness or scaliness, atrophy, petechiae (small red spots on the skin that usually indicate a low platelet count) or bruising
- **Oral:** Angular stomatitis, smooth tongue, swollen or bleeding gums and decayed teeth.
- **Hair/Nails:** Reddish, rusty coloured hair (Loss of pigmentation of the hair), brittle and malformed (spooned) nails
- **Neurological:** Disorientation, an abnormal gait, altered reflexes and sensory or motor abnormalities

### Poor nutrition in HIV-infected mothers

Some of the factors that lead to poor nutrition or malnutrition in the HIV-infected mother are:

- Inadequate intake of food
- Medical conditions that make it difficult to eat
- Malabsorption in the gut
- Increased output, e.g., diarrhoea
- Increased demand for energy with infection

Poor intake of food:

- HIV-infected persons often cannot eat adequate amounts of food. They may not have enough money to buy food because they are too sick to work. They may be too sick to prepare food for themselves.

Medical conditions that may make it difficult to eat:

- Painful oral conditions can make it difficult to chew and swallow. These include oral and oesophageal candida and herpes simplex virus (HSV)
- Nausea, vomiting and possible gastric irritation related to HIV infection, pregnancy itself and ARV drugs can make it difficult to keep food down
- HIV infection and ARV medication may cause a lack of appetite

Malabsorption in the gastrointestinal tract:

- HIV can cause absorption problems in the gut. In addition, women with HIV infection are more susceptible to bacterial, protozoal, fungal and viral infections that can affect the gut.

Increased demand for energy:

- When infected with HIV, a women's immune system is constantly trying to fight the virus. This fight requires additional energy.

Early recognition and management of HIV-related symptoms such as loss of appetite, nausea, diarrhoea, or oral lesions are needed to help women maintain adequate nutritional intake.

*See Appendix 7-E for recommendations for maximizing food intake for people with HIV infection.*



## APPENDIX 6-E How to Stop Breastfeeding Early

Women who decide to stop breastfeeding early should stop rapidly to lessen the risk of passing HIV to their babies. The best duration for this transition is not known, but it is recommended that the transition should last between 2-3 days and 2-3 weeks.

Rapidly stopping breastfeeding can be traumatic for the woman and can cause problems for the infant, such as dehydration (not having enough liquid), refusal to eat, the loss of sucking comfort, weight loss and malnutrition. Common problems for the woman include breast engorgement, mastitis, depression, increased risk of pregnancy and stigmatization. Support from the woman's family members may make the transition easier. The following guidelines can help women to make the transition easier.

### Making the Transition from Exclusive Breastfeeding to Replacement Feeding

1. Accustom the infant to cup feeding with expressed breast milk.
  - Have the mother feed expressed breast milk to the infant by cup between breastfeedings.
  - If the infant refuses the expressed breast milk in a cup, have another caregiver try.
  - If the infant still refuses the expressed breast milk, wait until the infant is very hungry and try again.
  - Repeat these steps until the infant readily takes breast milk from a cup.
  - Once the infant readily takes breast milk from the cup, eliminate one breastfeeding, feeding the infant instead with a cup of expressed milk.
2. Replace breastfeeding with cup feeding.
  - First, replace a single breastfeed with heat-treated expressed breast milk.
  - Once the infant accepts milk from the cup, eventually replace two or three breastfeeds with heat-treated expressed breast milk or a breast-milk substitute.
  - Breastfeed for the final time when ready to replace all feeds with heat-treated expressed breast milk or a breast-milk substitute.
  - Finally, once the infant adjusts to the breast-milk substitute stop expressing breast milk and feed the infant only the breast-milk substitute.
  - Do not replace milk feedings with family foods until the transition away from breastfeeding has been completed and the infant is six months of age and growing well.
3. Monitor the infant's urine output to ensure that the infant is taking in enough milk during the transition and after the start of replacement feeding. Infants less than 6 months should be urinating at least 6 times in 24 hours.
4. Find alternative means to comfort the infant during day and night.
  - Help the baby to sleep through the night to avoid night time food preparation and feeding. Feed your baby late in the evening as part of a late evening ritual of bathing, cuddling and feeding.
  - As feedings are reduced, find alternative ways to meet the infant's suckling needs, such as sucking on the mother's or infant's finger or forearm, or sucking a special toy or cloth that is always kept clean.
  - Comfort the infant when he or she awakens by rocking, singing, carrying, or massaging him/her. If comforting alone is insufficient to soothe the infant, have the mother or other caregiver feed the infant with expressed milk in a cup during the night.
5. Provide the mother adequate support and care to avoid complications of early, rapid breastfeeding cessation.
  - Prevent and treat breast engorgement.
  - Provide supportive counselling and education on how to feed and care for non-breastfed infants.
  - Instruct the woman to not begin breastfeeding again once she has stopped. If she does, the risk of passing HIV to the infant will continue.
  - Begin using a family planning method, if she has not already done so, as soon as the breastfeeds are reduced.

## **APPENDIX 6-E How to Stop Breastfeeding Early** *(continued)*

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### **When the woman comes back for a follow-up visit, discuss these things:**

- What has she been feeding her baby instead of breast milk, and has she been preparing it?
- What has she been doing to help her baby sleep?
- How has she been comforting her baby when he/she cries?
- How has she dealt with depression?
- How has she coped or how is she coping with any breast problems (engorgement, mastitis)?

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Adapted from:

- WHO, UNICEF and USAID. 2005. *HIV and Infant feeding Counselling Tools: Reference Guide*. Available at: <http://whqlibdoc.who.int/publications/2005/9241593016.pdf>
- USAID. 2001. *Issues, Risks and Challenges of Early Breastfeeding Cessation to Reduce Postnatal Transmission of HIV in Africa*. Available at: <http://www.aed.org/ghpnpubs/publications/4-issuesriskschallengesbreastfeedingcessation.pdf>

## APPENDIX 6-F Cup Feeding

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*Breast-milk substitutes and expressed breast milk should be given from a cup.*

HCWs should explain to mothers and families that cup feeding is preferable for the following reasons:

- Cups are safer, as they are easier to clean with soapy water than bottles.
- Cups are less likely than bottles to be carried around for a long time (which gives bacteria the opportunity to multiply).
- Cup feeding requires the mother or other caregiver to hold and have more contact with the infant, which provides more opportunity for caregiver and child interaction than bottle feeding.
- Cup feeding is better than feeding with a cup and spoon because spoon feeding takes longer and the mother may stop before the infant has had enough.

*Feeding bottles are not necessary and in most situations they should not be used.* Using feeding bottles and artificial teats should be actively discouraged because:

- Bottle feeding increases the infant's risk of diarrhoea, dental disease and ear infections.
- Bottle feeding increases the risk that the infant will receive inadequate stimulation and attention during feedings.
- Bottles and teats need to be thoroughly cleaned with a brush and then boiled for sterilisation; this takes time and fuel.
- Bottles and teats cost more than cups and are less readily available.

*HCWs should receive training to show mothers and families how to cup feed.*


### 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 its 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 its mouth. If the infant has not taken the calculated amount, it 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.*

**APPENDIX 6-F Cup Feeding** *(continued)*

<b>What you do...</b>	<b>Why you do it...</b>
<p><b>1. Get Ready</b></p> <ul style="list-style-type: none"> <li>▪ Wash hands with soap and water.</li> <li>▪ Hold the infant close and comfortable.</li> <li>▪ Pour small amount of prepared milk/formula in infant's cup.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Dirt or germs may give your infant diarrhoea.</li> <li>▪ Close touching fosters bonding.</li> <li>▪ Helps prevent spilling and contamination if the infant doesn't finish the whole feeding.</li> </ul>
<p><b>2. Feed the infant</b></p> <ul style="list-style-type: none"> <li>▪ Put the cup to infant's lips. Don't tip the cup too much.</li> <li>▪ Let the baby lap or suck the milk at his/her own rate.</li> <li>▪ Keep the cup to infant's lips until s/he is ready to drink again.</li> <li>▪ Encourage the infant to continue feeding as long as possible or until feed is finished.</li> </ul> 	<ul style="list-style-type: none"> <li>▪ Too much formula may make the infant choke.</li> <li>▪ Every infant is different and may take a little more or less at different feedings.</li> <li>▪ Do not force-feed the infant</li> </ul>
<p><b>3. Clean the utensils</b></p> <ul style="list-style-type: none"> <li>▪ <b>Wash</b> utensils with cold water immediately after use and then wash with hot soapy water, scrubbing inside of bottle and teat.</li> <li>▪ <b>Rinse</b> thoroughly in clean water.</li> <li>▪ Kill all germs by <b>sterilizing</b> by boiling or with commercial home sterilizer.</li> <li>▪ If possible, remove feeding and preparation equipment from pan or sterilizer <i>just</i> before it is to be used. If equipment is removed from the sterilizer and not used immediately, it should be covered and stored in a clean place.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Milk/formula is sweet and germs grow quickly.</li> <li>▪ Contaminated utensils may make your infant sick. Ensure all utensils are sterilized.</li> </ul>
<p style="text-align: center;"><b><i>Using a cup for feeding an infant is better than bottle feeding.</i></b></p> <p><b><i>Be prepared</i></b></p> <ol style="list-style-type: none"> <li>1. Use a reliable family-planning method to prevent getting pregnant too soon.</li> <li>2. Know how to give replacement fluids if the infant develops diarrhoea.</li> <li>3. If you have a problem, consult your nurse/nutritionist for help.</li> </ol>	

This appendix was adapted from the following:

WHO, UNICEF and USAID. 2005. HIV and Infant feeding Counselling Tools: Reference Guide. Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/HIV\\_IF\\_CT/ISBN\\_92\\_4\\_159301\\_6.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/HIV_IF_CT/ISBN_92_4_159301_6.pdf)

WHO and UNAIDS. 2003. *HIV and infant feeding: Guidelines for decision-makers*, Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/HIV\\_IF\\_DM.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/HIV_IF_DM.pdf)

WHO and UNAIDS. 2003. HIV and infant feeding: Guidelines for health care managers and supervisors. Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/HIV\\_IF\\_MS.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/HIV_IF_MS.pdf)

## **APPENDIX 6-G How to Heat-treat and Store Breast milk**

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Heat-treating and storing breast milk properly is important so that the breast milk does not get contaminated. The HCW should demonstrate how to do this, using if possible the woman's own containers. In a hospital setting, HCWs can heat-treat the breast milk indirectly using the Holder pasteurisation method (where the breast milk is heated to 62.5 degrees Celsius for 30 minutes). This may help to preserve some of the protective properties of breast milk and most of its nutrients.

At home, however, it is easier and safer for women to heat-treat the milk following the instructions below.

### **Before heat-treating milk, gather the following things:**

- Clean containers with wide necks and covers to store the milk
- Small pot to heat the milk, such as an enamel cup
- Large container of cool water
- Fuel to heat the water
- Soap and clean water to wash the equipment

### **Follow these steps to heat-treat and store milk:**

- Wash all of the pots, cups and containers with hot soapy water.
- Heat the 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.

### **Here are some things to remember:**

- Only boil enough expressed milk for one feed. Store it in a clean, covered container in a cool place and use it within 2 hours.
- Untreated breast milk can be stored for up to 8 hours at room temperature or up to 24 hours in a refrigerator.

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Adapted from WHO, UNICEF and USAID. 2005. *HIV and Infant feeding Counselling Tools: Reference Guide*. Available at: <http://whqlibdoc.who.int/publications/2005/9241593016.pdf>

## APPENDIX 6-H Wet-nursing

A wet-nurse is a woman who breastfeeds an infant or child for another woman. This is acceptable in some communities, but not in others.

It is important that mothers receive counselling about the potential risk of HIV transmission from a wet-nurse who is HIV-infected or a wet-nurse whose HIV status is unknown. Wet-nursing may be an option if the wet-nurse is confirmed to be HIV-negative and available to feed the infant on demand. However, it can be difficult to ensure that a wet-nurse protects herself from HIV infection the entire time that she is breastfeeding.

Wet-nurses should be counselled on the risk of acquiring HIV from the HIV-exposed infant they are breastfeeding. Mothers and their wet-nurses should be familiar with the prevention, care and treatment of nipple sores, mastitis and other breast problems and counselled in good breastfeeding technique. Table 6.6 presents advantages and disadvantages of wet-nursing.

<b>Table 6.6 Wet-nursing</b>	
<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>▪ Wet-nursing carries no risk of HIV infection from breast milk for the infant, as long as the wet-nurse is not infected with the virus.</li> <li>▪ Breast milk is the perfect food for babies and protects them from many diseases, especially diarrhoea and respiratory illnesses and the risk of dying of these diseases.</li> <li>▪ Breastfeeding improves brain growth and development.</li> <li>▪ Breast milk gives babies all of the nutrition and hydration they need. They do not need any other liquid or food for the first 6 months.</li> <li>▪ Breast milk is always available and does not need any special preparation.</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>▪ There is a risk that if the infant is HIV-infected that he/she can pass HIV to the wet-nurse while breastfeeding. This risk is greater if the wet-nurse has a breast condition or if the infant has oral ulcers.</li> <li>▪ Wet-nurse must be tested for HIV and confirmed to be HIV-negative.</li> <li>▪ Wet-nurse must be able to protect herself from HIV infection the entire time she is breastfeeding. This means not having sex, using condoms every time she has sex or having sex with only one partner who has also tested HIV-negative and remains faithful to her.</li> <li>▪ Wet-nurse must be available to breastfeed the infant frequently throughout the day and night or able to express milk if she and the infant are separated.</li> <li>▪ In some settings, family, neighbours, or friends may question a mother who does not breastfeed about her HIV status. (See Session 3 of this module)</li> <li>▪ Mother may get pregnant again sooner than she would if she was breastfeeding.</li> </ul>

## APPENDIX 6-I Safety and Replacement Feeding

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### Water safety

#### ***Water must be boiled before using it to feed babies.***

- Boil water until big bubbles rise to the surface—also referred to as a rolling boil—for 1 to 2 seconds before use. This will kill most harmful microorganisms.

#### ***Handling boiled water to be used for reconstituting powdered infant formula:***

- Pour the appropriate amount of boiled water into a cleaned and sterilized feeding cup or bottle. Water should be used as soon as possible, if left more than 30 minutes it must be re-boiled.
- Some families keep water hot in a thermos flask. This is safe for water if the thermos flask has been properly washed and if the water is still very hot (70°C or higher) when used to reconstitute commercial infant formula. It is not safe to use water stored in a thermos flask for more than a few hours, as the water will have cooled below 70°C (the exact amount of time water can be safely stored in a thermos flask depends on the quality of the thermos, quantity of water in the thermos and the temperature of the air and thermos). If in doubt, it is always safest to boil the water fresh for each feed.
- It is **not** safe to keep warm milk or formula in a thermos flask.

#### ***Handling boiled water to be used for purposes other than reconstituting powdered infant formula:***

- Put the boiled water in a clean, covered, container and allow to cool.
- The best kind of container has a narrow top and a tap through which the water comes out. This prevents people from dipping cups and hands into the water, which makes the water unsafe for an infant.
- If the water has been stored for more than 48 hours it is better to use it for something else, for example cooking or give to older children to drink.

### Hygienic preparation of replacement feeds

#### ***What else do I need to know about hygiene and replacement feeding preparation?***

Neither powdered infant formula nor animal milk is a sterile product. Both can pose a risk to infants unless prepared and handled correctly. The equipment used to feed infants and for preparing feeds must be thoroughly cleaned and sterilized before use.

#### ***When and how should I wash my hands?***

- Always wash your hands: after using the toilet, after cleaning the infant's bottom, after disposing of children's stools and after washing nappies/diapers and soiled cloths, after handling foods which may be contaminated (e.g., raw meat and poultry products) and after touching animals
- Always wash your hands: before preparing or serving food, before eating and before feeding children.
- It is important to wash your hands thoroughly
  - Wash with soap or ash and with plenty of clean running or poured water
  - Wash the front, back, between the fingers and under the nails
  - Let your hands dry in the air or dry them with a clean cloth. It is best not to dry them on your clothing or a shared towel.

## **APPENDIX 6-I Safety and Replacement Feeding** *(continued)*

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### ***How should I clean the utensils used to feed my baby?***

Keep both the utensils (e.g. cups, bottles, teats and spoons) that you use and the surface on which you prepare feeds as clean as possible. Use a clean table or mat that you can clean each time you use it.

- **Wash** utensils with cold water immediately after use to remove milk before it dries, and then wash with hot soapy water.
  - A bottles and teats also need to be scrubbed inside with a bottle brush and hot soapy water. In addition, teats need to be turned inside out and scrubbed using salt or abrasive.
  - If you can, use a soft brush to reach all the corners.
- **Rinse** thoroughly in water from a safe source.
- **Sterilize**, by boiling:
  - Fill a large pan with water and completely submerge all washed feeding and preparation equipment, ensuring there are no trapped air bubbles;
  - Cover the pan with a lid and bring to a rolling boil, making sure the pan does not boil dry
  - Keep the pan covered until the feeding and preparation equipment is needed
- **Sterilize**, by other methods:
  - If using a commercial home sterilizer (e.g. electric or microwave steam sterilizer, or chemical sterilizer—such as Milton or another bleach solution), follow manufacturer's instructions.
- **Storage:**
  - It is best to remove feeding and preparation equipment from the sterilizer or pan just before it is to be used.
  - Hands should be washed thoroughly with soap and water before removing feeding and preparation equipment from a sterilizer or pan. The use of sterilized kitchen tongs for handling sterilized feeding and preparation equipment is recommended where possible.
  - If equipment is removed from the sterilizer and not used immediately, it should be covered and stored in a clean place. Feeding bottles can be fully assembled with a cover to prevent the inside of the sterilized bottle and the inside and outside of the teat from becoming contaminated.

### ***Does animal milk have to be boiled?***

- Yes, fresh cow's milk or other animal's milk to be used for an infant needs to be briefly boiled to kill harmful bacteria. Boiling also makes the milk more digestible. The milk and water can be boiled together.
- Milk sold in shops may already have been heat-treated in various ways such as pasteurization, UHT (ultra-high temperature) or sterilization. These treatments kill the harmful microorganisms, and they help the milk to keep longer if it is not opened. UHT or sterilized milk can be used without boiling if it is used immediately after opening. After it is open, it will only keep as long as fresh milk. If it has been open more than 2 hours, it will need to be boiled before giving it to an infant.
- For infants, boiled milk must be used within two hours.



## APPENDIX 6-I Safety and Replacement Feeding *(continued)*

### Milk and food storage

#### **What about storing milk?**

- Fresh milk can keep in a clean, covered, container at room temperature for a few hours. Exactly how long depends on the condition of the milk when bought and the room temperature. However, for an infant, milk must be boiled and then used within two hours.
- If there is no refrigerator, the mother must make feeds freshly each time. When a feed has been prepared with formula or dried milk, it should be used within two hours, like fresh milk.
- If the infant does not finish the feed, the mother should give it to an older child or use it in cooking.
- Some families keep water cool in a pottery jar, which allows evaporation of water from the surface. It is not safe to store milk in pottery jars.
- Never store warm milk (or reconstituted commercial infant formula) in a thermos flask. Bacteria grow when milk is kept warm.

#### **What are the guidelines on food storage and hygiene?**

Keep clean	<ul style="list-style-type: none"> <li>▪ Wash your hands with soap and water (washing hands, especially with soap or a rubbing agent such as ash, helps remove germs and contributes to prevention of disease transmission) before preparing formula or food or before feeding your child and also after going to the toilet.</li> <li>▪ Wash your child's cup or bowl thoroughly with hot soapy water or boil it.</li> <li>▪ Keep food preparation surfaces clean using water and soap or detergent to clean them every day.</li> </ul>
Use clean water and wash raw materials	<ul style="list-style-type: none"> <li>▪ Boil water vigorously for 1–2 seconds (Bringing water to a rolling boil is the most effective way to kill disease-causing germs, even at high altitudes. Let the hot water cool down on its own without adding ice. If the water is clear, and has been boiled, no other treatment is needed.)</li> <li>▪ Wash fruits and vegetables, especially if eaten raw.</li> </ul>
Separate raw and cooked foods	<ul style="list-style-type: none"> <li>▪ Avoid contact between raw and cooked foods.</li> <li>▪ Use separate utensils and storage containers for raw foods.</li> </ul>
Cook thoroughly	<ul style="list-style-type: none"> <li>▪ Especially meat, poultry, eggs and seafood. For meat and poultry, make sure juices are clear not pink.</li> <li>▪ Reheat cooked food thoroughly. Bring soups and stews to boiling point. Stir while re-heating.</li> </ul>
Keep formula and food at safe temperatures	<ul style="list-style-type: none"> <li>▪ Refrigerate prepared formula and all cooked and perishable foods promptly (preferably below 5 °C).</li> <li>▪ Give unfinished formula to an older child instead of keeping it until the next feed.</li> <li>▪ Do not leave cooked food at room temperature for more than 2 hours.</li> <li>▪ Do not store food too long, even in a refrigerator.</li> <li>▪ Do not thaw frozen food at room temperature.</li> <li>▪ Food for infants and young children should ideally be freshly prepared and not stored at all after cooking.</li> </ul>

## **APPENDIX 6-I Safety and Replacement Feeding** *(continued)*

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### ***What are the guidelines around food storage?***

- Food should be kept tightly covered to stop insects and dirt getting into it.
- Food can be kept longer when it is in a dry form, such as milk powder, sugar, bread and biscuits, than when it is in liquid or semi-liquid form.
- Fresh fruits and vegetables keep for several days if they are covered, especially if they have thick peel, like bananas.
- Do not use food beyond its expiration date.
- Protect kitchen areas and food from insects, pests and other animals.

## **Bottle feeding**

### ***I'm planning on bottle feeding, how can I be sure I bottle feed correctly?***

Advise the mother who is determined to bottle feed on the advantage of cup feeding and disadvantages of bottle feeding. Strongly encourage cup feeding. But if the mother insists on bottle feeding, teach her how to do so safely see “Hygienic preparation of replacement feeds” in this Appendix for more information.

### ***What tips do you have for bottle feeding?***

- Listen and observe your baby. If you hear a lot of noise while he or she drinks she may be taking in too much air. To help your baby swallow less air, hold him or her at a 45-degree angle. Also take care to tilt the bottle so that the nipple and neck are always filled with formula.
- Never feed your baby while he or she is sleeping or lying down.

## APPENDIX 6-J Preparing Commercial Infant Formula

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When a mother makes commercial infant formula, it is very important that the milk and water are mixed in the correct amounts *consistently*. Small mistakes in the feed preparation may not have an immediate effect but may make an infant ill or malnourished if they are repeated.

Each brand of infant formula is prepared differently. This section provides general instructions for preparing formula. If possible, the mother should bring containers that she usually uses to measure water for cooking so that you can demonstrate for her. Mark the mother's own container to show her how much water is needed. Ask her to prepare a feed while you watch and guide her, so she knows what to do when she goes home. Powered infant formula is not a sterile product; reconstituted infant formula provides ideal conditions for the growth of harmful bacteria. It is best to make commercial infant formula fresh for each feed and to use it immediately. The steps below outline the safest way to prepare individual feeds of infant formula for immediate consumption.

Replacement feeds should be given from an open cup, not a bottle or a cup with a teat.

1. Clean and disinfect a surface on which to prepare the feed.
2. Wash hands with soap and clean water, and dry using a clean cloth or a single-use napkin.
3. Ensure all utensils are cleaned, rinsed and sterilized (see Appendix 6-I).
4. Boil a sufficient volume of water from a safe source. If using an automatic kettle, wait until the kettle switches off; otherwise make sure that the water comes to a rolling boil. Note: bottled water is not sterile and must be boiled before use. Microwaves should never be used in the preparation of commercial infant formula as uneven heating may result in "hot spots" that can scald the infant's mouth. For more information, see "Water safety" in Appendix 6-I "Safety and Replacement Feeding".
5. Pour the appropriate amount of boiled water into a cleaned and sterilized feeding cup or bottle. Water should be used as soon as possible, if left more than 30 minutes it must be re-boiled.
6. Add to the water the exact amount of formula as instructed on the label. Adding more or less powder than instructed could make infants ill.
  - If using feeding cups: mix thoroughly by stirring with a cleaned and sterilized spoon, taking care to avoid scalds.
  - If using bottles: assemble the cleaned and sterilized parts of the bottle according to the manufacturer's instructions. Shake or swirl gently until the contents are mixed thoroughly, taking care to avoid scalds.
7. Cool reconstituted infant formula to feeding temperature. If the bottle is cooled using cold water and/or ice, ensure that the water and/or ice does not touch the teat. It is essential that the temperature is checked before feeding to avoid scalding the infant's mouth.
8. Discard any feed that has not been consumed within two hours

### Preparing feeds in advance for later use

It is best to make infant formula fresh for each feed and to consume immediately. For practical reasons, however, feeds may need to be prepared in advance. The steps below outline the safest way to prepare and store feeds for later use. If refrigeration is not available, feeds cannot safely be prepared in advance for later use.

- Prepare infant formula as described above. If using feeding cups, a batch of formula should be prepared in a clean, sterile jar that is no larger than 1 litre, with a lid. The prepared infant formula can be refrigerated and dispensed into cups as needed.

## **APPENDIX 6-J Preparing Commercial Infant Formula** *(continued)*

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- Place cooled feeds in a refrigerator. The temperature of the refrigerator should be no higher than 5 °C.
- Feeds can be stored in the refrigerator for up to 24 hours.

### **Re-warming stored feeds**

- There is no health reason to re-warm milk that has been prepared in advance and stored in the refrigerator, but your baby may prefer it.
- Remove stored feed from the refrigerator just before it is needed.
- Re-warm for no more than 15 minutes. If re-warming in hot water, ensure that only boiled water is allowed to touch the teat.
- To ensure that the feed heats evenly, periodically shake the covered jar or container.
- Microwave ovens should never be used to re-warm a feed as uneven heating may result in “hot spots” that can scald the infant’s mouth.
- Check feeding temperature in order to avoid scalding the infant’s mouth. The contents should be cool, room temperature, or warm, never hot.
- Discard any re-warmed feed that has not been consumed within two hours.

### **Transporting feeds**

- Because of the potential for growth of harmful bacteria during transport, feeds (prepared as described above) should first be cooled to no more than 5 °C in a refrigerator and then transported.
- Do not remove feed from the refrigerator until immediately before transporting.
- Transport feed in a cool bag with ice packs.
- Feeds transported in a cool bag should be used within two hours as cool bags do not always keep foods adequately chilled.
- Re-warm at the destination.
- If you reach the destination within two hours, feeds transported in a cool bag can be placed in a refrigerator and held for up to 24 hours from the time of preparation.
- Alternatively, if you are going out for the day, individual portions of infant formula (still in powdered form) can be transported in washed and sterilized containers. At the destination, hot water (no less than 70°C) can be used to prepare the feed.

If the woman runs out of formula and cannot afford to buy more she should not add more water to make it last longer, nor should she breastfeed. She should feed her infant home-modified animal milk until she can get more commercial infant formula. See Appendix 6-K for additional information on home-modified animal milk.

## APPENDIX 6-K Preparing Home-modified Animal Milk

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### Home-modified animal milk in the first 6 months

In the first 6 months of life, home-modified animal milk should only be considered as a short-term option when commercial infant formula is not available or affordable.

Home-modified animal milk may be less expensive than commercial infant formula and is readily available if the family has milk-producing animals. Animal milk is hard for babies to digest and does not contain all the nutrients that infants need. In the first 6 months, home-modified animal milk should only be considered as a short-term option when commercial infant formula is not available.

Both fresh and processed milk need to be made nutritionally suitable by adding boiled water and sugar in precise amounts. The required amount of water and sugar varies for different animal milks. The infant needs to take a daily micronutrient supplement specially formulated for non-breastfed children, as home-modified animal milk has fewer micronutrients than commercial infant formula. Infants require about 15 litres of home-modified animal milk formula per month for the first 6 months.

The advantages and disadvantages of home-modified animal milk are similar to those of commercial infant formula (see Table 6.4 in this module), except that home-modified animal milk is more complex to prepare and is nutritionally inferior to commercial infant formula.

#### Suitable and unsuitable milks

Not all milks are suitable for use in home-modified animal milk. The following milks are suitable for home-modified animal milk:

- Fresh cow's milk
- Fresh goat's milk
- Fresh sheep's milk
- Fresh buffalo's milk
- Fresh camel's milk
- Full-cream<sup>3</sup> milk (pasteurized)
- Ultra high temperature (UHT) full-cream milk
- Full-cream milk (powdered)
- Evaporated (unsweetened) full-cream milk

The following milks and liquids are **not** suitable for home-modified animal milk:

- Fresh animal milk already diluted by an unknown amount
- Skimmed milk or low-fat milk powder
- Sweetened or condensed milk
- Thin cereal-based gruels or porridge
- Fruit juice, teas, sugar drinks, or sodas
- Flavoured milk drinks or coconut milk

Infants who are fed home-modified animal milk require micronutrient supplements because animal milks are relatively low in zinc, vitamin A, vitamin C and folic acid.

It is important to observe strict hygiene in preparing the milk. Mothers must be sure that the milk they buy has not been previously diluted. Prepare home-modified animal milk fresh for each feed; give any leftover milk to an older child. Home-modified animal milk should be used within 2 hours if not stored in a refrigerator, or within 24 hours if stored in a refrigerator at 5°C or less.

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<sup>3</sup> "Full-cream milk" is the same as "whole milk".

## **APPENDIX 6-K Preparing Home-modified Animal Milk** *(continued)*

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### **Demonstrate the preparation of home-modified animal milk**

Mothers should have a good understanding of how to prepare animal milk. Demonstrate how to prepare the formula, using locally available milk and containers. Ask the mother to bring in the containers that she will use, so that you can mark them.

Demonstrate the milk preparation, giving precise and clear instructions. Describe the amount of sugar (and milk powder if applicable) using measurements the mother can understand (example: different-sized spoons). Remember to explain to her whether the spoonfuls should be flat, rounded or full. Remember to check her understanding of the instructions. Below are instructions for the mother.

### **Here is how to prepare different types of liquid milk**

1. Clean and disinfect a surface on which to prepare the feed.
2. Wash hands with soap and clean water, and dry using a clean cloth or a single-use napkin.
3. Ensure all utensils are cleaned, rinsed and sterilized (see Appendix 6-I).
4. Boil a sufficient volume of water from a safe source. If using an automatic kettle, wait until the kettle switches off; otherwise make sure that the water comes to a rolling boil. Note: bottled water is not sterile and must be boiled before use. Microwaves should never be used in the preparation of infant formula as uneven heating may result in “hot spots” that can scald the infant’s mouth. For more information, see “Water safety” in Appendix 6-I “Safety and Replacement Feeding”.
5. Pour the appropriate amount of boiled water into a cleaned and sterilized feeding cup or bottle. Water should be used as soon as possible, if left more than 30 minutes it must be re-boiled.
6. Measure the amount of water, milk and sugar that you will need. (Mark the mother’s containers to show the amount of liquid required for both milk and water). Only make enough milk for one feed at a time and use within two hours of preparation. You may make milk for more than one feed if you can store it in a sterilized container with a tight lid in a refrigerator at 5°C or less; use refrigerated formula within 24 hours. Do not keep milk in a thermos flask because it will become contaminated quickly.

### **Fresh animal’s milk**

- Put the water and milk together in a small pot and bring them to a rolling boil briefly (until big bubbles rise to the surface for 1 to 2 seconds). 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.

### **Powdered full-cream milk**

- Gather all of the water that you will need for the whole day if possible. Bring the water to a rolling boil briefly (until big bubbles rise to the surface for 1 to 2 seconds). For more information, see “Water safety” in Appendix 6-I “Safety and Replacement Feeding”.
- Mix the exact amount of powdered milk and water needed for one feed.
- Measure the exact amount of sugar needed for one feed and mix it with the liquid.

## APPENDIX 6-K Preparing Home-modified Animal Milk *(continued)*

### Cow, goat or camel milk<sup>§</sup>

Age of infant	Amount of milk	Amount of water	Amount of sugar	Amount of oil
1 month	40 ml	20 ml	4 g (approx 1 level tsp.)	Mix one teaspoon of oil (preferably rapeseed or soy) into each day's feeds. The teaspoon could be divided between one or more feeds, but should be mixed into the milk, not given separately.
2 months	60 ml	30 ml	6 g (approx 1 rounded tsp.)	
3 to 4 months	80 ml	40 ml	8 g (approx 1 heaping tsp.)	
5 to 6 months	100 ml	50 ml	10 g (2 level tsp.)	

If powdered full-cream milk is used instead of fresh milk, reconstitute according to the label and then modify reconstituted milk using the same recipe as for fresh milk.

### Sheep or buffalo milk<sup>§</sup>

Age of infant	Amount of milk	Amount of water	Amount of sugar	Amount of oil
1 month	30 ml	30 ml	3 g (less than 1 level tsp.)	Mix one teaspoon of oil (preferably rapeseed or soy) into each day's feeds. The teaspoon could be divided between one or more feeds, but should be mixed into the milk, not given separately.
2 months	45 ml	45 ml	5 g (approx 1 level tsp.)	
3 to 4 months	60 ml	60 ml	6 g (approx 1 rounded tsp.)	
5 to 6 months	75 ml	75 ml	8 g (approx 1 heaping tsp.)	

### Evaporated milk<sup>\*§</sup>

Age of infant	Amount of milk	Amount of water	Amount of sugar	Amount of oil
1 month	16 ml	44 ml	4 g (approx 1 level tsp.)	Mix one teaspoon of oil (preferably rapeseed or soy) into each day's feeds. The teaspoon could be divided between one or more feeds, but should be mixed into the milk, not given separately.
2 months	24 ml	66 ml	6 g (approx 1 rounded tsp.)	
3 to 4 months	32 ml	88 ml	8 g (approx 1 heaping tsp.)	
5 to 6 months	40 ml	110 ml	10 g (2 level tsp.)	

\* The dilution may vary according to the brand. Check the label for the appropriate dilution to prepare full-cream milk.

§ Home-modified animal milk should only be used in an emergency, such as when commercial infant formula is temporarily unavailable. Children fed with home-modified infant animal milk long term are likely to develop essential fatty acid deficiency possibly resulting in dermatitis, growth retardation and impaired cognitive development.

## **APPENDIX 6-K Preparing Home-modified Animal Milk** *(continued)*

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### **Animal milk for the infant over 6 months old**

- Infants over 6 months old should continue to have milk even after complementary foods have been introduced.
- Animal milk for an infant or child over 6 months old ***does not have to be diluted and does not need added sugar. All milks (except UHT milk that has been open less than 2 hours, evaporated milk open less than 2 hours and powdered full-cream milk prepared with boiled water) must be boiled before giving to a child less than 12 months of age. Raw milk—from any animal (e.g., cow, goat, camel, sheep or buffalo)—must be boiled before consumption by any individual of any age.***
- Mothers should also give their babies an iron-containing micronutrient supplement every day.
- Powdered or evaporated milk: add clean boiled water according to the directions on the tin to make full strength milk. Do not dilute the milk and do not add sugar; the child *will* need an iron-containing micronutrient supplement.



## APPENDIX 6-L Feeding from 6–24 Months of Age

All infants, including infants who continue to be breastfed, require nutritious foods beginning at 6 months of age. The term *complementary food* refers to any food, whether manufactured or locally prepared, suitable as a complement to breast milk or a breast-milk substitute. This term is preferred because it implies that the newly introduced foods are provided *in addition* to the milk feeds; they are not intended to replace milk at this point.

Infants should receive continued frequent breastfeeding or cup feeding with commercial infant formula or other milk into the second year of life. They should have milk of some kind for the full second year. Recommendations for complementary feeding should be based on locally available foods and feeding practices. General principles for complementary feeding include the following:

### Introducing complementary foods

- Begin introducing complementary foods in small amounts at 6 months of age. The amount of food required will increase as the child gets older.
- After complementary foods have been introduced, the infant will continue to need breast milk or milk in some form frequently throughout the day.
- Table 6.7 shows approximately how much milk (commercial infant formula or animal milk) the non-breastfed infant will need to drink each day.

<b>Table 6.7 Minimum amount of milk per day for infant / children 6 – 24 months of age</b>		
	<b>Animal milk</b>	<b>Commercial formula</b>
If other animal-source foods are regularly consumed	200-400 ml	300-500 ml
If other animal-source foods are not consumed*	300-500 ml	400-550ml
* Infants who are not breastfed and do not consume the minimum amount of animal milks or animal-source foods daily will need to consume large quantities of calcium, zinc and iron to meet their nutritional needs. This may be achieved by eating fortified foods, if available, or by taking daily supplements.		

- Infants older than 6 months do not require dilution of animal milks. However, fresh animal's milk should still be boiled to kill germs and improve digestibility. Milk may also be given as sour milk or yoghurt.
- No special preparation is needed for processed, pasteurized, or ultra high temperature (UHT) milk. However, the mother or caregiver should increase the number of complementary feedings as the child gets older. The appropriate number of feedings depends on the energy density of the local foods and the usual amounts consumed at each feeding. When no milk is available, the diet should include other animal-source foods and/or enriched foods.
- Table 6.8 on the next page shows the type, frequency and amounts of complementary foods that the average healthy infant requires at different ages. If the energy density or the amount of food per meal is low, more frequent feedings may be required.

**APPENDIX 6-L Feeding from 6–24 Months of Age** *(continued)*

<b>Table 6.8 Amounts of foods to offer<sup>4</sup></b>			
<b>Age</b>	<b>Texture</b>	<b>Frequency</b>	<b>Amount of food an average child will usually eat per meal</b>
6-8 months	Start with thick porridge, well mashed foods continue with mashed family foods	2-3 meals per day plus frequent breastfeeds Depending on the child's appetite 1-2 snacks may be offered	Start with 2-3 tablespoonfuls per feed increasing gradually to 2/3 cup*
9-11 months	Finely chopped or mashed foods, and foods that baby can pick up	3-4 meals plus breastfeeds Depending on the child's appetite 1-2 snacks may be offered	3/4 cup*
12-24 months	Family foods, chopped or mashed if necessary	3-4 meals plus breastfeeds Depending on the child's appetite 1-2 snacks may be offered	1 full cup*
* 1 cup = 250 ml			
If baby is not breastfed, give in addition: 1-2 cups of milk per day, and 1-2 extra meals per day.			

- Energy requirements are higher<sup>5</sup> for sick infants because of the metabolic effects of infections. Energy requirements also are higher for infants who are severely malnourished and undergoing nutritional rehabilitation. Gradually increase food consistency and the variety of foods offered as the infant gets older, adapting to the infant's nutritional requirements and physical abilities. See Table 6.9 below "Suggestions for feeding a sick child".
- Offer children 6 months and older an increasing variety of nutrient-dense foods. On a daily basis, or as often as possible, they should eat animal foods such as meat, poultry, fish, eggs, dairy products, or other adequate local sources of protein. Children should also eat fruit and vegetables that are rich in vitamin A daily. Satisfying the nutritional needs of children in this age group through a vegetarian diet is difficult.
- If nutritionally adequate complementary foods or fortified complementary foods are not available locally, consider giving the child a vitamin-mineral supplement to avoid growth and development delays.
- At this age, babies usually need water (in addition to the recommended amounts of milk). To find out if the infant is still thirsty, offer him/her some boiled water from a clean cup during and after meals.

<sup>4</sup> *Note:* During the national adaptation of the Generic Training Package, modify this table to local context, using local utensils and units of measure and adjust serving size based on the energy density of meals. The amounts of food in this table are based on the assumption that the energy density of the meals is about 0.8 to 1.0 Kcal/g. Find out the energy content of complementary foods in your setting and adapt the table accordingly. For example, if the energy density of the meals is about 0.6 Kcal/g, recommend increasing the energy density of the meal (by adding special foods) or the amount of food per meal as follows:

- For 6-8 months; increase gradually to 2/3 of cup
- For 9 to 11 months give ¾ of cup
- For 12 to 23 months give a full cup

<sup>5</sup> Energy requirements are 10% higher for asymptomatic HIV-infected children and 50-100% higher for HIV-infected children suffering weight loss.

## **APPENDIX 6-L Feeding from 6–24 Months of Age** *(continued)*

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- Mothers and caregivers should avoid giving sweets/candies as well as drinks with low nutrient value, such as tea and coffee (which interfere with iron absorption) and sugary (or carbonated/fizzy) drinks such as soda. The amount of juice offered should be limited to one cup per day to avoid displacing more nutrient-rich foods.
- Avoid giving honey to an infant under 12 months of age.
- Avoid offering foods that may cause choking, such as those that have a shape or consistency that could cause the food to become lodged in the trachea. Foods to avoid include nuts, grapes and raw carrots.

### **Responsive feeding**

- Feed infants directly and assist older children when they feed themselves, being sensitive/attentive to when the infant or child is hungry or full.
- Feed slowly and patiently, encouraging the child to eat, but do not force food. Encourage developmentally appropriate self-feeding.
- Encourage food intake by experimenting with different food combinations, tastes and textures, especially if the child refuses to eat.
- Minimize distractions during meals if the child loses interest easily.
- Remember that feeding times are periods of learning and love: talk to children during feeding, using eye-to-eye contact.

### **Good hygiene and proper food handling to keep your infant from getting sick:**

- Wash your hands with soap and water before preparing the infant's food and before feeding; also wash infant's hands before feeding.
- Cover cooked food and eat it within 2 hours if there is no refrigerator.
- Use clean utensils (e.g. bowls and spoons) to feed the infant. Use a clean cup to give milk or fluids. If a caregiver wants to put some of the infant's/child's food into her mouth to check the taste or temperature, she should use a different spoon from the infant/child.
- Avoid using feeding bottles, which are difficult to keep clean.

**APPENDIX 6-L Feeding from 6–24 Months of Age** *(continued)*

<b>Table 6.9 Suggestions for feeding a sick child</b>	
<b>Illness/condition</b>	<b>Suggestion</b>
Child's mouth or throat is sore	<ul style="list-style-type: none"> <li>▪ Give soft or smooth foods</li> <li>▪ Avoid acidic foods (like citrus fruits), very sweet foods and spicy foods</li> <li>▪ Have child drink through a straw</li> </ul>
Child has a stuffy nose	<ul style="list-style-type: none"> <li>▪ Clear the nose before feeding</li> <li>▪ Feed slowly, giving the child time to breathe</li> </ul>
Child has a fever	<ul style="list-style-type: none"> <li>▪ Give extra fluids or breastfeeds</li> <li>▪ Give frequent small portions</li> </ul>
Child has a respiratory infection or cough	<ul style="list-style-type: none"> <li>▪ Sit child upright and give small amounts of food and fluids slowly</li> </ul>
Child has diarrhoea	<ul style="list-style-type: none"> <li>▪ If breastfeeding, give more frequent, longer breastfeeds, day and night</li> <li>▪ If replacement feeding:               <ul style="list-style-type: none"> <li>▪ Replace the formula with fermented milk products, such as yoghurt; or</li> <li>▪ Replace half the milk with extra rich semisolid food</li> </ul> </li> <li>▪ Give bananas, mashed fruits, soft rice and porridge</li> <li>▪ Give small meals more often</li> <li>▪ If the child is getting dehydrated (or not eating or drinking), use oral rehydration solution</li> <li>▪ Seek medical attention if a child shows signs of dehydration e.g., sunken fontanel or decreased responsiveness</li> </ul>
Child is vomiting	<ul style="list-style-type: none"> <li>▪ Give very frequent fluids or breastfeeds in small amounts</li> <li>▪ Give small amounts of food as frequently as possible</li> <li>▪ Monitor for dehydration</li> </ul>
Child is sleepy	<ul style="list-style-type: none"> <li>▪ Watch for times when the child is alert and then feed</li> </ul>

This appendix was adapted from the following:

WHO, UNICEF and USAID. 2005. HIV and Infant feeding Counselling Tools: Reference Guide. Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/HIV\\_IF\\_CT/ISBN\\_92\\_4\\_159301\\_6.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/HIV_IF_CT/ISBN_92_4_159301_6.pdf)

WHO and UNAIDS. 2003. *HIV and infant feeding: Guidelines for decision-makers*, Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/HIV\\_IF\\_DM.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/HIV_IF_DM.pdf)

WHO and UNAIDS. 2003. *HIV and infant feeding: Guidelines for health care managers and supervisors*. Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/HIV\\_IF\\_MS.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/HIV_IF_MS.pdf)

## **APPENDIX 6-M Infant Feeding Counselling Session**

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**This appendix supports the steps listed in Figure 6.1 Infant feeding counselling flowchart for women who are HIV-infected.**

### **Welcome the mother and explain what will happen during the counselling session:**

- She will learn how she can pass HIV to her baby and what the risks are of this happening (Step 1).
- She will learn about the advantages and disadvantages of different feeding options and will identify the option that is most acceptable for her (Step 2).
- You will explore her home and family situation with her (Step 3).
- You will help her choose the feeding method that is most appropriate for her situation, demonstrate that method and discuss follow-up support (Steps 4-6).

### **Step 1, Explain the risk of MTCT, key points:**

- A mother must be infected with HIV to pass the virus to her baby.
- Not all babies born to women with HIV become infected with HIV themselves.
- Babies can be infected during pregnancy, during delivery or through breastfeeding.
- If breastfeeding stops early, the baby is less likely to be infected.
- Remember that it is important to balance the risks of HIV transmission with the risks of serious illness and death if not breastfeeding.
- Several factors may increase the risk of passing HIV through breastfeeding:
  - Recent infection with HIV
  - Advanced HIV infection or AIDS
  - Breast problems such as mastitis, abscesses and cracked or bleeding nipples
  - Longer duration of breastfeeding
  - Inappropriate breastfeeding practices such as mixed feeding (feeding both breast milk and other foods or liquids)
  - Mouth sores or thrush in the baby
- Several factors may reduce the risk that a woman will pass HIV to her baby:
  - Safer delivery practices
  - ARV prophylaxis to the HIV-infected mother during pregnancy, labour and delivery, postpartum and to the infant after birth. Some women have access to ARV therapy for the long-term treatment of their own HIV infection. The effect of these drugs on HIV transmission through breastfeeding and the effects on the health of the infant are not yet known.
  - Safer breastfeeding practices

### **Step 2: Explain the advantages and disadvantages of the different feeding options**

- Ask the mother how she plans to feed her baby and then discuss the advantages and disadvantages of all the feeding options, starting with her preferred feeding method. See Session 2 of this module for the advantages and disadvantages of each of the options.

### **Step 3: Explore with the mother, her home and family situation.**

While counselling a woman, it is important to learn about her home and family situation to help her determine the most suitable feeding method for her situation. Assess the woman's current situation by asking these questions:

- How long have you known that you are HIV-infected?
- Who do you live with now? Do any of these people know that you are HIV-infected? Does anyone else know that you are HIV-infected?
- Will you have any support to help you to feed your baby? (If yes: who will help you?)
- Do you have any other children? (If yes: How did you feed your other children from birth to 6 months old?)

**APPENDIX 6-M Infant Feeding Counselling Session** *(continued)*

The table below should be used with all HIV-infected mothers who are being counselled for the first time or who are thinking of changing their feeding option. Ask the woman the questions in the left column. Her combined replies to these questions can help the woman to choose the most suitable method for her situation.

	Most suitable feeding method		
	Breastfeeding/wet-nursing	Unclear	Replacement feeding or expressed and heat-treated breast milk
Where do you get your drinking water?	River, stream, pond or well	Public standpipe	Piped water at home or can buy clean water
What kind of latrine/toilet do you have?	None or pit latrine	Ventilation-improved pit latrine	Waterborne latrine or flush toilet
How much money could you afford for formula each month?*	Less than ___* available for formula each month.	___* available for formula most months.	___* available for formula every month
Do you have money for transportation to get formula when you run out?	No	Yes, usually	Always (unless expressing and heat-treating breast milk)
Do you have a refrigerator with reliable power?	No, or irregular power supply	Yes, but not at home	Yes
Can you prepare each feed with boiled water and clean utensils?	No	Yes, but with effort	Yes
How would you arrange night feeds?	Preparation of milk feeds at night difficult	Preparation of milk feeds at night possible but with effort	Preparation of milk feeds at night possible
Does your family know that you are HIV-infected?	No	Some family members know	Yes
Is your family supportive of milk feeding and are they willing to help?	Family not supportive and not willing to help, or don't know – can't discuss	Family supportive but not willing to help	Family supportive and willing to help

Adapted from Rollins, N.C. and Bland R., Africa Centre for Health and Population Studies, South Africa.

\* You will need to know the monthly cost of formula in your community.

## APPENDIX 6-M Infant Feeding Counselling Session *(continued)*

### STEP 4: Help the mother choose an appropriate option.

Discuss with her how to overcome any obstacles that she may face using the questions listed for each feeding option.

Option	Questions
Replacement feeding	<ul style="list-style-type: none"><li>▪ How will she feed her baby in the hospital after delivery?</li><li>▪ How will she get a reliable supply of commercial infant formula?</li><li>▪ How will she get reliable supplies of water and fuel?</li><li>▪ How will she cope with feeding the baby at night?</li><li>▪ How will she cope with pressure to breastfeed from family, friends and others?</li><li>▪ How will she get medical care if her baby becomes sick?</li><li>▪ What will she do if she runs out of formula?</li></ul>
Exclusive breastfeeding	<ul style="list-style-type: none"><li>▪ What has been her past experience with breastfeeding?</li><li>▪ How will she manage to feed her baby only breast milk for the first months?</li><li>▪ What concerns do some mothers have about producing enough breast milk?</li><li>▪ How will she cope with pressure from friends and family to give her baby other liquids or foods?</li><li>▪ How will she feed the baby if she has to go to work or is separated from the baby for another reason? Mention that it is possible to express her breast milk when she is separated from her baby, and that you will explain this in more detail later if she chooses to breastfeed.</li><li>▪ How will she seek help if she has pain in the breast or any other difficulty?</li></ul>

## **APPENDIX 6-M Infant Feeding Counselling Session** *(continued)*

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### **STEP 5: Demonstrate how to practise the chosen feeding option. Provide take-home flyer.**

A woman should learn how to implement her chosen feeding method before her baby is born. This should take place during the last trimester of pregnancy, or as soon as possible after she has given birth. If possible, the woman's partner or a family member should accompany her when she learns how to implement the feeding method. If she has chosen wet-nursing, the wet-nurse should come with her.

The HCW should have all of the necessary supplies on hand for teaching and demonstrations (depending on the feeding options that are feasible). The counsellor should also have the appropriate take-home flyer for the method that the woman has chosen. If the woman has chosen replacement feeding, she should bring a transparent container that she will use to measure liquids, as well as a teaspoon or spoon.

### **STEP 6: Provide follow-up counselling and support; repeat Steps 3-5 if the mother changes her original choice.**

At the start of the second session, the mother should have confirmed the decision she made during the first session. She may have changed her mind after she has had time to think about it and discuss it with her family. Ideally, the woman should bring her partner or a supportive family member with her to this session so that they can learn together how to feed the baby. Ask her:

- Let's review what happened in the last session. From what I remember, you chose \_\_\_\_\_ (fill in feeding method).
- How do you feel about this choice after having had some time to think about it?
- Who did you discuss your choice with? How did they feel about it?
  - If she is still satisfied with her original choice, explain in detail how to feed her baby
  - If she has chosen another option, repeat Steps 3–5.





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## **Module 7** Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection

- SESSION 1** Role of the Healthcare Worker in the Care and Treatment of HIV-infected Mothers and HIV-exposed Children
- SESSION 2** Treatment, Care and Support of the Mother with HIV Infection
- SESSION 3** Treatment, Care and Support of the HIV-exposed Infant
- SESSION 4** Community Linkages for Treatment, Care and Support Services for Mothers, HIV-exposed Infants and Families
- 

**After completing the module, the participant will be able to:**

- Understand the importance of linking HIV-infected mothers and their infants to HIV-related treatment, care and support.
- Understand assessment, prophylaxis and treatment measures for common infections in HIV-infected women, including opportunistic infections.
- Describe the criteria for initiating antiretroviral (ARV) therapy for adults.
- Be familiar with common side effects of ARV therapy and how to manage them.
- Describe first-line and second-line treatment regimens, treatment failure and the rationale for switching treatment.
- Describe measures to improve adherence to ARV therapy.
- Describe the range of follow-up services required for HIV-exposed infants.
- Describe criteria for initiating co-trimoxazole prophylaxis in HIV-infected infants.
- Describe signs and symptoms of HIV infection in infants and children.
- Describe diagnostic procedures for HIV in infants and children including testing guidelines.
- Describe criteria for initiating ARV therapy in infants and children and measures to improve adherence.
- Understand the importance of links to the community for ongoing family support.

# SESSION 1    Role of the Healthcare Worker in the Care and Treatment of HIV-infected Mothers and HIV-exposed Infants

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**After completing the session the participant will be able to:**

- Understand the importance of linking HIV-infected mothers and their infants to HIV-related treatment, care and support.
- Understand assessment, prophylaxis and treatment measures for common infections in HIV-infected women, including opportunistic infections.

## Post-delivery Care of the Mother with HIV Infection

Healthcare workers (HCWs) should ensure that mothers who are HIV-infected—whether they have given birth in a healthcare facility or at home—attend post-delivery care with their infants or are visited at home. Mothers who have given birth and their infants should be evaluated at approximately 1 week after the birth and again at 6 weeks.

Subsequent visits for HIV-exposed infants should be scheduled according to a country's immunization schedule. The follow-up care of HIV-exposed infants will be discussed in greater detail in Session 3 of this Module.

In the post-delivery period, a mother with HIV infection and her infant should receive care that will support their health, prevent complications, and improve the family's ability to live positively with HIV infection.

It may be especially difficult to coordinate post-delivery appointments for mothers who have given birth at home. HCWs will need community-based support to facilitate this important follow-up care. For example, a church that distributes food to the community can give information about the importance of post-delivery care and infant

immunization to their clients who are new mothers, a skilled birth attendant can educate a new mother on the importance of post-delivery care and provide referrals, officers who register home deliveries can distribute flyers to all new mothers with information on where and when to go for post-delivery care.

### Family-centered care

Family-centered care is the assessment of a patient as a part of a family. For example, if a child presents for care, the HCW enquires about the health of the parents and siblings and others who live with the child. When an adult presents for care, the HCW routinely asks about the health of others who live in the home. Where possible, HCWs provide care to parent(s) and child(ren) during the same clinic visit. Family-centred HIV care and treatment:

- Recognizes the patient as part of a family. Family members include those identified by the parent or other caregiver and may include blood relations, in-laws or friends.
- Can include family members in decisions about treatment, care and support, as directed by the patient.

Opportunities to broaden services to families include the following:

- Use the mother's post-delivery appointment as an opportunity to ensure that HIV-exposed infants are linked to the HIV-related and routine care that they will need.
- Use MCH appointments to discuss with mothers the HIV status of, and possible HIV-related symptoms in, sexual partners and older children.
- Enquire about the mother's health during follow-up appointments for immunizations.

### Comprehensive approach to reducing HIV infection in infants and young children

Module 2 included a description of the four elements of a comprehensive approach. The fourth element is the “provision of treatment, care and support to women infected with HIV, their infants and their families”. Components of comprehensive treatment, care and support include the following.

**Table 7.1: Components of comprehensive treatment, care and support**

<b>Mother and partner</b>	<ul style="list-style-type: none"> <li>▪ Screening, prevention and treatment of common infections, including opportunistic infections</li> <li>▪ Information on infant feeding options and infant feeding counselling and support</li> <li>▪ Nutritional counselling</li> <li>▪ Physical assessment, clinical staging and referral for ARV therapy according to national guidelines</li> <li>▪ Adherence counselling for ARV therapy for self and infant</li> <li>▪ Psychosocial support</li> <li>▪ Safer sex and family planning counselling</li> <li>▪ Palliative care, where indicated</li> <li>▪ Co-trimoxazole prophylaxis and adherence support</li> </ul>
<b>HIV-exposed infant</b>	<ul style="list-style-type: none"> <li>▪ Prevention and treatment of common infections, including opportunistic infections</li> <li>▪ Diagnosis of HIV by laboratory measurements and/or clinical symptoms</li> <li>▪ Immunizations</li> <li>▪ Growth, nutritional status and development monitoring</li> <li>▪ Assessment and referral for ARV therapy</li> <li>▪ Co-trimoxazole prophylaxis and adherence support</li> </ul>
<b>Family</b>	<ul style="list-style-type: none"> <li>▪ Links and relationships with community service organizations and agencies to promote continuity of care</li> </ul>

### Role of HCWs in HIV care and treatment

The specific role of MCH HCWs in HIV care and treatment will vary according to country, region and even by facility. In general, HCWs should:

- Have a clear understanding of when to refer women for ARV therapy.
- Have a clear understanding of when to start co-trimoxazole prophylaxis in adults, women, infants and children.
- Be able to recognize common infections in HIV-infected women as well as common infections in HIV-infected adults, infants and children.
- Be able to recognize and advise patients on common side effects of ARV therapy.
- Understand the importance of adhering to the ARV therapy regimen and be able to counsel their patients to support adherence.
- Establish effective communication and linkages between MCH services and centres for HIV treatment, care and support.
- Participate in ongoing problem-solving as a part of a team committed to delivering comprehensive care to patients.

### Exercise 7.1 WHO clinical staging system for adults: small group game and large group discussion

<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To practise using the WHO clinical staging system of HIV/AIDS for adults and adolescents to guide the provision of care for a person living with HIV infection.</li> </ul>
<b>Duration</b>	45 minutes

**Exercise 7.1 WHO clinical staging system for adults: small group game and large group discussion**

**Instructions  
Part 1—  
Small Group  
Game**

- You will join one of four small groups. The trainer will give you about 10 cards or Post-it notes. Each of the cards will have on it the name of one disease listed under any one of the four of the Clinical Stages in Appendix 1-D “WHO Clinical Staging of HIV/AIDS for Adults and Adolescents”.
- First write your group number (either Group 1, 2, 3, or 4) on each of the cards.
- Take about 5 minutes to work with your other small group members to figure out to which of the 4 Clinical Stages each of the diseases belongs.
- This is a race to see which small group knows the Clinical Staging system the best. Once the trainer says “begin now”, you or other members of your group should feel free to get up and walk to the flipcharts posted around the room and assign the appropriate cards to each of the four flipchart sheets—depending on the clinical stage represented by that disease or condition. The first group to correctly put all of their cards on the right flipchart sheets is the winner.
- Once everyone is seated, the trainer will review the cards on each flipchart sheet.

**Instructions  
Part 2—  
Large Group  
Discussion**

The trainer will ask for volunteers to read each of the 5 parts of the case study below. After reading each part, the trainer will ask questions to generate discussion about Judy’s stage of HIV infection.

**Case study**

**Part A**

*Judy is 25 years old and works in a shop that sells clothes. One day she meets a man whom she likes very much. He has a job as a truck driver, which frequently takes him away from home. He is unaware that he has been living with HIV for 3 years. He and Judy become a couple and regularly have unprotected sex. Six months into their relationship, Judy misses work due to the flu. She also has fever, swollen glands and complains of joint pain. Her sister is a nurse, and suggests that Judy get tested for HIV. Judy decides to be tested four weeks later. Her test result is positive.*

**Part B**

*Three years later, Judy becomes pregnant. At her first ANC appointment, she undergoes a complete physical exam, which is normal. She is told that the laboratory at the ANC clinic is not working until further notice, so no CD4 count is available. Judy tells her HCW that she “feels fine today.” She agrees to start ARV prophylaxis during her ANC care.*

**Part C**

*Judy has a successful and safe delivery, giving birth to a healthy 3 kg baby girl named Susan. Judy administered an ARV prophylaxis regimen to Susan and formula feeds her daughter. She attends all post-delivery visits and has no complaints, but during Susan’s 9 month routine immunization visit, Judy tells you that she is very tired and has a tingling painful rash on her side. On physical exam you observe small blisters filled with fluid in a band-like pattern across her flank.*

**Part D**

*At baby Susan’s 18-month follow-up visit, during which she is tested for HIV using an HIV antibody test, Judy learns that Susan is not HIV-infected. However,*

<b>Exercise 7.1 WHO clinical staging system for adults: small group game and large group discussion</b>	
	<p><i>Judy complains of having diarrhoea for more than one month. She still works, but feels tired most of the time. On physical exam, she has patchy white spots on the back of her throat. Judy tells her HCW that while she took ARV prophylaxis during her pregnancy, it made her “feel terrible”. She tells you that she has not gone to her follow-up appointments at the HIV care and treatment clinic because it is too far away. She feels very strongly that she does not want to take any medication and never re-filled her co-trimoxazole prescription after her last visit. She tells you that her partner, who is still working as a truck driver, has been away from home for many months.</i></p>
	<p><b>Part E</b></p> <p><i>A year later, Judy’s condition becomes worse and she comes to the MCH clinic with Susan. She can no longer work and has trouble getting out of bed. She cannot seem to maintain her weight, no matter what she eats. Judy complains of having difficulty swallowing and has had a cough for over a month. The HCW also notes numerous hard purple nodules on the roof of her mouth. She went to the HIV care and treatment clinic once in the last year, but saw someone she knew in the waiting room and never returned.</i></p>

## Prevention of Common Infections in HIV-infected Patients

To avoid common infections and conditions, advise the patient to:

- Wash daily to avoid skin infections.
- Eat nutritious foods.
- Take supplemental multivitamins and essential minerals, including ferrous sulphate to prevent anaemia as needed.
- Keep mouth clean.
- Rehydrate promptly in case of diarrhoea.
- Use safe drinking water.
- Obtain adequate rest.
- Use condoms, which can help prevent unwanted pregnancy, STIs and the further spread of HIV.
- Apply a long-acting insecticide, such as DDT, on the inside walls and roof of the home and domestic animal shelters (also referred to as indoor residual spraying) and use insecticide-treated bed nets to prevent malaria.
- Consider immunization against hepatitis A, hepatitis B and flu.
- When prescribed by a healthcare worker, take medications that prevent common infections in patients with HIV infection:
  - Co-trimoxazole to prevent *Pneumocystis pneumonia* (PCP), malaria, toxoplasmosis, and some bacterial infections.
  - Isoniazid (INH) preventive therapy, if available and recommended

## WHO Recommendations for Co-trimoxazole Prophylaxis for Adults and HIV-exposed Infants

Co-trimoxazole is an antimicrobial medication that can prevent bacterial infections and malaria as well as two important opportunistic infections, *Pneumocystis pneumonia* (PCP) and toxoplasmosis. Long-term co-trimoxazole prophylaxis has resulted in fewer opportunistic infections, improvements in quality of life and increased survival in patients with HIV.

Co-trimoxazole contains two medications: trimethoprim and sulphamethoxazole (sometimes referred to as TMP-SMX). The dose of co-trimoxazole for adults is one double strength tablet

that contains 160mg of trimethoprim and 800mg of sulphamethoxazole or two single-strength tablets that contains 80mg of trimethoprim and 400mg of sulphamethoxazole.

Co-trimoxazole is generally well-tolerated by most patients. However, it should *not* be administered to patients with a history of severe allergy to sulfa-containing drugs. In patients with only a mild allergy, desensitisation to co-trimoxazole should be considered.

<b>Table 7.2: When to start co-trimoxazole prophylaxis in adults and adolescents</b>	
<b>Based on WHO Clinical Staging Criteria Alone (when CD4 count is not available)</b>	<b>Based on WHO clinical staging and CD4 count</b>
WHO clinical stage 2, 3 or 4	Any WHO clinical stage and CD4 < 350 mm <sup>3</sup> , <sup>a</sup> OR WHO clinical stage 3 or 4 irrespective of CD4 level
Universal option: Countries may choose to adopt a universal co-trimoxazole prophylaxis for everyone living with HIV and any CD4 count or clinical stage. This strategy may be considered in settings with high prevalence of HIV and limited healthcare infrastructure.	
<sup>a</sup> Some countries will choose to adopt a threshold of 200mm <sup>3</sup>	

HCWs in MCH settings have an important role in supporting adherence to co-trimoxazole prophylaxis for the mother and her HIV-exposed infant:

- Explain the purpose of co-trimoxazole prophylaxis
- Teach all caregivers to give co-trimoxazole to infants through education, demonstration and practice.

Adherence support is further discussed in the next sessions. See Appendix 7-A and 7-H for additional information on co-trimoxazole prophylaxis for adults and children, including side effects and adverse reactions that would result in stopping the medication. Use of co-trimoxazole in children is discussed further in the third session of this module.

### **Co-trimoxazole and pregnant women**

Women who are taking co-trimoxazole prophylaxis and become pregnant should continue taking co-trimoxazole throughout pregnancy. All HIV-infected pregnant women who meet the criteria listed in Table 7.2 (above) should receive co-trimoxazole prophylaxis. The risk of a life-threatening infection in pregnant women with a low CD4 count or clinical symptoms of HIV (WHO Stage 2, 3 and 4) outweighs the theoretical risk of co-trimoxazole harming the fetus. Pregnant women who are taking co-trimoxazole do not need to take other sulfa-containing drugs like sulfadoxine-pyrimethamine (SP) for malaria prophylaxis.

## **Tuberculosis Preventive Therapy in Adults**

In areas of high TB prevalence, HIV-infected adults have a 50% chance of developing active TB, meaning that about half of HIV-infected adults will develop active TB in their lifetime. Isoniazid (INH) preventive therapy has been shown to reduce this risk by as much as 60%. HIV-infected pregnant women should be evaluated for TB and offered preventive therapy according to national guidelines. Before starting preventive therapy, active TB must be ruled out. There must be an adequate supply of INH, and the patient should also be willing to take the medication daily for about 6 months. Pyridoxine, vitamin B 6, is often given with INH for prevention of INH-associated side effects.

Screening, diagnosis and treatment of TB are discussed later in this session.

## Infection with HIV and Malaria

Malaria in pregnancy can have serious consequences for both the mother and her unborn child. Pregnant women are 2-3 times more likely to develop severe disease as a result of malaria infection than are non-pregnant adults.

### Stable and high malaria transmission areas

Malaria infection is often asymptomatic in pregnant women living in areas of stable and high malaria transmission (i.e. where populations are continuously exposed to a constant rate of malaria inoculations and partial immunity to the disease is acquired in early childhood). Much of sub-Saharan Africa and parts of Oceania are areas of stable and high transmission. With partial immunity, adults are less likely to develop severe symptoms of malaria. However, a pregnant woman's immunity decreases during pregnancy. HIV infection also compromises a woman's ability to control malaria infection. The major effects of malaria infection in pregnant women in areas of stable and high transmission are low birth weight and maternal anaemia.

In areas of stable and high transmission, all HIV-infected pregnant women (except those on co-trimoxazole prophylaxis) should receive intermittent preventive treatment (IPT) with sulfadoxine-pyrimethamine (SP). Typically, the first dose of SP should be given after quickening (the time when foetal movements are first felt by the mother) in the second trimester. Patients should receive at least 3 doses of IPT during the last six months of pregnancy, ideally under direct observation at the time of routinely scheduled ANC visits.

HIV-infected pregnant women who are already on co-trimoxazole prophylaxis to prevent other HIV-related infections should not receive IPT, because co-trimoxazole also provides effective protection against malaria.

### Unstable and low to moderate malaria transmission areas

Pregnant women in areas with unstable malaria transmission may be asymptomatic or present with mild to severe symptoms. In areas of unstable malaria, people are less likely to develop clinical immunity because rates of malaria change over seasons and years. In these areas, which include much of Asia and Latin America, all age groups are at risk for acute malaria infection and progression to severe malaria if left untreated. Maternal mortality is approximately 50%, resulting directly from the complications of severe malaria (e.g., hypoglycaemia, cerebral malaria, pulmonary oedema), or indirectly from malaria-related anaemia. Malaria in pregnancy can result in stillbirth, spontaneous abortion, low birth weight and neonatal death. IPT is relatively ineffective in areas where there is low to moderate or unstable transmission of malaria.

Pregnant women presenting with any of the symptoms of malaria listed below, or who may have been exposed to malaria, should be assessed and treated, according to national guidelines. Since malaria in a pregnant woman can rapidly progress to severe disease, any pregnant woman with symptoms of malaria must receive urgent treatment with an effective antimalarial drug.

Symptoms of malaria include the following:

- Fever, may be intermittent
- Myalgia (muscle aches and pains)
- Joint pain
- Chills
- Mental confusion
- Abdominal pain
- Diarrhoea
- Nausea and vomiting

- Loss of appetite

On physical exam, findings in a patient with malaria may include:

- Tachycardia (elevated heart rate)
- Fever
- Splenomegaly (an enlarged spleen)
- Tender abdomen

### Malaria prevention

All women in malarial areas should be advised on malaria prevention measures as follows:

- Use of insecticide-treated bednets
- Use of iron and folic acid supplementation as part of routine ANC
- Regular screening for malaria
- Elimination of possible mosquito breeding places in and around the home
- Use of indoor residual spraying with an insecticide such as DDT where indicated and available

## Recognizing Opportunistic Infections

As immune function weakens, a person infected with HIV may develop opportunistic infections including:

- Tuberculosis (TB)
- *Pneumocystis pneumonia* (PCP)
- Candidiasis
- Herpes zoster
- Kaposi's sarcoma
- Diarrhoea from multiple causes
- Cryptococcal meningitis

HCWs need to be able to recognize early signs and symptoms of these conditions even if they refer for treatment. Common signs and symptoms of HIV infection in children can differ and will be addressed in session 3.

<b>Tuberculosis</b>	<ul style="list-style-type: none"> <li>▪ Persistent, productive cough (especially blood streaked); weight loss, night sweats and a persistent fever</li> </ul>
<b>PCP</b>	<ul style="list-style-type: none"> <li>▪ Severe shortness of breath, non-productive cough, fever, chills and/or fatigue</li> </ul>
<b>Candidiasis</b>	<ul style="list-style-type: none"> <li>▪ Oral (thrush)—creamy white patches on a red base on posterior pharynx</li> <li>▪ Oesophageal—difficulty swallowing or painful swallowing found in advanced stages of AIDS</li> </ul>
<b>Herpes zoster</b>	<ul style="list-style-type: none"> <li>▪ Acute sensitivity in a band-like region of the skin on one side of the trunk, head or neck, one arm or thigh followed by bumpy reddish rash in the same band-like pattern. Later, pain, burning, itching or a tingling sensation develops with rash of clustered blisters on a red base</li> </ul>
<b>Kaposi's sarcoma</b>	<ul style="list-style-type: none"> <li>▪ Pink-to-purple spots or nodules on the skin surface or in the mouth</li> </ul>
<b>Diarrhoea</b>	<ul style="list-style-type: none"> <li>▪ Frequent unformed watery stools, with or without blood or pus, with possible abdominal cramping and/or fever. Disorientation and mental status changes related to dehydration. Diarrhoea can be caused by different infectious agents or can be unexplained.</li> </ul>



**Table 7.3: Clinical signs and symptoms of selected opportunistic infections**

<b>Cryptococcal meningitis</b>	<ul style="list-style-type: none"> <li>▪ Symptoms of severe headache with fever may present gradually. Patient may report fatigue or memory problems and may also complain of nausea or blurred vision. Family members may report that the patient has experienced personality changes.</li> </ul>
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**Exercise 7.2 Infections in women with HIV: case studies in small groups**

<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To provide information on recognition and prevention of some common infections in women with HIV.</li> </ul>
<b>Duration</b>	30 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ You will be assigned to one of 4 or 5 small groups. Your group will be assigned one of the case studies below. You have about 10 minutes to review the case study and prepare your recommendations.</li> <li>▪ Select someone in your group to present the group's recommendations.</li> <li>▪ Work within your small group to answer the following questions about your assigned case:             <ol style="list-style-type: none"> <li>1. Based on clinical presentation of symptoms, what infection do you think the patient has?</li> <li>2. What are the symptoms that support the answer to the first question?</li> <li>3. What would be the immediate next step in caring for this patient? For example, are you going to refer the patient to hospital?</li> <li>4. Determine if prophylaxis or prevention could have minimized the risk of the patient acquiring this infection. If medication could have prevented the disease, please name the medication and, if possible, the dosing.</li> <li>5. If appropriate, what are the implications of the infection for family members?</li> </ol> </li> <li>▪ There are many different diagnoses to consider in every case. Base your decision about the diagnosis on the information available in the case study.</li> </ul>

**Exercise 7.2 Infections in women with HIV: case studies in small groups****Case study 1**

Mary was diagnosed with HIV last year. She comes to the clinic infrequently and is not on ARV therapy. Mary states she feels "well" most of the time. Her last visit was four months ago, when her pregnancy was confirmed. Today she is 6 months pregnant and has arrived feeling short of breath. She says that work has been busy and she has been feeling more and more tired. She reports having had a dry cough for three weeks now and that during the last few days; she suspected that she had a fever. She denies exposure to anyone with tuberculosis.

**Case study 2**

Sally has returned to the ANC clinic after just completing her first trimester of pregnancy. She is HIV-infected. She thought she would be over "morning sickness" by now, but she is feeling worse than ever. In addition to nausea and loss of appetite, she reports occasional "chills," general weakness and joint pain. She says that she does not have these symptoms all the time.

**Case study 3**

Amanda, who is infected with HIV, has brought her 9 month old daughter in for immunizations. Amanda is noticeably ill in the waiting room of your MCH clinic: she is coughing and appears thin. You immediately take her to an exam room that is well-ventilated

and away from other patients. You hear congestion in her lungs and she has a fever. She has lost 6 kg since her last visit 6 months ago, even though she is replacement feeding. She says that she coughs constantly, and that sometimes she coughs up “material” that is dark reddish brown.

#### **Case study 4**

June, who is in her second trimester of pregnancy, has arrived at the local health clinic with complaints of mild vaginal irritation and odour. On examination, she has a thin adherent milky discharge around her vagina and no lower abdominal pain or tenderness on palpation. She has had these symptoms for more than a month. She reports using condoms every time she has sex because she is HIV-positive. She reports douching after vaginal intercourse.

#### **Case study 5**

Joan arrives for her antenatal appointment. She is 6 months pregnant. She indicates that she only has sex with her husband, who works in a diamond mine. He is home infrequently. They do not use protection because they are both already infected with HIV and they wanted to have a baby. The last time they had sex, Joan says the intercourse was painful. On speculum exam, you observe a red cervix with a yellowish to green discharge. She does not report any lower abdominal pain.

## **Tuberculosis and HIV**

### **Tuberculosis (TB)**

In areas where both TB and HIV are prevalent, it is common to see TB in mothers attending MCH clinics. A person infected with HIV is 10 times more likely to develop TB than a person who is HIV-negative.

HIV seroprevalence among TB patients in sub-Saharan Africa is estimated at 70%. Mothers who have symptoms suggestive of TB should have a full clinical evaluation, physical exam and sputum collection and analysis. If active pulmonary TB is confirmed, all family members and close contacts will need to be tracked, according to locally agreed upon protocols and available resources and evaluated. It is particularly important to contact and evaluate potentially exposed children and HIV-infected family members. Provide family members and close contacts with information about TB as well as HIV testing and counselling, as appropriate.

### **Referral for evaluation of active TB**

Any woman who presents to an MCH clinic with the following symptoms needs immediate evaluation and referral to the national TB programme.

- Cough lasting longer than 2-3 weeks
- Sputum production
- Weight loss
- Haemoptysis (coughing up of blood or blood-stained sputum)
- Chest pain
- Shortness of breath

On physical exam, a person with TB may present with:

- Tachycardia (elevated heart rate)
- Fever
- Crackles, wheezes or rhonchi heard in the lungs
- Weight loss
- Laboured breathing

### **TB diagnosis**

WHO recommends that all patients with clinical features suggestive of pulmonary TB submit sputum for diagnostic sputum smear microscopy.

- **Sputum smear positive:** Treatment is started for those who have one positive sputum smear.
- **Sputum smear negative:** The patient who tests negative on sputum smear microscopy on at least two specimens should have a chest X-ray to look for radiographic abnormalities that are consistent with active TB. Treatment should be started if the X-ray shows signs of active TB and there is a decision made by a clinician to treat with a full course of antituberculosis medications. Sputum cultures, where available, can also be a valuable diagnostic tool.

TB patients with severe immunodeficiency are less likely to have positive sputum smears because of a decreased ability to mount an inflammatory response.

### **TB treatment**

National guidelines on the treatment of active TB usually provide additional guidance on screening, treatment and monitoring of the patient with TB. There may also be guidelines for treating patients who are infected with both TB and HIV.

### **Challenges to the management of TB in HIV-infected persons**

Among the challenges to the management of TB in HIV-infected patients are

- Adherence to two long-term drug regimens
- Management of side effects of HIV and TB drugs
- Drug interactions between some TB and ARV drugs
- Follow-up and cost of long-term regimens

### **Starting antiretroviral therapy in a patient with TB and HIV**

TB treatment programmes are a common entry point to HIV care and treatment programmes. ARV regimens for TB patients are modified as necessary or, when possible, HCWs wait until the patient has been stabilized on TB treatment before initiating ARV therapy. HCWs should consult their national guidelines on the co-management of TB and HIV infections.

There can be significant interactions between rifampicin, which is used to treat active TB, and certain classes of ARV drugs, specifically protease inhibitors and the class of antiretrovirals known as NNRTIs. Co-infection with TB and HIV requires careful clinical management.

### **WHO recommendations on treating pregnant HIV-infected women with TB**

In HIV-infected pregnant women with active TB, the first priority is to treat the TB. With careful clinical management, pregnant women can receive TB drugs and ARV therapy simultaneously. The optimal time to start ARV therapy will depend on the CD4 count, tolerance of TB treatment and other clinical factors. HIV-infected pregnant women who are not eligible for ARV therapy should be started on an ARV prophylaxis regimen. HCWs

should consult the national guidelines on the treatment of pregnant women with TB. For information on the WHO-recommended ARV therapy for pregnant women with TB, see Appendix 3-A.

## SESSION 2 Treatment, Care and Support of the Mother with HIV Infection

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### After completing the session, the participant will be able to:

- Describe the criteria for initiating antiretroviral (ARV) therapy for adults.
- Be familiar with common side effects of ARV therapy and how to manage them.
- Describe first-line and second-line treatment regimens, treatment failure and the rationale for switching treatment.
- Describe measures to improve adherence to ARV therapy.

### ARV Therapy

Combining ARV drugs to reduce HIV replication as much as possible is the standard of care in the treatment of HIV disease.

A combination of three or more ARV drugs, often referred to as highly active antiretroviral therapy (HAART) or ARV therapy, slows replication of HIV. ARV therapy is increasingly available worldwide. The advantages of ARV therapy are:

- Reduction in deaths from AIDS
- Reduction in HIV-related illness
- Reduction in symptoms and improvement of health status
- Reduction in HIV-related hospitalizations
- Improvement in quality of life and survival

### Basic facts about ARV therapy

There are some basic facts about ARV therapy that HCWs should communicate to patients:

- **ARV therapy does not cure HIV.** Antiretroviral drugs cannot cure HIV infection or eliminate it from the body. Instead, they slow viral replication (measured by reduced viral load or the amount of virus in the blood) which slows the weakening of the immune system and helps the immune system to recover. If ARV therapy is discontinued, HIV replication is not controlled and disease progression may occur more rapidly.
- **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 the virus to mutate. These changes (mutations) can make the virus resistant to ARV drugs. When viral resistance develops, ARVs are less effective at fighting the virus. Missing even one or two doses, taking medication late, or taking medication with certain foods can lower the concentrations of ARVs in the blood and permit emergence of resistant virus. Therefore patient adherence is crucial to the efficacy of ARV therapy. ARV therapy should not be started or continued without adherence assessment, counselling and support. Adherence is discussed in more detail later in this Session.
- **Not every HIV-infected person needs ARV therapy.** Not every HIV-infected person needs ARV therapy for her own health. Early in the course of infection, a person's immune system may still be functional enough to keep her healthy. All ARV drugs have side effects and should be initiated and used according to national or international guidelines. The clinical and laboratory criteria described in the national or international guidelines provide guidance on eligibility for therapy.

- **A trained healthcare worker should initiate ARV therapy.** Selection of ARV therapy regimen and patient eligibility is guided by the national ARV guidelines. Typically, there is one national first-line regimen for adults and one for children. HCWs need to be trained in assessing eligibility and in ARV therapy before prescribing.
- **Three different ARV drugs are required for effective treatment.** At present, the only regimens that can drastically reduce viral replication and reduce viral resistance for long periods of time involve a combination of antiretroviral drugs. Mono or dual therapy with ARV drugs is not effective in the long term and can lead to unnecessary drug resistance. HCWs in MCH settings should ensure that their patients on ARV therapy are following the regimen prescribed to treat their HIV infection. Some countries may use ARV drugs in fixed-dose combinations. Fixed-dose combinations contain three different ARV drugs—even though the patient may take one or two pills/day.
- **Other medications interact with ARVs.** Medications that reduce the concentration of ARVs in the blood should be avoided. For example, some ARVs interact with some TB medications. HCWs should closely monitor patients who are taking any other drugs, whether prescribed by a healthcare worker or a traditional healer. Herbal and other traditional remedies, regardless of route of administration, can interact with ARVs. Where there is a question, patients taking any other medications (traditional or non-traditional) should be referred to a provider knowledgeable about common drug-drug interactions.

## Classes of ARV Drugs

All ARV drugs work to reduce HIV viral load. Reducing the amount of virus in a pregnant woman's body reduces the risk of MTCT. The drugs used for PMTCT can be the same drugs used to manage a mother's HIV infection.

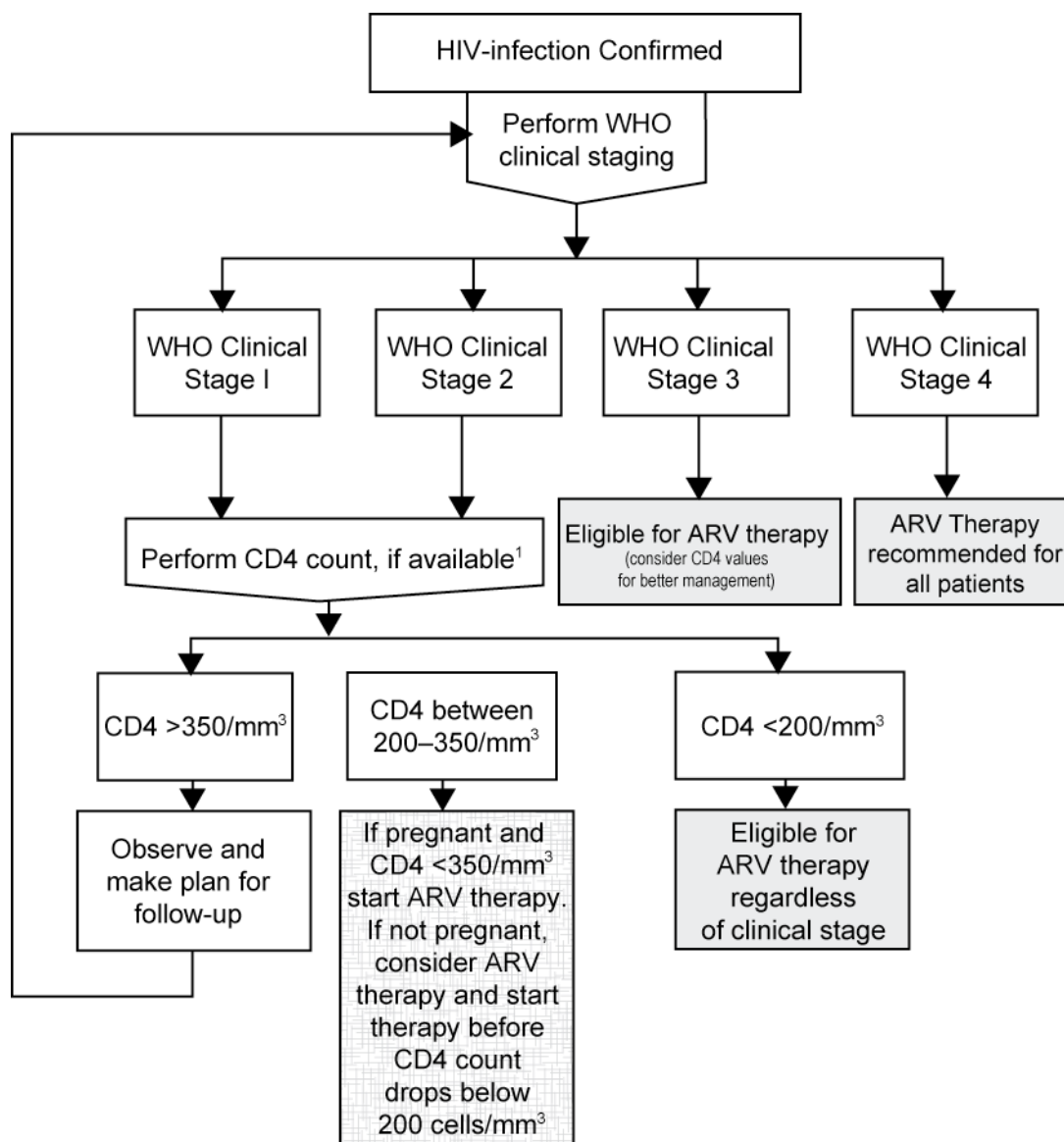
Currently, the 3 classes (types) of ARV drugs used most commonly are: nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors (PIs). Appendix 7-B lists the ARV drugs according to class, potential side effects and adverse events.

See Appendix 7-C for information on WHO recommended first-line ARV therapy regimens. See Appendix 7-D for a list of common side effects of ARV drugs and recommendations for management.

## Clinical Criteria for Starting ARV Therapy in Adults and Adolescents

National guidelines usually indicate the criteria for starting ARV therapy. WHO guidelines for when to start treatment are based on a clinical staging system and laboratory measurements, such as CD4 counts, when available.

**Figure 7.1 WHO recommended clinical decision-making steps for starting ARV therapy in adults and adolescents**



<sup>1</sup> Some data suggests that in the absence of CD4 testing, a total lymphocyte count (TLC) below 1200 cells/mm<sup>3</sup> in patients with symptoms can be used as a threshold for starting ARV therapy. However, it is not possible to directly correlate TLC with a specific CD4 count.

**Table 7.4: Common symptoms of progressive HIV disease that should alert HCW to refer woman to a care and treatment clinic for evaluation**

- Chronic diarrhoea
- Painful or difficulty swallowing
- Presence of oral thrush
- Weight loss of more than 10% of body weight
- Trouble breathing, shortness of breath and/or cough for more than 2-3 weeks
- Persistent fever of unknown origin

## First-line ARV Regimens

The combination of 2 NRTIs with 1 NNRTI continues to be the WHO-recommended first-line regimen in resource-limited settings for non-pregnant adults. See Appendix 7-C for a list of WHO recommended first-line regimens. However, there is only one recommended first-line regimen for pregnant women who are eligible for ARV therapy: AZT+3TC+NVP.

## Promoting Adherence to ARV Therapy

Patient adherence to ARV therapy is linked to effective treatment of HIV infection. Although HCWs in HIV care and treatment clinics will assess and support adherence through adherence counselling, HCWs in MCH settings have a role in promoting adherence. Adherence support is also important for women who are on co-trimoxazole prophylaxis and for those administering co-trimoxazole prophylaxis to HIV-exposed or infected infants and children.

**Table 7.5: How to increase adherence to ARV therapy**

### **Educate patients.**

Enquire about adherence counselling and support provided at the HIV care and treatment clinic. Where a patient has questions or support is needed:

- Review each drug in the ARV regimen with the patient.
- Assist the patient in planning a dosage schedule that works for her particular situation.
- If there are food or beverage restrictions, remind the patient of these restrictions.
- Help the patient understand that ARV drugs only work if they are taken every day at the correct time.
- Make sure the patient knows that ARV therapy is not a cure and that it requires a long-term commitment.

### **Assess adherence and give patients tips on how to take their medication.**

- Provide simple written information, diagrams or visual aids on when to take drugs (if these tools are available).
- Encourage the patient to disclose her HIV status to at least one friend or family member who knows about her ARV therapy and can remind her to take the medication.
- Encourage the patient to bring all medications to all clinic appointments.

### **Help patients understand and manage side effects.**

- Before they occur, discuss common side effects and how to manage them. The majority of side effects are mild and resolve within 1-2 weeks of starting the drugs.
- Differentiate between short-term side effects of medication that will resolve and emergency or persistent symptoms that require prompt medical attention e.g., shortness of breath or chronic diarrhoea.

**Work with HIV care and treatment clinics and other organizations caring for people who are HIV-infected.**



**Table 7.5: How to increase adherence to ARV therapy**

- Help the patient understand that she has to attend the HIV care and treatment clinic on a regular basis.
- Keep organized appointment records for patients attending HIV care and treatment clinics or TB programmes, and follow-up with patients if appointments are missed.
- Establish communication between the MCH and HIV care and treatment clinics about the patient's side effects, adverse reactions and how to manage non-adherence.
- Encourage the patient to join HIV support groups, where available.
- Assess patient adherence to co-trimoxazole prophylaxis; this can be used to predict adherence to ARV therapy.

**Management of side effects of ARV therapy**

HCWs in MCH settings can help patients adhere to ARV regimens by providing them with information and strategies to manage common symptoms of HIV infection as well as the side effects of ARV drugs. Management of common problems, such as nausea, vomiting, fatigue and skin problems can ease discomfort. Assessment and management of more complex problems such as pain, and weight and muscle loss resulting from disease progression can improve comfort, functioning and emotional well-being. The management of some symptoms may require a referral to an HIV care and treatment clinic.

Appendix 7-D includes information on managing some common symptoms of HIV infection and side effects of ARV drugs. This Appendix also indicates next steps for HCWs if they suspect an adverse event or a long-term side effect. Appendix 7-E lists strategies for maximizing food intake.

**Viral Resistance and ARV Drugs**

The expansion of HIV care and treatment programmes will likely be accompanied by the emergence of HIV drug resistance, which has occurred in all countries where antiretroviral therapy is routinely provided. HIV can develop resistance when there is not enough of an ARV drug in the body. The virus mutates or changes so that the ARV drug is less effective. Once the virus has mutated, the ARV drugs the patient is taking can no longer effectively suppress the virus.

Viral resistance may occur when a person who is taking ARV drugs:

- Skips or misses doses of an ARV drug (the same circumstances can lead to multi-drug resistant TB (MDR-TB)).
- Takes another medication that interacts with ARVs and lowers the amount of ARV drug in the body; for example, taking rifampicin with a protease inhibitor (PI) will lower the amount of the PI in the body.
- Acquires a resistant form of the virus when they were initially infected or later re-infected.

HCWs can take steps to prevent resistance by:

- Closely following national guidelines for the care and treatment of HIV-infection, particularly in reference to eligibility criteria, drug regimens and switching regimens
- Fostering patient adherence
- Supporting the prevention of HIV transmission, including counselling patients with HIV to provide them with the information and skills they need to ensure they do not transmit HIV to any one else (referred to as secondary prevention)
- Working with patients and within the healthcare system to remove barriers to continuous access to care
- Advocating for and using individual treatment records

## Treatment Failure

Treatment failure occurs when ARV drugs no longer work to control progression and symptoms of HIV infection. Several factors may play a role in treatment failure:

- Poor adherence—poor adherence to an ARV regimen is the most common cause of treatment failure
- Insufficient drug levels
- Inadequate drug potency
- Genetic differences in drug metabolism
- Viral resistance

## Clinical failure

It is possible to detect treatment failure by assessing patient symptoms. When a patient is on ARV therapy and still has symptoms, it may mean that ARV drugs are no longer working effectively. However, ARV drugs require a reasonable amount of time to take effect, usually between 6 to 12 months. HCWs should first assess adherence to ARV drugs and work with the patient to address barriers to adherence. This may include:

- Asking the patient about side effects.
- Asking the patient whether she is taking other drugs that can interact with ARVs, including medication prescribed by a traditional healer and herbal remedies.
- Asking the patient if she is having difficulty remembering to take the medication.
- If the patient has given permission, asking family members if there are other reasons the patient is having adherence problems.

HCWs should use the WHO clinical staging system as a tool for detecting possible clinical failure. New or recurrent Clinical Stage 3 or 4 symptoms or infections after 6 months of ARV therapy may suggest treatment failure. If the patient has been taking all of the ARV drugs prescribed and she still appears to be failing treatment, the HCW should refer the patient back to the HIV care and treatment clinic, where an experienced HCW can determine whether the patient's ARV therapy needs to be changed.

## Immune reconstitution inflammatory syndrome

HCWs should be aware that worsening of symptoms or occurrence of some opportunistic infections during the first three months after starting ARV therapy may be caused by immune reconstitution inflammatory syndrome (IRIS) rather than clinical treatment failure.

### Immune Reconstitution Inflammatory Syndrome (IRIS)

An inflammatory response to a previously undetected infection that becomes reactivated when a patient is started on ARV therapy. IRIS is rare; when it occurs, it typically does so a few weeks after starting ARV therapy in a patient who is severely ill. IRIS does *not* mean that a patient has failed treatment. The infection, usually an OI, should be treated according to national guidelines and the ARV therapy should be continued.

## Second-line ARV Regimens

When a patient fails a first-line regimen, switch to a second-line regimen. In general, rule out non-adherence before switching to a second-line regimen. National guidelines indicate which drugs to choose for the second-line regimen. A complete summary of WHO recommendations for second-line regimens are in Appendix 7-C.

## Social and Psychosocial Support

Because people with HIV face stigma in many communities, women who are HIV-infected often are reluctant to disclose their HIV status to partners, family, or friends. Moreover, a

woman who has learned of her HIV status during antenatal HIV testing may still be adjusting to her diagnosis after delivery.

HCWs should be familiar with the range of community-based services available and make referrals as appropriate. HIV service organizations in the community may provide social support through peer group counselling, clubs, or referrals to other services. Links to community-based organizations are discussed further in Session 4.

### **Faith-based support**

Community-based services include faith-based organizations, which provide mothers who are HIV-infected with spiritual and psychosocial support. Faith-based organizations may also provide an important sense of belonging to a larger community that offers them compassionate care.

### **Home-based care**

Home-based care is the provision of basic care in a familiar, supportive environment. In many areas home-based care is available to all women in the first weeks after birth. HCWs should refer patients in need of ongoing home-based care to local programmes where available. Home-based care programmes involve the family and/or the local community in the care of people infected with HIV.

### **Providing or referring for supportive services**

Regular assessment, monitoring and support for mental health and psychosocial needs are critical at all stages of HIV infection. Based on patient assessment, the following services may be offered directly or by referral:

- Support to help the woman come to terms with her diagnosis
- Psychosocial support for families with an HIV-exposed infant while waiting for a diagnosis
- Psychosocial support for families when a child or other family member is diagnosed as HIV-positive
- Community support, including referrals to faith-based programmes
- Peer or group counselling and support from health agencies or other community-based agencies
- Support and counselling to assist women who are HIV-infected and their partners with disclosure issues
- Home-based care for practical, adherence, infant feeding and emotional support.

### **Palliative Care and Treatment of Symptoms**

Palliative care is designed to improve the quality of life of patients and their families who face problems associated with chronic disease or life-threatening illness. This can be done through the prevention and relief of a broad spectrum of suffering, whether it is physical, psychological or spiritual.

Many aspects of palliative care, such as pain management, symptom control and psychological support, should be included early in the course of HIV disease. PLHIV are subject to HIV symptoms that can limit participation in family and community activities. Healthcare interventions that focus on managing symptoms and relieving discomfort can improve a woman's quality of life.

#### **The goals of palliative care are to:**

- Provide relief from pain and other distressing symptoms.
- Integrate the psychological and spiritual aspects of patient care.
- Enhance quality of life, and positively influence the course of the illness.
- Offer a support system to help patients live as actively as possible.

- Offer a support system to help the family cope during the patient's illness.
- Affirm life and regard dying as a normal process.
- Neither hastens nor postpones death.

Palliative care may be provided as in-patient care in a hospital, at clinics or health centres or within a home-based care programme.

## SESSION 3 Treatment, Care and Support of the HIV-exposed Infant

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### After completing the session, the participant will be able to:

- Describe the range of follow-up services required for HIV-exposed infants.
- Describe criteria for initiating co-trimoxazole prophylaxis in HIV-infected infants.
- Describe signs and symptoms of HIV infection in infants and children.
- Describe diagnostic procedures for HIV in infants and children including testing guidelines.
- Describe criteria for initiating ARV therapy in infants and children and measures to improve adherence.

### Follow-up Care for HIV-exposed Infants

PMTCT interventions reduce, but do not eliminate, the risk of HIV transmission from mother-to-child. HIV infection increases an infant's risk of illness and failure to thrive. Regardless of whether ARV prophylaxis for PMTCT is administered to mother and/or infant—because HIV disease can progress extremely rapidly in perinatally-infected infants—close monitoring and regular follow-up care is critical. Follow-up care facilitates early diagnosis and allows the infant to be started on ARV therapy as soon as possible.

#### Timing of follow-up visits

The infant should be seen in the healthcare facility or at home within two weeks of delivery or sooner to monitor feeding progress. If the child will not be seen in a healthcare facility, the HCW should discuss with the mother strategies for follow-up care in the home.

It is recommended that subsequent visits are scheduled according to the recommended immunization schedule. To encourage the mother to attend care, it is recommended that her post-delivery and ongoing follow-up appointments coincide with her infant's when possible.

Recommended visit schedule:

- Ages 6, 10 and 14 weeks
- Once a month from 14 weeks to 1 year
- Every 3 months from the ages of 1 to 2 years

### Follow-up Care for Infants of Mothers whose HIV Status is Unknown

Given the rapid progression of HIV-disease in infants and the reduced risk of disease and death in those started on ARV therapy, it is essential that all infants who are HIV-exposed are identified early, where possible **before 6 weeks of age**, regardless of clinical presentation.

#### Progression of HIV disease

For infants acquiring HIV at or before delivery, disease progression occurs very rapidly in the first few months of life, often leading to death. Over 80% of infected infants rapidly became eligible to start ARV therapy before 6 months of age.

In clinical trials, well infants who started ARV therapy as soon as they were diagnosed with HIV had a 75% reduction in mortality compared to infants starting treatment based on immunological or clinical criteria. Other research data also suggests early ARV therapy in infancy reduces the risk of death and disease progression.

- **If mother was tested during ANC, L&D or post-delivery:** confirm her HIV status by checking the child's health card or asking for maternal HIV serostatus or history of maternal HIV testing.
- **If a mother's HIV status is unknown:** provide pre-test information and counselling and encourage her to consent to HIV testing.
- **If the mother is not available for testing:** the infant should be tested for exposure to HIV using an HIV antibody test. It is important that test result is treated confidentially as it reflects the mother's HIV status.

**WHO recommendations: HIV testing**

HIV testing is urgently recommended for any infant presenting to health facilities with signs, symptoms or medical conditions that could indicate HIV.

Early testing not only benefits the mother—giving her the option of seeking care and treatment—but ensures that the infant is referred for care.

**WHO recommendations for infants of unknown HIV exposure status**

WHO recommends that infants under 6 weeks of age, of unknown HIV exposure status and in settings where local or national antenatal HIV seroprevalence is greater than 1% (or another prevalence as determined by the country), should be offered maternal or infant HIV antibody testing and counselling to establish exposure status.

## HIV testing of HIV-exposed Infants

**Infants who are HIV-exposed should be tested for HIV infection as soon as possible, following national testing algorithms.** Where available, it is strongly recommended that HIV-exposed infants are tested at 4–6 weeks of age using virological testing also referred to as an HIV nucleic acid test (NAT). Early diagnosis is the gateway to early initiation of ARV therapy.

It is important that HCWs strongly encourage early infant testing and appropriate medical attention whenever an HIV-exposed infant or child becomes ill or the mother suspects a problem.

**Table 7.6: Follow-up services for HIV-exposed infants**

Infant	
<b>Growth assessment</b>	<ul style="list-style-type: none"> <li>▪ Perform standard developmental assessment (See Appendix 7-F)</li> <li>▪ Infants who fail to grow require special attention. At every visit, weigh the child and plot on their growth chart. If the child is not growing well, assess feeding and potential medical causes. See Appendix 7-F for more information on monitoring growth and development. See Appendix 7-E for strategies to maximize food intake.</li> </ul>
<b>IMCI</b>	<ul style="list-style-type: none"> <li>▪ Assess for common illnesses of childhood and manage appropriately as directed by the <i>Integrated Management of Childhood Illness</i> (IMCI) guidelines or any national MCH guidelines.</li> </ul>

<b>Table 7.6: Follow-up services for HIV-exposed infants</b>	
<b>Co-trimoxazole</b>	<ul style="list-style-type: none"> <li>▪ Provide co-trimoxazole prophylaxis in accordance with national guidelines. WHO recommends starting co-trimoxazole prophylaxis at 4–6 weeks or at the first encounter with the healthcare system.               <ul style="list-style-type: none"> <li>▪ Assess for side effects or adverse events of co-trimoxazole (see Appendix 7-A)</li> <li>▪ Make appropriate dosing changes based on age or weight (see Appendix 7-H)</li> <li>▪ Provide co-trimoxazole refills</li> </ul> </li> </ul>
<b>Infant feeding</b>	<ul style="list-style-type: none"> <li>▪ Assess and support the mother's infant feeding choice. Discussions about infant feeding are especially important in the early months of life. HCWs should continue to assess feeding practices and diet for infants older than 6 months and provide appropriate counselling that considers locally available food, family circumstances and feeding customs.</li> </ul>
<b>Nutritional assessment</b>	<ul style="list-style-type: none"> <li>▪ Counsel the mother and other caregivers on nutrition for mother and infant</li> <li>▪ Provide Vitamin A starting at age 6 months</li> <li>▪ Provide infants/children who are anaemic, or at risk of iron deficiency, iron and folic acid supplementation</li> <li>▪ Provide zinc to reduce diarrhoeal episodes and death from pneumonia</li> <li>▪ Monitor for anaemia; treat as indicated based in national guidelines.</li> </ul>
<b>Immunizations</b>	<ul style="list-style-type: none"> <li>▪ Immunize according to national guidelines. WHO recommendations are listed in Appendix 7-G.</li> </ul>
<b>Lab tests</b>	<ul style="list-style-type: none"> <li>▪ Provide virological testing (HIV nucleic acid test or NAT) at 4–6 weeks of age, or as indicated in national testing algorithms</li> <li>▪ If NAT is not available, provide testing as per national testing algorithms until the infant's status is determined</li> <li>▪ Ask about other siblings who may have been exposed to HIV and arrange for HIV testing</li> </ul>
<b>Tuberculosis</b>	<ul style="list-style-type: none"> <li>▪ Screen for TB and refer for treatment if indicated.</li> <li>▪ Follow national guidelines for initiating isoniazid preventive therapy.</li> </ul>
<b>Malaria</b>	<ul style="list-style-type: none"> <li>▪ Recommend the use of insecticide-treated bednets to prevent malaria in areas where it is common. Offer malaria treatment according to national guidelines.</li> </ul>
<b>ARVs</b>	<ul style="list-style-type: none"> <li>▪ Counsel the mother and other caregivers on need for ARV therapy in infected infants.</li> </ul>
<b>Mother</b>	
<b>Mother's health</b>	<ul style="list-style-type: none"> <li>▪ Assess the mother's health.</li> <li>▪ Determine if her home environment is supportive</li> <li>▪ Determine if she should be referred for psychosocial support</li> </ul>
<b>Effective contraception</b>	<ul style="list-style-type: none"> <li>▪ Ensure the mother has access to long-term family planning and contraception counselling</li> <li>▪ Counsel about correct and consistent use of condoms</li> </ul>

Managers at healthcare facilities that provide care to HIV-exposed children may need to initiate organizational changes to ensure that HCWs have time to provide the full package of care to HIV-exposed infants and their mothers. Consideration will also need to be given to ensure patient confidentiality in post-delivery settings.

*Because the health of mother and child are closely related, assess maternal and infant health and nutrition at the same time. Referrals for maternal health care should be made during infant appointments.*

## Co-trimoxazole Prophylaxis

Co-trimoxazole prophylaxis has been shown to prevent *Pneumocystis pneumonia* (PCP), toxoplasmosis and possibly malaria and diarrhoea as well as other infections. PCP is a

leading cause of death in HIV-infected infants. PCP often strikes infants between the ages of 3–6 months. At this age, unless there is access to virological testing, the child's HIV status is unknown because HIV antibody testing is not yet indicative of the child's HIV status due to the presence of maternal antibodies.

Co-trimoxazole prophylaxis should therefore be initiated in:

- All HIV-exposed infants starting at 4–6 weeks (or as soon as possible thereafter) until breastfeeding has stopped and infant has been determined to not have HIV.
- All HIV-infected infants less than 1 year old, and continued until 5 years of age, regardless of %CD4 or clinical status. Continuing co-trimoxazole prophylaxis after this age should be considered as well.
- All children between 1 and 4 years old in WHO clinical stage 2, 3 or 4 regardless of %CD4
- All HIV-exposed infants with presumptive symptomatic HIV disease and maintained until HIV status is confirmed
- All infants or children who have had an episode of PCP

If ARV therapy is not available for an HIV-infected child, co-trimoxazole prophylaxis should be continued indefinitely. For more information on when to start co-trimoxazole prophylaxis in children and dosing by age, see Appendix 7-H. Side effects and adverse events that would warrant stopping co-trimoxazole prophylaxis are similar to adults, see Appendix 7-A for more information.

## **HIV Infection in Infants and Children**

The identification and follow-up of infants born to HIV-infected mothers are critical first steps toward diagnosing HIV infection in children. All infants should have HIV exposure status determined at their first contact with the health system, ideally before 6 weeks of age. All infants who are known or suspected to be exposed to HIV, need to be tested for HIV and monitored closely.

The immune system of an infant and young child is immature and HIV progression can occur rapidly in children. Some HIV-infected children will be critically ill when they present for care. Without treatment by 1 year of age, one-third of HIV infected children will have died; and by 2 years, one-half will have died. Therefore, HIV-exposed children should be tested for HIV using virological testing and started on co-trimoxazole prophylaxis at 4–6 weeks of age or at their first encounter with the health system. Infants testing HIV-positive should be started on ARV therapy, irrespective of clinical or immunological state (see section entitled “Care of the Infant with Documented HIV Infection” for additional information on initiation of ARV therapy).

A mother's antibodies can remain in the child's body till 18 months of age. Positive HIV antibody testing in a child age 18 months or less may be due to the mother's circulating antibodies rather than indicative of the child's HIV status. However, 90% of HIV-exposed children who are uninfected will clear maternal antibodies (have a negative HIV antibody test) by the time they are 12 months old. HIV antibody tests can therefore be a useful tool to rule out HIV infection in children less than 18 months who are not breastfed. Positive HIV antibody testing results can be used to identify HIV-exposed infants who need follow-up virological testing to determine if they are HIV infected.

Because HIV virological testing detects the virus itself (not antibodies to the virus), it is used to definitively diagnose HIV in a child less than 18 months of age.



## Diagnostic Testing of HIV-exposed Infants and Young Children

Diagnostic services for infants and children of mothers infected with HIV are an important part of follow-up care. The test used and frequency of repeat testing will depend on national HIV testing policy and test availability, specifically the local availability of virological testing.

### Key considerations for HIV testing in infants and young children

Infants and children born to known HIV-infected mothers should be routinely offered testing as recommended by national guidelines. Follow up for the HIV-exposed infant should continue until HIV infection status is confirmed. Key considerations for HIV testing in infants and young children include:

- **Age of the child and HIV antibody test.** Because of the presence of maternal antibodies in HIV-exposed children, positive HIV antibody testing may not be indicative of the child's true HIV **infection** status. (But it does indicate HIV **exposure** status.) Maternal antibodies remain detectable by HIV antibody test through the first 6 months of age but are lost usually by 9-12 months of age if the infant does not have HIV. Most HIV uninfected children do not have detectable HIV antibody by one year. A very small percentage of children retain maternal antibody until the age of 18 months. The results of HIV antibody testing in children less than 18 months of age should be considered in conjunction with their symptoms. The closer the HIV-exposed child is to 18 months of age, the higher the probability that positive HIV antibody testing reflects the child's true HIV-status.
- **Breastfeeding.** Because HIV can be transmitted through breastfeeding it is difficult to understand what an HIV-negative test in a breastfed infant or child means. This is complicated by:
  - After infection, it takes some time—in most cases no more than 6 weeks—for HIV to multiply in the body and generate a response.
  - A child breastfed at any time during the six weeks before blood was drawn for HIV antibody or virological testing, could test negative, even though actually HIV-positive.

Children who test HIV-negative, by viral or HIV antibody test, who have been breastfed within the past 6 weeks should therefore be retested 1) if they have signs or symptoms of HIV, or 2) 6 weeks after complete cessation of breastfeeding.

As in adult HIV testing, the testing procedure should follow national algorithms. *All infants and children should be offered the best available tests for their age.*

### HIV testing of infants and children less than 18 months of age

Virological testing detects the HIV virus itself and should be used to diagnosis HIV infection in children from 4–6 weeks to 18 months of age. However, these tests are expensive and require trained laboratory technicians, so they are not available in all settings.

- HIV testing of children **4–6 weeks to 9 months of age:**
  - Infants age 4–6 weeks to 9 months should have access to virological testing. The sensitivity of virological testing depends on the timing of the test. By 4–6 weeks of age, almost all infants infected with HIV during pregnancy, or labour and delivery can be identified. It is recommended that virological testing is repeated on a second sample of blood to confirm the result of the initial test.
  - An HIV-positive result by virological testing is indicative of HIV infection at any age.
  - If an HIV-exposed infant has symptoms of infection and virological testing is not available, evaluate the infant for a possible presumptive diagnosis of severe HIV and follow national criteria for starting ARV therapy.
  - An HIV-positive antibody test result at this age indicates that the child has been exposed to HIV, but cannot tell HIV infection status.

### New technologies for HIV virological testing specimen collection

In many countries—especially in areas with limited access to laboratory facilities—virological testing is more widely available through the development of a practical approach to collecting and transporting infant blood specimens using dried blood spot (DBS). With DBS, drops of the infant's whole blood are collected on a special filter paper, dried, carefully packed in plastic bags, stored and then sent to the laboratory for testing. The advantages of DBS testing include the following:

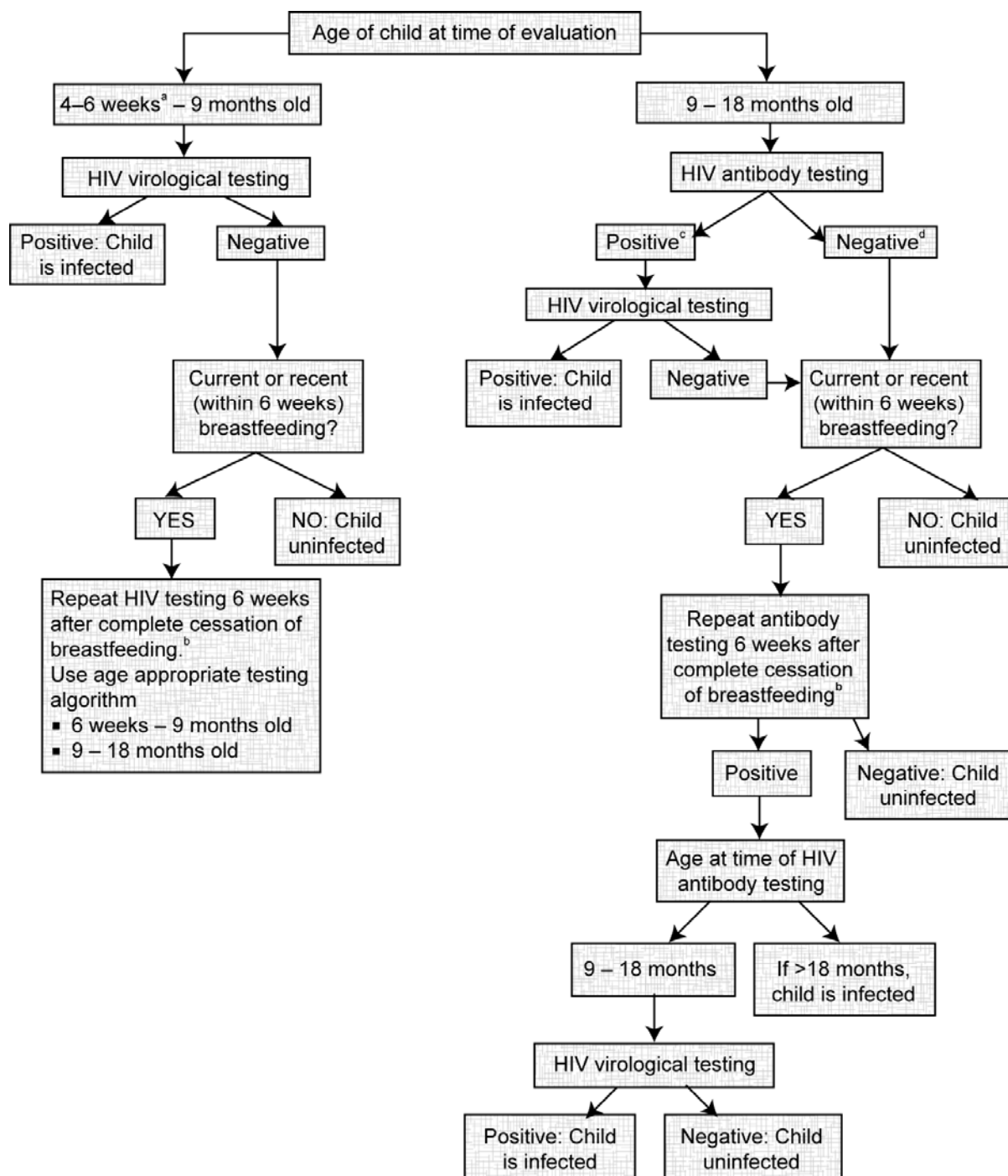
- Specimens are stable and therefore easier to transport
- Taking a heel prick or finger prick is easier than filling a tube
- Specimens are dried and transported on the paper making handling safer and easier



- HIV testing of children **9 to 18 months of age**:
  - Because they are readily available, simple rapid HIV antibody tests may be used for children age 9 to 18 months.
  - **HIV-negative antibody result:** HIV antibody testing can be a useful tool in ruling out HIV exposure in sick infants and children whose mother's status is not known. Negative HIV antibody testing at any age in a child who has never been breastfed indicates that the child is unexposed and likely uninfected. Virological testing is only indicated if clinical signs or subsequent events suggest HIV infection. This reduces cost and the complexity of delivering HIV testing to children. ***The HIV antibody negative child who is breastfeeding needs to be re-tested six weeks after complete cessation of breastfeeding.***
  - **HIV-positive antibody result:** positive HIV antibody testing may either indicate that the child still has circulating maternal antibody to HIV or that the child is infected with HIV. If an HIV-exposed child has symptoms of HIV infection and virological testing is not available, evaluate the child for a presumptive diagnosis of severe HIV infection. Evaluate results of antibody testing in light of the age of the child and likelihood that they have cleared their mother's antibodies. A positive result by HIV antibody testing in a child less than 18 months of age should be confirmed by virological testing or repeated 6 weeks after complete cessation of breastfeeding and, if still positive, again when the child is at least 18 months of age (as per national guidelines).

Infants and children who continue to breastfeed are at ongoing risk of acquiring HIV. Mothers need to be counselled on safer breastfeeding practices and early cessation if AFASS.

**Figure 7.2 Diagnosis of HIV Infection in infants and young children less than 18 months of age**



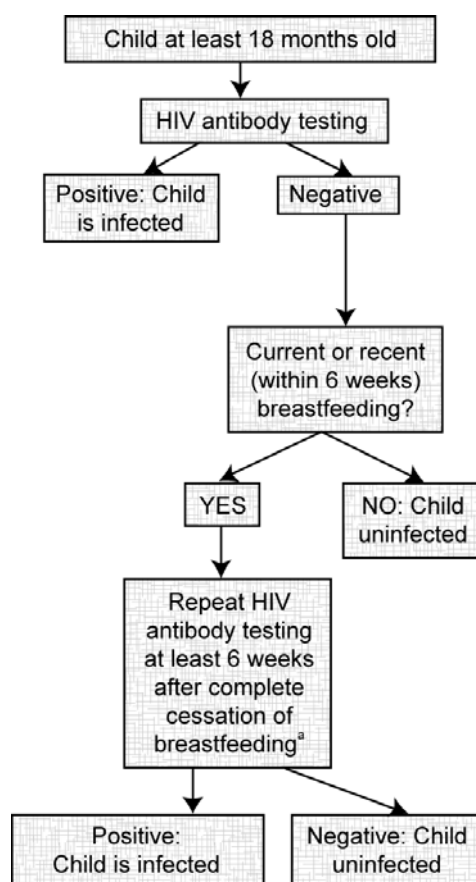
- <sup>a</sup> A positive virological test at any age indicates HIV infection: NAT is recommended beginning at 4–6 weeks of age to maximize sensitivity.
- <sup>b</sup> If a child experiences HIV-related symptoms, regardless of prior test results, repeat test even if child has not stopped breastfeeding.
- <sup>c</sup> If virological testing is not available, repeat antibody testing 6 weeks after complete cessation of breastfeeding. If the child is less than 18 months of age at time of the repeat test, the child should be test again at 18 months of age or older (as per national guidelines).
- <sup>d</sup> A negative antibody testing for a child 9 to 18 months of age, who is not breastfeeding, can be used to exclude HIV infection.

### HIV testing of children 18 months of age and older

- **HIV-positive antibody testing result** at 18 months or older indicates the child is infected with HIV.
- **HIV-negative HIV antibody testing result** at 18 months or older, in a child who is no longer breastfeeding, means the child is not infected. The child who continues to breastfeed after testing HIV-negative, is at ongoing risk of acquiring HIV infection if the mother is HIV-infected. This child should be re-tested at least 6 weeks after complete cessation of breastfeeding.

See algorithm in Figure 7.3.

**Figure 7.3 Diagnosis of HIV infection in children > 18 months of age and older**



<sup>a</sup> If a child experiences HIV-related symptoms, regardless of prior test results, repeat testing even if child has not stopped breastfeeding.

### Discontinuation of co-trimoxazole prophylaxis

Co-trimoxazole should only be stopped if the child has been confirmed to be HIV uninfected and has completely stopped breastfeeding for at least 6 weeks. If a child has tested negative but continues to breastfeed, co-trimoxazole should be continued. If a child is found to be HIV-infected, he/she should continue co-trimoxazole prophylaxis until at least 12 months of age and follow national guidelines thereafter.

### Documentation of HIV status

Results should be recorded according to national guidelines, which may require routine recording in the child's health card, medical record and healthcare facility log books. Information on recording of patient information and use of data in monitoring and evaluation of health services is in Module 9, "PMTCT Programme Monitoring".

### Emotional support

The process of waiting for the time when HIV testing is appropriate and for the test results can be stressful and difficult for parents. For some parents, the ambiguity around HIV status and the child's health may interfere with normal parent-child bonding. The confirmation of an HIV-positive diagnosis in an infant or child is difficult as well. Supporting the mother, which should ideally have begun in ANC, includes explaining the process of infant/child HIV testing, explaining the mechanism in place to assure confidentiality, discussing the diagnosis compassionately and providing appropriate referrals. Additional resources for support will be discussed in the next session. See Appendix 5-G for guidance on counselling parents about their child's HIV diagnosis.

## Presumptive Diagnosis of HIV Infection in Infants and Children

### Infants less than 18 months

Where virological testing is not available, WHO recommends that a *presumptive diagnosis* be used for infants less than 18 months of age with symptoms suggestive of HIV infection. When using symptoms to guide decision-making, follow up should include confirmation of HIV diagnosis using the best available tests for age.

WHO has developed the following criteria to help HCWs manage potentially HIV-infected children. Presumptive diagnosis of a severe HIV infection should be made if the child has/is:

- |   |
|---|
| ▪ Confirmed positive HIV antibody test <sup>a</sup> |
|---|

**AND** one of the following:

- |  |
|--|
| ▪ Diagnosis of any AIDS-indicator condition(s) <sup>b</sup><br><b>or</b><br>▪ Symptomatic with <u>two or more</u> of the following: <ul style="list-style-type: none"><li>▪ Oral thrush<sup>c</sup></li><li>▪ Severe pneumonia<sup>c</sup></li><li>▪ Severe sepsis<sup>c</sup></li></ul> |
|--|

<sup>a</sup> HIV antibody testing detect a mother's or infant's antibodies to HIV,

<sup>b</sup> AIDS indicator conditions include some but not all HIV paediatric clinical stage 4 conditions.

<sup>c</sup> As defined by the Integrated Management of Childhood Illness (IMCI).

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 less than 20

WHO recommends that infants or children less than 12 months with a presumptive diagnosis of severe HIV infection need to be considered for ART. For children age 12 months or older, clinical and immunological thresholds should be used to identify those who need to start antiretroviral therapy (see Appendix 7-I).

### Children older than 18 months

In children older than 18 months, symptoms suggestive of HIV infection indicate a need for HIV antibody testing according to national guidelines. It is not necessary to make a presumptive diagnosis of severe HIV infection because HIV antibody tests are reliable in this age range.

<b>Exercise 7.3 HIV diagnosis of infants and children: case studies in small groups</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To reinforce participants' understanding of HIV diagnosis in infants and children using antibody and viral tests and clinical symptoms.</li> </ul>
<b>Duration</b>	25 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ Participants will be divided into groups, and one case study will be assigned to each group. The case studies appear below; note that <b>in each situation, the mother is HIV-infected.</b></li> <li>▪ Select someone in your group to present the group's findings.</li> <li>▪ Within your group, you will have 10 minutes to respond to the following questions:               <ol style="list-style-type: none"> <li>1. How would you respond to the mother's question in your case study?</li> <li>2. Based on your experience, what other questions do you think this mother will ask? How will you respond?</li> <li>3. What support would you offer?</li> <li>4. Assuming that all of the children in all case studies were started on co-trimoxazole prophylaxis at 4-6 weeks of age, should the child in your case continue co-trimoxazole prophylaxis?</li> </ol> </li> <li>▪ Feel free to refer to the algorithms in Figures 7.2 and 7.3.</li> </ul>

### **Exercise 7.3 HIV diagnosis of infants and children: case studies in small groups**

#### **Case study 1**

Roxanne has come to the MCH clinic for routine immunization of her son, who is now 4 months old. She has fed him commercial infant formula since birth. Your clinic does not have access to virological testing. Roxanne asks you:

"Can I get my son tested for HIV?"

#### **Case study 2**

Sarah has been breastfeeding her baby since birth due to pressure from her family and friends. Once her daughter reached 18 months of age, Sarah stopped breastfeeding. Two weeks later, she took her daughter for antibody testing. The baby tested HIV-negative but Sarah was told that she should bring the baby back in 4 weeks for re-testing. She asks you:

"Are you telling me that this test result could be wrong?"

#### **Case study 3**

Mary Ann exclusively breastfed her son until 6 months of age. At that time, she stopped breastfeeding completely and started replacement feeding with cow's milk, as suggested by the clinic. Her son is now 9 months old and she has taken him for testing at the local MCH clinic, which has virological testing. Her son's HIV test result is positive. She is asking you:

"Can this test result be a mistake? Is it possible that my son is not HIV-infected?"

#### **Case study 4**

Maria is very concerned about her 9 month old son, Alex. He has not gained any weight since his last visit 4 months ago despite the fact that she is breastfeeding. Today at the MCH clinic, he has a high fever, has had trouble breathing and is coughing uncontrollably. Maria apologizes that she has not been able to bring Alex to the clinic but she herself has been ill. There are no virological tests available at the MCH clinic. She asks you:

"Is it possible that my son has HIV like I do?"

## Recognizing infants and young children at risk of HIV

All infants born to mothers with HIV or whose HIV status is unknown should be considered at risk for HIV. As previously noted, if the mother's HIV status is unknown, she should be tested for HIV according to national guidelines. In addition, all HCWs in settings where undiagnosed HIV infection in children is common, e.g., TB clinics or in child health settings where PMTCT coverage is low, should be knowledgeable about the signs and symptoms of HIV in infants and children and routinely provide testing for HIV.

### Common signs and symptoms of HIV infection in infants and young children

Many infants with HIV become sick and progress to death without obvious signs or symptoms of HIV. Determining the HIV exposure status of every infant is extremely important. Also ensure that infants who are HIV-exposed have access to early testing for HIV and regular follow up care.

The signs and symptoms most commonly associated with HIV infection in older children are:

- Low weight and/or growth failure
- Pneumonia, including PCP
- Oral candidiasis (thrush) after 6 weeks of age
- Lymphadenopathy
- Parotid gland swelling
- Recurrent ear infections
- Persistent diarrhoea
- TB

*Interventions to relieve symptoms, such as oral rehydration for diarrhoea, nutritional interventions to promote weight gain, co-trimoxazole prophylaxis and screening for TB, are important strategies for improving the health of infants who are suspected to be HIV-infected.*

**Table 7.7: Clinical conditions or signs of HIV infection in a child who is HIV-exposed**

Specificity for HIV infection	Signs and conditions
Common in children who are HIV-infected; also seen in ill children without HIV	<ul style="list-style-type: none"> <li>▪ Chronic, recurrent otitis media with discharge</li> <li>▪ Persistent or recurrent diarrhoea</li> <li>▪ Failure to thrive</li> </ul>
Common in children who are HIV-infected; uncommon in children without HIV	<ul style="list-style-type: none"> <li>▪ Severe bacterial infections, particularly if recurrent</li> <li>▪ Persistent or recurrent oral thrush</li> <li>▪ Chronic parotiditis (often painless)</li> <li>▪ Generalized persistent noninguinal lymphadenopathy in two or more sites</li> <li>▪ Hepatosplenomegaly</li> <li>▪ Persistent or recurrent fever</li> <li>▪ Neurological dysfunction</li> <li>▪ Loss of developmental milestones</li> <li>▪ Herpes zoster (shingles) (single dermatome)</li> <li>▪ Persistent generalized dermatitis unresponsive to treatment</li> <li>▪ Tuberculosis</li> </ul>
Only seen in children with HIV infection or children who are severely immunocompromised	<ul style="list-style-type: none"> <li>▪ <i>Pneumocystis</i> pneumonia (PCP)</li> <li>▪ Oesophageal candidiasis</li> <li>▪ Lymphoid interstitial pneumonitis (LIP)</li> <li>▪ Disseminated herpes zoster</li> <li>▪ Kaposi's sarcoma</li> <li>▪ Cryptococcal meningitis</li> </ul>

### Growth failure

Poor growth is reported in as many as 50% of HIV-infected children. Growth failure is a persistent and unexplained decline or levelling off in weight and the speed of growth despite adequate nutrition. It is particularly important to monitor growth and identify growth problems because nutritional status has a direct effect on the survival of the HIV-infected child.

Growth failure and malnutrition observed in children who are HIV-infected may be due to:

- Increased metabolic activity in a child fighting HIV infection and other common illnesses of childhood
- Presence of opportunistic infections and HIV-related conditions that impair absorption e.g., diarrhoea

### Monitoring growth, development and nutritional status

Monitoring growth, developmental and nutritional status is critical for HIV-exposed and HIV-infected infants. Good nutrition remains the foundation for healthy child growth and development. Growth failure and loss of developmental milestones can be indicators of HIV infection in infants and children. Therefore, growth, nutritional and developmental assessments should be conducted at every follow-up visit. For more information on how to assess, monitor and promote growth and development in HIV-exposed and HIV-infected children see Appendix 7-F.

<b>Exercise 7.4 Clinical presentation of HIV in infants and children: discussion (in large group) and small group work</b>	
<b>Purpose</b>	<ul style="list-style-type: none"><li>▪ To familiarize participants with the signs and common conditions of HIV infection in infants and children.</li></ul>
<b>Duration</b>	35 minutes
<b>Instructions Part 1— Large Group Discussion</b>	<ul style="list-style-type: none"><li>▪ The trainer will review with the group the terms used in Table 7.7 that describe the clinical signs and symptoms of HIV infection in infants and children.</li><li>▪ The trainer will then ask participants to identify the presenting signs or symptoms of HIV infection in infants and children seen in clinic. Or, if you have seen few or no children with HIV, think of presenting signs or symptoms common in sick children in your clinic.</li></ul>
<b>Instructions Part 2— Small Group Work</b>	<ul style="list-style-type: none"><li>▪ Participants will be divided into groups of 3-8 people per group.</li><li>▪ Refer to the list completed in Part 1 of this exercise to answer the questions below for each of the symptoms suggested.<ol style="list-style-type: none"><li>1. Is this symptom suggestive of HIV?</li><li>2. What else could this symptom indicate?</li><li>3. What would you tell a mother to help her recognize this symptom in her child?</li><li>4. For each symptom, what would you tell a mother to do if she recognized this symptom in her child?</li></ol></li><li>▪ Feel free to refer to Appendix 1-E and 1-F as well as Table 7.7 as needed. After about 15 minutes the trainer will ask the small groups to reconvene for debriefing in the large group.</li></ul>

## Care of the Infant with Documented HIV Infection

### Antiretroviral therapy

The goals of ARV therapy for infants and children are the similar to those of adults:

- To promote or restore normal growth and development
- To improve quality of life
- To prolong survival



WHO recommends starting ARV therapy as follows:

- All **infants less than 12 months of age** with confirmed HIV infection should be started on ARV therapy, irrespective of clinical or immunological state
- Where virological testing is not available, **infants less than 1 year of age with clinically diagnosed presumptive severe HIV** should start ARV therapy. Confirmation of HIV infection should be obtained as soon as possible
- For **children 1 year of age or older**, clinical and immunological thresholds—%CD4—should be used to recognize those who need to start ARV therapy.

It is important to start infants on ARV therapy as soon as the infant is diagnosed with HIV—HIV disease progression is rapid in infants. Even infants who appear well can become unwell quickly and die without early ARV treatment.

In children less than 5 years of age, use %CD4 (rather than absolute CD4) to guide eligibility for ARV Therapy. Absolute CD4 count is naturally less constant and more age-dependent than %CD4 and is therefore less easy to define a single threshold for starting treatment. % CD4 or absolute CD4 is useful to monitor response to ARV therapy

For age-specific guidance on when to start treatment in children less than 5 years of age, see Appendix 7-I, WHO Recommendations on When to Start ARV Therapy According to Clinical Stage and Laboratory Measures.

### **General principles for prescribing in children**

ARVs, like all drugs, are handled differently in the young compared to adults. Because children's bodies are growing they absorb, break down and excrete drugs at different rates and may need different doses than adults for the same medicines. Dosing for children can be based on either weight or body surface area. As the child grows quickly the doses must be checked and changed to avoid under-dosing which may allow early development of resistance.

### **First-line ARV regimens for children**

The choice of which 3 ARV drugs will constitute ARV therapy for a child may depend on:

- Age of the child
- Suitability of drug formulation (available in syrup or scored-tablet form)
- Side effects
- Pre-existing conditions (anaemia or TB)
- Availability of laboratory monitoring
- Drug-drug interactions and interactions with other existing conditions such as malnutrition

The WHO preferred option when choosing a first-line regimen for infants and children is as follows:

- **For infants and children with no or unknown exposure to maternal or infant ARVs:** two nucleoside reverse transcriptase inhibitors (NRTIs) plus one non-nucleoside reverse transcriptase inhibitor (NNRTI), see Appendix 7-J for additional information.
- **For infants and children who have been exposed to maternal NNRTI-containing ARVs (including NVP):** a regimen of a protease inhibitor-based triple ARV therapy

Co-trimoxazole prophylaxis should be continued for HIV-infected children according to national guidelines. WHO recommendations on co-trimoxazole prophylaxis in infants and young children can be found in Appendix 7-H.

## Adherence in Children

As in adults, adherence is critical to the effectiveness of ARV therapy in children. Challenges to adherence in paediatric populations include:

- Taste of ARV drugs
- High pill burden
- Inability to swallow pills
- Frequent dosing
- Dependence on caregivers
- Behavioural changes characteristic of normal development

All medications for children (OI prophylaxis and ARV therapy) need to be discussed thoroughly with parents, guardians or other caregivers. *During the discussion, identify one person in the household, probably the primary caregiver, who will ensure that medication is dispensed to the child every day exactly as prescribed.* It may also be useful to identify a second responsible person in case the primary caregiver falls ill or is unavailable for another reason.

Family members' beliefs, attitudes and understanding of the medications play an important role in adherence to antiretroviral therapy regimens. For this reason, it is as important to assess readiness to initiate and adhere to ARV therapy by asking and educating about:

- Beliefs and attitudes about HIV drugs and treatment
- Caregivers eagerness to begin treatment
- Disclosure of HIV status to other family members
- Ability to follow a dosing schedule
- Side effects and the importance of bringing the child to the clinic if side effects occur. Recognize that the caregiver might be tempted to stop giving medication in light of her child's side effects or refusal to take it, but encourage her to continue administering all medication until advised otherwise by a HCW.
- HIV-related healthcare and psychosocial needs of parents or caregivers; provide referrals as appropriate.

## **SESSION 4    Community Linkages for Treatment, Care and Support Services for Mothers, HIV-exposed Infants and Families**

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**After completing the session, the participant will be able to:**

- Understand the importance of links to the community for ongoing family support.

### **Community Linkages**

Healthcare facilities cannot meet all of the complex needs of families living with HIV. To offer truly comprehensive care, health facilities must partner with non-governmental and community-based organizations, including faith-based agencies that provide treatment, care and support services for mothers, infants and children who are HIV-infected and their families. Linkages to community-based organizations can provide the resources, such as support groups, housing, transportation, food and legal assistance, to help mothers who are HIV-infected and their families cope with the isolation, social stigma, financial and emotional pressures that often accompany a diagnosis of HIV. Community-based organizations can also provide mothers infected with HIV a way to become involved in voluntary or paid HIV-related work.

#### **Building community teams for shared responsibility**

- Formalize connections among MCH programmes, other healthcare facilities and community programmes.
- As people who work in community agencies and healthcare settings learn more about services available outside of their own setting, they can support people living with HIV to gain access to a wider range of services.

### **Community Education, Outreach and Mobilization**

Lack of communication with communities has slowed the uptake of PMTCT services in many countries. One of the roles of HCWs is to inform people in their community about the risks of MTCT and share information on what is happening locally—in healthcare services as well as in the community—to prevent MTCT. Outreach can help promote wider acceptance of PMTCT initiatives.

#### **Community Outreach**

Community outreach is a formal attempt to increase public awareness and support for a healthcare programme. Outreach workers may also bring tailored health education to specific populations with the goal of changing knowledge and behaviours.

The goals of a PMTCT community outreach programme include:

- Creating awareness of and increasing knowledge about PMTCT and HIV, including understanding the importance of prevention, the benefits of knowing one's HIV status and importance of post-delivery care and follow-up care and treatment
- Creating demand for PMTCT services
- Attracting male partners to participate in PMTCT services

- Influencing attitudes, norms, values and behaviour change regarding PMTCT issues, including prevention, testing and counselling, family planning, infant feeding and community care and support for HIV-affected families
- Creating a supportive environment for community members and their families affected by HIV
- Providing services and education to people in remote areas with poor access to health care

<b>Exercise 7.5 Community resources: small group discussion</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To identify the services available to families living with HIV, encourage interagency networking, facilitate patient referrals and discuss how to better meet client needs.</li> </ul>
<b>Duration</b>	30 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ Refer to the Community Resource Worksheet (Appendix 7-K).</li> <li>▪ Select a person who will report the group’s findings to the larger group.</li> <li>▪ Under the column “We Have...” for each resource category, consider:               <ol style="list-style-type: none"> <li>1. Are you familiar with a resource for each listing? For example, do you know of the local HIV care and treatment facility?</li> <li>2. For each resource listed, do you know of a contact person for networking and referral?</li> <li>3. What is the agency’s address and hours of operation?</li> <li>4. Are you aware of how to go about referring patients to this agency?</li> <li>5. Could you make any suggestions to improve the referral process? To whom in your facility would you direct your suggestions?</li> <li>6. What health or other information needs to accompany a patient when s/he is referred to that specific service?</li> </ol> </li> <li>▪ Where the group has noted that a Resource Category is needed under the “We Need...” column, discuss what you—as a HCW and community advocate—can do to help ensure that need is met. Record the group’s plan under the column entitled: “Our Plan to Address Need...”.</li> <li>▪ Also consider:               <ul style="list-style-type: none"> <li>▪ Are there other resources not included on the list?</li> <li>▪ Can key community members be identified to help expand the resource list?</li> </ul> </li> </ul>

### Module 7: Key Points

- MCH workers have a vital role in ensuring that PMTCT programmes involve strategies to provide treatment, care and support of mothers infected with HIV, their infants and their families.
- Prevention, screening and early treatment of opportunistic infections and other infections common in HIV-infected women and families (including TB and malaria) are important aspects of comprehensive care in the post-delivery period.
- Co-trimoxazole prophylaxis is recommended for symptomatic HIV-infected adults and for HIV-exposed infants until the child is determined to be HIV-negative.
- Palliative care is family-centred and optimizes quality of life while honouring a person's choices.
- In adults, the decision about when to start ARV therapy includes consideration of clinical criteria, laboratory results and patient readiness including potential barriers to adherence.
- Pregnant women who are eligible for ARV therapy should receive it as long as they are also participating in ongoing HIV-related management and monitoring.
- ARV drugs do not cure HIV. ARVs decrease HIV replication, restore the immune system and slow disease progression. ARV drugs must be taken every day at the same time; complete adherence is necessary for the medications to work effectively.
- Given the rapid progression of HIV-disease in infants and the reduced risk of disease and death in those started on ARV therapy, it is essential that all infants who are HIV-exposed are identified early, where possible **before 6 weeks of age**, regardless of clinical presentation.
- Where available, it is strongly recommended that HIV-exposed infants are tested at 4–6 weeks of age using virological testing—also referred to as an HIV nucleic acid test (NAT). Early diagnosis is the gateway to early initiation of ARV therapy. In addition, follow-up care for HIV-exposed infants includes assessing the common signs and symptoms of HIV, co-trimoxazole prophylaxis and provision of routine MCH services.
- Where virological testing is not available, presumptive diagnosis of severe HIV can identify HIV-infection in infants younger than 18 months. HIV antibody testing can be used from 9 to 18 months of age but is recommended to diagnose children 18 months and older. Positive HIV antibody testing on a child between 9–18 months must be repeated at least 6 weeks after complete cessation of breastfeeding.
- Formal referral networks and ongoing communication between treatment, care and support services help provide HIV-infected patients with the best care and support available.

## APPENDIX 7-A Stopping Co-trimoxazole Prophylaxis in HIV-infected Adults and Adolescents

When to Stop Co-trimoxazole Prophylaxis due to Potential Adverse Events		
Side effect	How to assess	Stop co-trimoxazole?
<b>Nausea</b>	<ul style="list-style-type: none"> <li>▪ Ask patient</li> </ul>	<b>NO</b> —Continue to take medication with food. If severe or persistent vomiting, refer to HCW with experience treating patients with HIV.
<b>Rash</b>	<ul style="list-style-type: none"> <li>▪ Physical exam</li> </ul>	<p><b>YES</b>—If rash occurs in the same area every time medication is taken (fixed-drug reaction)</p> <p><b>YES</b>—If all over body</p> <p><b>YES</b>—If there is peeling of skin or around the eyes or mouth, refer to hospital for assessment of possible Stevens-Johnson syndrome.</p> <p><b>NO</b>—If mild and resolving spontaneously</p>
<b>Anaemia: haemoglobin less than 8 mg/dL</b>	<ul style="list-style-type: none"> <li>▪ Complete blood count</li> <li>▪ General appearance</li> <li>▪ Pallor</li> <li>▪ Bleeding gums</li> <li>▪ Fatigue</li> </ul>	<b>YES</b> – Stop medication and refer (especially if patient is also taking AZT).
<b>Jaundice</b>	<ul style="list-style-type: none"> <li>▪ Check sclera</li> <li>▪ Check roof of mouth</li> <li>▪ Determine if new onset</li> <li>▪ Check liver enzymes by laboratory</li> </ul>	<b>YES</b> – Stop medication and refer.
<b>Neutropaenia: absolute neutrophil count less than 500mm<sup>3</sup></b> (low white blood cell count)	<ul style="list-style-type: none"> <li>▪ Complete blood count</li> </ul>	<b>YES</b> – Stop medication and refer.

Depending upon availability, Dapsone 100mg may be substituted for co-trimoxazole to prevent PCP, if a patient has an allergy to sulfa-containing medication.

Adapted from:

- WHO. *IMAI Chronic HIV Care with ARV Therapy and Prevention*, DRAFT February 2006
- WHO. Guidelines on co-trimoxazole prophylaxis for HIV-related infections among children, adolescents and adults, Recommendations for a public health approach. Available at: <http://www.who.int/hiv/pub/guidelines/ctx/en/index.html>

## APPENDIX 7-B Three Classes of ARV Drugs: Dosing, Food Intake and Side Effects

### Nucleoside reverse transcriptase inhibitors (NRTIs)

NRTIs have been associated with damage to the mitochondria (the part of the cell that provides energy). This damage may cause low red and white blood cell counts, muscle pain and wasting (particularly in the arms and legs), fatigue, peripheral neuropathy and more rarely, serious liver (lactic acidosis) or pancreas problems. NRTIs have also been associated with changes in the way the body stores fat (including development of fat deposits in the abdomen and on the back of the shoulders as well as loss of fat in the arms, legs and face).

ARV Drug	Dosing and Recommended food intake	Side effects <sup>1</sup> and adverse events	Comments
<b>Abacavir (ABC)</b>	300 mg twice daily or 600 mg once daily  Can be taken without regard to food	Common side effects <ul style="list-style-type: none"> <li>Headache, nausea, vomiting, diarrhoea</li> </ul> Life-threatening adverse event <ul style="list-style-type: none"> <li>Hypersensitivity syndrome occurs in about 5% of Caucasian patients. It is potentially fatal. Symptoms: fever, muscle pain, malaise, nausea, vomiting, symptoms suggestive of upper respiratory tract infection, anorexia. Symptoms progressively worsen with each subsequent dose. Rash occurs in about ½ of hypersensitivity cases.</li> </ul>	<ul style="list-style-type: none"> <li><b>Hypersensitivity reaction</b>, if it occurs, will likely do so in the first 6 weeks of treatment.</li> <li>Counsel patient on signs of hypersensitivity syndrome.</li> <li>In case of hypersensitivity syndrome, abacavir must be discontinued <i>permanently</i>.</li> </ul>
<b>Didanosine (ddl)</b>	>60 kg: 400 mg once daily <60 kg: 250 mg once daily  Take on an empty stomach 1 hour before or 2 hours after eating (with water only)	Common side effects <ul style="list-style-type: none"> <li>Nausea, diarrhoea, abdominal pain</li> </ul> Serious adverse events <ul style="list-style-type: none"> <li>Pancreatitis (inflammation of the pancreas)</li> <li>Lactic acidosis, hepatic steatosis</li> </ul> Long-term side effect <ul style="list-style-type: none"> <li>Peripheral neuropathy</li> </ul>	<ul style="list-style-type: none"> <li>Drinking alcohol with didanosine may increase risk of pancreatitis.</li> <li>Increased risk of lactic acidosis and hepatic steatosis when combined with stavudine (d4T). <b>Avoid this combination.</b></li> <li>Onset of lactic acidosis may begin with non-specific GI complaints, fatigue and weight loss. Lactic acidosis can progress rapidly to tachycardia, muscle weakness and respiratory distress.</li> <li>Management of lactic acidosis includes stopping all ARVs and supportive measures</li> <li>Adjust dosage for renal insufficiency or failure.</li> </ul>

1. Common is defined as having occurred in approximately 10% of patients taking the drug in clinical trials. Common implies that the symptom requires patient education prior to onset and appropriate assessment and management at all follow-up visits when on ARV therapy

## APPENDIX 7-B Three Classes of ARV Drugs: Dosing, Food Intake and Side Effects *(continued)*

Medication (ARV)	Recommended Food Intake	Side Effects and Adverse Events	Comments
<b>Lamivudine (3TC)</b>	150 mg twice daily or 300 mg once daily  Can be taken without regard to food	Common side effects <ul style="list-style-type: none"> <li>Headache, dry mouth, nausea</li> </ul> Serious adverse events <ul style="list-style-type: none"> <li>Lactic acidosis, hepatic steatosis</li> </ul>	<ul style="list-style-type: none"> <li>Adverse effects occur infrequently.</li> <li>Adjust dosage for renal insufficiency or failure.</li> <li><b>Active against hepatitis B virus.</b> In patients with HIV and hepatitis B co-infection, hepatitis may flare upon discontinuation of lamivudine.</li> </ul>
<b>Emtricitabine (FTC)</b>	200 mg once daily  Can be taken without regard to food	Common side effects <ul style="list-style-type: none"> <li>Headache, nausea, diarrhoea</li> </ul> Serious adverse events <ul style="list-style-type: none"> <li>Lactic acidosis, hepatic steatosis</li> </ul>	<ul style="list-style-type: none"> <li>Regarded as an equivalent product to lamivudine.</li> <li>Adverse effects occur infrequently.</li> <li>Adjust dosage for renal insufficiency or failure.</li> <li><b>Active against hepatitis B virus.</b> In patients with HIV and hepatitis B co-infection, hepatitis may flare upon discontinuation of emtricitabine.</li> <li>Can cause skin discoloration</li> </ul>
<b>Stavudine (d4T)</b>	>60 kg: 40 mg twice daily <60 kg: 30 mg twice daily  Can be taken without regard to food	Common side effects <ul style="list-style-type: none"> <li>Stomach upset, diarrhoea, nausea</li> <li>Headache</li> <li>Rashes</li> </ul> Serious adverse events <ul style="list-style-type: none"> <li>Lactic acidosis and progressively ascending neuromuscular weakness</li> </ul> Long-term side effect <ul style="list-style-type: none"> <li>Peripheral neuropathy</li> <li>Fat maldistribution/lipodystrophy</li> </ul>	<ul style="list-style-type: none"> <li>Peripheral neuropathy can be severe and requiring pharmacological management e.g., gabapentin</li> <li>Increased risk of adverse events and long-term side effects when combined with didanosine (ddl). <b>Avoid this combination.</b></li> <li>Adjust dose if renal insufficiency or failure occurs.</li> <li>Increase risk of neuropathy if given with INH</li> </ul>
<b>Zidovudine (ZDV) or (AZT)</b>	300 mg twice daily  Can be taken without regard to food	Common side effects <ul style="list-style-type: none"> <li><b>Anaemia</b>, neutropaenia</li> <li>Fatigue, malaise, headache</li> <li>Nausea, vomiting</li> </ul> Serious adverse events <ul style="list-style-type: none"> <li>bone marrow suppression (severe anaemia and neutropaenia)</li> </ul>	<ul style="list-style-type: none"> <li>Fatigue, nausea, headache and muscle pain usually resolve 2-4 weeks after initiation.</li> <li>Adjust dosage for renal insufficiency or failure.</li> <li>Need to <b>monitor for AZT-induced anaemia</b> by measuring CBC at baseline and at follow-up visits 4, 8 and 12 weeks</li> <li>Increased risk of anaemia when given with acyclovir or sulfa-containing drugs.</li> </ul>



**APPENDIX 7-B Three Classes of ARV Drugs: Dosing, Food Intake and Side Effects** *(continued)***Non-nucleoside reverse transcriptase inhibitors (NNRTIs)**

*All NNRTIs may have significant interactions with other drugs; dose adjustment of interacting agents may be required.*

Medication (ARV)	Nutrition Recommendations	Potential Side Effects	Comments
<b>Efavirenz (EFV)</b>	600 mg once daily  Take on an empty stomach preferably before bed	Common side effects <ul style="list-style-type: none"> <li>▪ Abnormal dreams</li> <li>▪ Drowsiness, dizziness, confusion</li> <li>▪ Nausea, other stomach discomfort</li> </ul> Life-threatening adverse event <ul style="list-style-type: none"> <li>▪ Rash, <b>Stevens-Johnson syndrome</b>, toxic epidermal necrolysis</li> </ul> Long-term side effects <ul style="list-style-type: none"> <li>▪ Lipid abnormalities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Central nervous system symptoms are common; severity usually decreases within 2–4 weeks.</li> <li>▪ EFV is <b>teratogenic</b> and <b>contraindicated in pregnancy</b> or in women or adolescent girls of childbearing age. If it must be given in pregnancy, wait until after 1<sup>st</sup> trimester.</li> <li>▪ Do not take with a high fat meal.</li> </ul>
<b>Nevirapine (NVP)</b>	200 mg once daily for 14 days, followed by 200 mg twice daily  Can be taken without regard to food	Common side effects <ul style="list-style-type: none"> <li>▪ Nausea, headache</li> <li>▪ Mild elevations in liver function test results</li> </ul> Life-threatening adverse event <ul style="list-style-type: none"> <li>▪ Rash, Stevens-Johnson syndrome, toxic epidermal necrolysis</li> <li>▪ Hepatitis, liver failure</li> </ul>	<ul style="list-style-type: none"> <li>▪ Requires dose increase after initiation. Gradually increasing the dose decreases frequency of rash.</li> <li>▪ Most rashes develop within first 6 weeks of therapy; rash is most common in women.</li> <li>▪ <b>Hepatotoxicity may be life threatening. It is more likely to occur in women with higher CD4 counts and with patients with active hepatitis B or C.</b> Clinically monitor closely for the first weeks of treatment.</li> <li>▪ <b>Discontinue NVP if a patient experiences a severe hepatic event and/or a skin rash; do not rechallenge</b></li> <li>▪ Call for advice or do not co-administer with rifampicin or ketoconazole.</li> <li>▪ Recommend condom use if given with oral contraceptive pills.</li> </ul>

## APPENDIX 7-B Three Classes of ARV Drugs: Dosing, Food Intake and Side Effects *(continued)*

### Protease Inhibitors (PIs)

All PIs are associated with metabolic abnormalities including dyslipidemia, hyperglycaemia, insulin resistance and lipodystrophy.

PIs also carry a risk of hepatitis when ritonavir-boosting is used. PIs may have significant interactions with other drugs; dosage adjustment of interacting agents may be required.

Medication (ARV)	Nutrition Recommendations	Potential Side Effects	Comments
<b>Lopinavir /ritonavir (LPV/r)</b>	<p>Capsules: Lopinavir 133.3 mg/ ritonavir 33.3 mg three capsules (400/100 mg) twice daily</p> <p>Tablets (heat-stable): Lopinavir 200 mg/ ritonavir 50 mg</p> <p>Take with food</p>	<p>Common side effects</p> <ul style="list-style-type: none"> <li>▪ Diarrhoea, nausea, vomiting</li> <li>▪ Changes in taste perception</li> <li>▪ Fatigue, headache</li> <li>▪ Gastrointestinal intolerance</li> </ul> <p>Adverse events</p> <ul style="list-style-type: none"> <li>▪ Lipid abnormalities</li> <li>▪ Coronary artery disease</li> <li>▪ Insulin resistance</li> <li>▪ Osteonecrosis</li> </ul> <p>Long-term side effect</p> <ul style="list-style-type: none"> <li>▪ Fat maldistribution/lipodystrophy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Capsules are stable at room temperature for up to 60 days.</li> <li>▪ New heat-stable formulation does not require refrigeration</li> <li>▪ Avoid combining oral solution with metronidazole</li> <li>▪ Risk of metabolic adverse events increases if there are underlying risk factors for lipid abnormalities or heart disease.</li> <li>▪ Adjust dose of capsules if given with EFV or NVP.</li> <li>▪ Dosing for heat stable will depend upon patient's treatment history</li> </ul>
<b>Ritonavir (RTV)</b>	<p>100 mg when used to boost other protease inhibitors</p> <p>Take with food</p>	<p>Common side effects</p> <ul style="list-style-type: none"> <li>▪ <b>Nausea, vomiting, diarrhoea</b></li> <li>▪ <b>Abdominal pain</b></li> <li>▪ Fatigue</li> <li>▪ Changes in taste perception</li> </ul> <p>Adverse events</p> <ul style="list-style-type: none"> <li>▪ Lipid abnormalities</li> <li>▪ Coronary artery disease</li> <li>▪ Insulin resistance</li> <li>▪ Osteonecrosis</li> </ul> <p>Long-term side effect</p> <ul style="list-style-type: none"> <li>▪ Fat maldistribution/lipodystrophy</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Used to boost other protease inhibitors</b></li> <li>▪ Capsules are stable at room temperature for up to 30 days.</li> <li>▪ Avoid combining oral solution with metronidazole</li> </ul>

**APPENDIX 7-B Three Classes of ARV Drugs: Dosing, Food Intake and Side Effects** *(continued)*

Medication (ARV)	Nutrition Recommendations	Potential Side Effects	Comments
<b>Saquinavir (SQV)</b>	1000 mg twice daily  Take with meal or within 2 hours of a meal	Common side effects <ul style="list-style-type: none"> <li>▪ Nausea, vomiting, diarrhoea</li> <li>▪ Abdominal pain</li> <li>▪ Insomnia</li> <li>▪ Headache</li> </ul> Adverse events <ul style="list-style-type: none"> <li>▪ Lipid abnormalities</li> <li>▪ Coronary artery disease</li> <li>▪ Insulin resistance</li> <li>▪ Osteonecrosis</li> </ul> Long-term side effect <ul style="list-style-type: none"> <li>▪ Fat maldistribution/lipodystrophy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use with caution in patients taking rifampicin, as it can cause severe hepatitis. Requires does adjustment with TB medications.</li> <li>▪ Requires boosting with ritonavir</li> </ul>

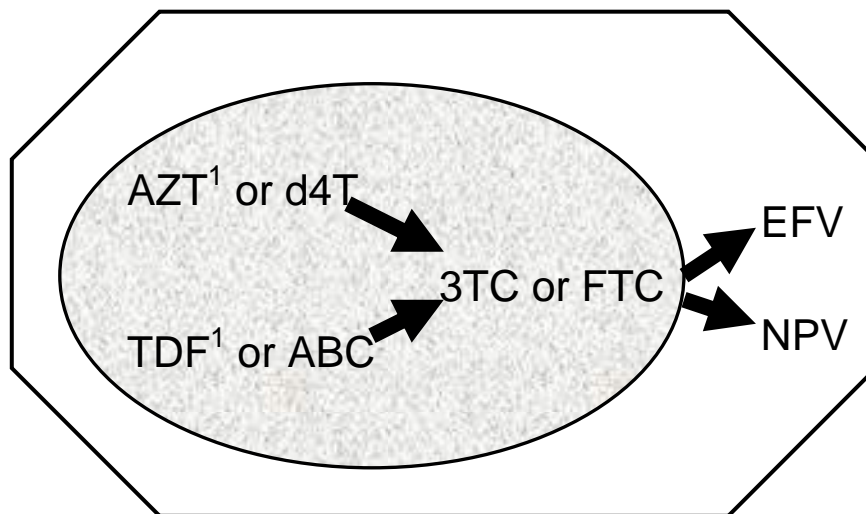
Adapted from:

- DHHS. *Guidelines for the Use of Antiretroviral Agents in HIV-1 Infected Adults and Adolescents, 2006*. Available at: <http://aidsinfo.nih.gov/>
- WHO. *Antiretroviral Therapy for HIV Infected in Adults and Adolescents*. Available at: <http://www.who.int/hiv/pub/guidelines/adult/en/index.html>

## APPENDIX 7-C WHO 2006 Recommendations for ARV Therapy for Adults and Adolescents

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### WHO Recommended First-line ARV Therapy



<sup>1</sup> Preferred NRTI to be combined with 3TC or FTC (emtricitabine) in the first-line regimen

The classic ARV therapy regimen consists of 2 nucleosides (NRTI), sometimes referred to as a “backbone,” and 1 medication from the non-nucleoside (NNRTI) class. *This combination continues to be the preferred first-line ARV therapy in resource-limited settings.*

A triple NRTI can be considered as a first-line when the patient is:

- a woman with a CD4 count between 250-350 cells/mm<sup>3</sup>
- coinfecting with viral hepatitis or TB
- infected with HIV-2
- suffering from severe side effects from either EFV or NVP

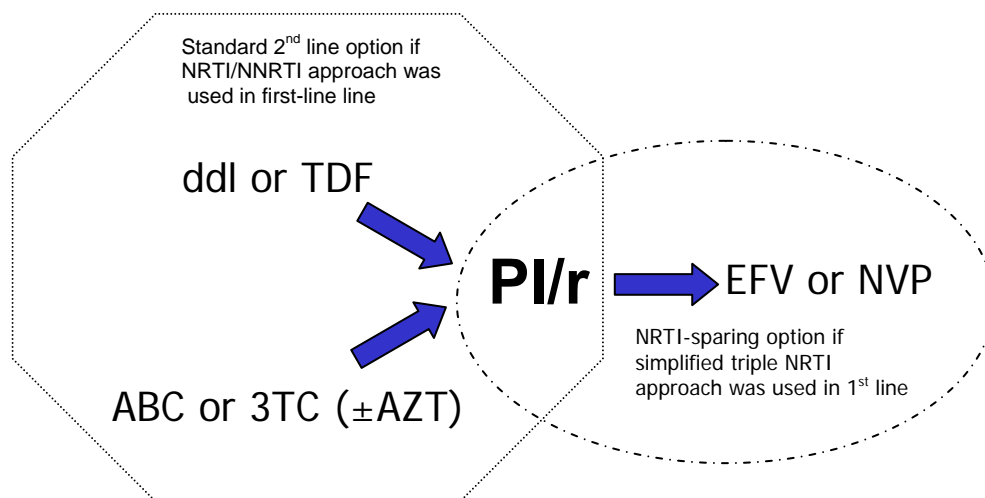
Recommended triple NRTI combinations are (AZT + d4T + ABC) or (AZT + 3TC + TDF).

As the list of available ARV drugs increases, so will the list of possible combinations for first- and second-line regimens. It is recommended that protease inhibitors (PIs) be reserved for second-line therapy because their use in initial treatment rules out second-line options in settings with limited access to ARV drugs.

## APPENDIX 7-C WHO 2006 Recommendations for ARV Therapy for Adults and Adolescents *(continued)*

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### Second-line ARVs



#### Principles of second-line ARV therapy:

- PIs should be reserved for second-line ARV therapy.
- The chosen PI needs to be combined with low dose ritonavir (RTV) and should be supported by two NRTIs that were not used in the first-line regimen.
- Boosted lopinavir (LPV/r) is the preferred ARV drug, because it is available as a fixed-dose combination and a new formulation does not require refrigeration. However, other boosted PIs (ATV/r, SQV/r, FPV/r and IDV/r) can be used.
- AZT and 3TC may still play a role in second-line therapy as they can be used to prevent viral resistance.

## APPENDIX 7-C WHO 2006 Recommendations for ARV Therapy for Adults and Adolescents *(continued)*

### Comparison of first- and second-line regimens for adults and adolescents

	First-line regimen	Second-line regimen	
		NNRTI/NRTI component	PI component <sup>3</sup>
Standard Strategy	(AZT <u>or</u> d4T) + 3TC <sup>1</sup> + (NVP <u>or</u> EFV)	ddl + ABC <u>or</u> TDF + ABC <u>or</u> TDF + 3TC ± (AZT) <sup>2</sup>	PI/r <sup>4</sup>
	TDF + 3TC + (NVP <u>or</u> EFV)	ddl + ABC <u>or</u> ddl + 3TC ± (AZT) <sup>2</sup>	
	ABC + 3TC + (NVP <u>or</u> EFV)	ddl + 3TC ± (AZT) <sup>2</sup> <u>or</u> TDF + 3TC ± (AZT) <sup>2</sup>	
Alternative Strategy	(AZT <u>or</u> d4T) + 3TC <sup>1</sup> + (TDF <u>or</u> ABC)	(EFV <u>or</u> NVP) ± ddl	

<sup>1</sup> 3TC and FTC (emtricitabine) are considered interchangeable because they are structurally-related and share pharmacological properties and resistance profiles.

<sup>2</sup> 3TC can be maintained in a second-line regimen to reduce viral fitness.

<sup>3</sup> NFV does not require refrigeration and can be used as a PI alternative in places without cold chain.

<sup>4</sup> There are insufficient data to detect differences in RTV-boosted PIs (ATV/r, FPV/r, IDV/r, LPV/r and SQV/r) the choice should be based on national priorities and availability. NFV can be used in a second-line regimen but it is less potent than RTV-boosted PIs.

NNRTI/NRTI combinations to be avoided in 1 <sup>st</sup> or 2 <sup>nd</sup> line therapy
AZT+d4T d4T+ddl TDF+ddl <sup>1</sup>
ABC+3TC+TDF ddl+3TC+TDF ABC+3TC+ddl
<sup>1</sup> Recent studies have shown that TDF+ddl+NNRTI regimens have resulted in significant virologic failure rates and should be avoided. However TDF+ddl+PI/r combinations can be considered in some situations—with close monitoring—until more data become available.

Source: WHO. *Antiretroviral therapy for HIV infection in adults and adolescents Recommendations for a public health approach*. Available at: <http://www.who.int/hiv/pub/guidelines/adult/en/index.html>

## APPENDIX 7-D Signs or Symptoms Related to HIV Infection and/or Antiretroviral Therapy: Next Steps for the Healthcare Worker

Signs or symptoms	Next steps
<b>Nausea</b>	<ul style="list-style-type: none"> <li>▪ Recommend taking medication with food (except ddl).</li> <li>▪ If taking AZT, reassure that this is common, usually self-limited.</li> <li>▪ Treat symptomatically, see suggestions in Appendix 7-E</li> <li>▪ If other symptoms of lactic acidosis, stop ARV therapy and give supportive treatment</li> </ul>
<b>Headache</b>	<ul style="list-style-type: none"> <li>▪ Treat symptoms, give paracetamol</li> <li>▪ Check for fever and assess for meningitis</li> <li>▪ If taking AZT or EFV, reassure that this is common and usually self-limited</li> <li>▪ If headache persists more than 2 weeks, consult or refer.</li> </ul>
<b>Diarrhoea</b>	<ul style="list-style-type: none"> <li>▪ Offending ARV drugs usually the PI class</li> <li>▪ Treat symptoms with close attention to hydration.</li> <li>▪ Reassure patient that if due to ARV, will improve in a few weeks.</li> <li>▪ Follow up in 2 weeks. If not improved, consult or refer.</li> </ul>
<b>Fatigue</b>	<ul style="list-style-type: none"> <li>▪ This commonly lasts 4–6 weeks especially when starting AZT.</li> <li>▪ Check haemoglobin level if it persists. If severe (Hgb &lt; 7 g %) replace AZT with another NRTI e.g., d4T</li> <li>▪ Consider blood transfusion according to national guidelines for management of anaemia</li> </ul>
<b>Anxiety, nightmares, psychosis, depression</b>	<ul style="list-style-type: none"> <li>▪ Usually due to efavirenz (EFV). Recommend that patient take EFV before bed.</li> <li>▪ Counsel and support as it is usually self-limiting</li> <li>▪ CNS effects can be magnified by alcohol or other psychoactive drugs</li> <li>▪ If patient has severe depression or is suicidal or psychotic stop EFV and make an emergency referral</li> </ul>
<b>Blue/black nails</b>	<ul style="list-style-type: none"> <li>▪ Reassure. It is common with AZT.</li> </ul>
<b>Rash</b>	<ul style="list-style-type: none"> <li>▪ If taking nevirapine (NVP), assess carefully.</li> <li>▪ In mild cases, antihistamines and strict observation, as symptoms may regress</li> <li>▪ If moderate rash, that is stable without mucosal involvement or systemic symptoms, continue ARV therapy but substitute the NNRTI</li> <li>▪ If severe rash, discontinue all ARV therapy and give supportive treatment. After resolution, resume ARV therapy with triple NRTI or PI-based regimen.</li> </ul>

## APPENDIX 7-D Signs or Symptoms Related to HIV Infection and/or Antiretroviral Therapy: Next Steps for the Healthcare Worker

(continued)

Signs or symptoms	Next steps
<b>Rash</b>	If there is a flu-like illness associated with a generalized rash after starting abacavir (ABC), stop the medication immediately, call for advice, and refer to a hospital. This could be a hypersensitivity reaction to ABC.
<b>Fever</b>	Get advice or refer. This could be a side effect, an opportunistic or new infection, or immune reconstitution syndrome.
<b>Acute pancreatitis</b>	<ul style="list-style-type: none"> <li>▪ Discontinue offending ARV drug, usually d4T or ddl.</li> <li>▪ Provide supportive treatment</li> <li>▪ Conduct laboratory measures</li> <li>▪ Resume ARV therapy with an NRTI-based regimen with low pancreatic toxicity e.g., AZT, ABC, TDF or 3TC</li> </ul>
<b>Lipid abnormalities, insulin resistance</b>	<ul style="list-style-type: none"> <li>▪ PIs usually offending ARV drugs</li> <li>▪ Teach about dietary changes, exercise and modifiable risk factors</li> <li>▪ Consider changing PI to NFV which has less lipid effect</li> <li>▪ Consider medical treatment of dyslipidemia if available</li> </ul>
<b>Yellow eyes (jaundice) or abdominal or flank pain</b>	<ul style="list-style-type: none"> <li>▪ Stop all medications immediately. Get advice or refer.</li> <li>▪ Abdominal pain may be pancreatitis from ddl or d4T.</li> <li>▪ If suspect hepatitis, test liver enzymes, if available and refer for management</li> </ul>
<b>Pallor: anaemia</b>	<ul style="list-style-type: none"> <li>▪ If possible, measure haemoglobin.</li> <li>▪ Refer if severe pallor or symptoms of anaemia or very low haemoglobin as defined by national guidelines.</li> </ul>
<b>Tingling, numb or painful feet/legs</b>	<ul style="list-style-type: none"> <li>▪ Usually related to d4T or ddl.</li> <li>▪ Consider replacement by another NRTI e.g., AZT or ABC.</li> <li>▪ Treat symptoms. If new or worsen on treatment, get advice or refer.</li> </ul>
<b>Cough, difficulty breathing</b>	<ul style="list-style-type: none"> <li>▪ If symptoms follow start of ABC, this could indicate a hypersensitivity reaction. Stop ABC and do not restart.</li> <li>▪ Provide symptomatic treatment</li> </ul>
<b>Changes in fat distribution</b>	<ul style="list-style-type: none"> <li>▪ Discuss carefully with the patient: can he or she accept this side effect? Usually a benign side effect.</li> <li>▪ Early replacement of suspected ARV drug e.g., d4T or ddl</li> <li>▪ Teach physical exercise</li> </ul>

Adapted from:

- WHO. *Chronic HIV Care with ARV Therapy and Prevention*. IMAI DRAFT February 2006
- Source: WHO. *Antiretroviral therapy for HIV infection in adults and adolescents Recommendations for a public health approach*. Available at: <http://www.who.int/hiv/pub/guidelines/adult/en/index.html>



## APPENDIX 7-E Suggestions to Maximize Food Intake for People Living with HIV

Symptom	Suggested strategy
Fever and loss of appetite	<ul style="list-style-type: none"> <li>▪ Choose locally available high-protein foods and fruit juices.</li> <li>▪ Throughout the day, eat small portions of preferred soft foods with a pleasant aroma and texture.</li> <li>▪ Eat nutritious snacks whenever possible.</li> <li>▪ Drink liquids often.</li> </ul>
Sore mouth and throat	<ul style="list-style-type: none"> <li>▪ Avoid citrus fruits, tomatoes, spicy foods.</li> <li>▪ Avoid very sweet foods.</li> <li>▪ Eat foods at room temperature or cooler.</li> <li>▪ Eat thick, smooth foods such as pudding, porridge, mashed potato, mashed carrot or other non-acidic vegetables and fruits.</li> </ul>
Nausea and vomiting	<ul style="list-style-type: none"> <li>▪ Avoid large meals and eat small nutritious snacks during the day.</li> <li>▪ Eat toast and other plain, dry foods.</li> <li>▪ Avoid foods that have a strong aroma.</li> <li>▪ Drink diluted fruit juices, other liquids, soup.</li> <li>▪ Eat simple boiled foods, such as porridge, potato, beans.</li> </ul>
Loose bowels	<ul style="list-style-type: none"> <li>▪ Eat bananas, mashed fruits, soft rice and porridge.</li> <li>▪ Eat smaller meals, more often.</li> <li>▪ Eliminate dairy products to see if they are the cause.</li> <li>▪ Decrease high-fat foods.</li> <li>▪ Avoid foods that are high in fibre.</li> <li>▪ Drink liquids often.</li> </ul>
Fat malabsorption	<ul style="list-style-type: none"> <li>▪ Eliminate oils, butter, margarine and foods that contain or are prepared with them.</li> <li>▪ Eat only the leanest available meats.</li> <li>▪ Eat fruit, vegetables and other low-fat foods.</li> </ul>
Severe diarrhoea	<ul style="list-style-type: none"> <li>▪ Drink liquids frequently.</li> <li>▪ Dilute fruit juices.</li> <li>▪ Eat bananas and soft rice.</li> </ul>
Fatigue and lethargy	<ul style="list-style-type: none"> <li>▪ Ask a family member or neighbour to help with food preparation.</li> <li>▪ Be sure to set aside time each day for eating.</li> <li>▪ Eat slowly, a little at a time.</li> <li>▪ Eat fresh fruits that don't require preparation.</li> </ul>

Adapted from: Woods MN. Dietary recommendations for the HIV/AIDS patient. In: *Nutritional Aspects of HIV Infection*, Miller T and Gorbach SL (eds); Arnold Press: London.1999, pp 191–203.

## APPENDIX 7-F Monitoring Growth, Nutrition and Development of HIV-exposed Infants and Children

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Close clinical follow-up is critical for HIV-exposed and HIV-infected infants. Growth, nutritional and developmental assessments should be conducted at each follow-up visit.

### Monitoring Growth

Growth monitoring is the maintenance of regular growth surveillance. Growth surveillance is maintained by regular anthropometric monitoring. Some anthropometric measures for children include the measurement of weight and height. Children under two years of age should also have their head circumference measured and monitored. Anthropometrics are interpreted by using age and gender specific growth standards. Growth monitoring standards include growth curves that have been developed nationally. WHO has also created comprehensive growth standards that are available at <http://www.who.int/childgrowth/en/>. It is important to train all HCWs working with children, particularly those who may be infected or exposed to HIV, about the proper use and interpretation of the national tools used to measure growth.

#### Growth failure

Growth failure is a persistent decline in growth velocity. The growth failure and malnutrition observed in children who are HIV-infected are attributable to several factors:

- Decreased intake due to oral and gastrointestinal pathology that may also impair absorption
- Increased metabolic requirements secondary to HIV infection and other infections
- Impaired absorption due to side effects and toxicities of ARV drugs

#### Growth Indicators

- Weight-for-age is a measure of weight according to age.
- Weight-for-length/height is a measure of weight according to the length or height. This is a useful measure of acute malnutrition.
- Height-for-age is a measure of height according to age. This is useful for detecting chronic malnutrition and helps identify stunted children.
- Head circumference is the measured distance around the widest part of the skull. This is a useful measure of brain growth during the first 2 years.

#### Defining indicators of growth status

- **Underweight:** Weight-for-age is below the median minus 2 standard deviations or less than the 3rd percentile of the expected weight-for-age
- **Stunting:** Length/height-for-age is below the median minus 2 standard deviations or less than the 3rd percentile of the expected length/height-for-age
- **Wasting:** Weight -for-length/height is below the median minus 2 standard deviations or less than the 3rd percentile of the expected weight for length/height
- **Severe wasting:** Weight-for-length/height is below the median minus 3 standard deviations
- **Overweight:** Weight-for-length/height is above the median plus 2 standard deviations or greater than the 97th percentile of the expected weight-for-length/height

## APPENDIX 7-F Monitoring Growth, Nutrition and Development of HIV-exposed Infants and Children *(continued)*

### Monitoring Development

HIV-exposed and HIV-infected infants and children should receive regular standardized assessments of their neurological and developmental status. Development should be assessed through behavioural observation of the child and asking the parents about developmental milestones. Developmental abnormalities are common in HIV-infected children and can appear as developmental delays, cognitive deficits, behavioural or psychiatric problems or, in older children, poor school performance. The type of assessment performed will be determined by the scale or test in use nationally.

#### Selected developmental milestones by age

Age	Developmental Milestones and Assessments
Week 1	<ul style="list-style-type: none"> <li>▪ Baby responds to sound by blinking or crying</li> <li>▪ Fixates on human face</li> <li>▪ Follows with eyes</li> <li>▪ Responds to parents' voice</li> <li>▪ Moves all extremities</li> </ul>
1 month	<ul style="list-style-type: none"> <li>▪ Lifts head momentarily when prone</li> <li>▪ Can sleep 3-4 hours</li> <li>▪ When crying can be consoled by speak or being held</li> </ul>
2 months	<ul style="list-style-type: none"> <li>▪ Baby coos and vocalizes</li> <li>▪ Attentive to voice, visual stimuli</li> <li>▪ Smiles responsively</li> <li>▪ Lifts head, neck and upper chest with support on forearms</li> </ul>
4 months	<ul style="list-style-type: none"> <li>▪ Babbles, smiles, laughs and squeals</li> <li>▪ Holds head upright</li> <li>▪ Rolls over</li> <li>▪ Opens hands</li> <li>▪ Grasps rattle</li> </ul>
9 months	<ul style="list-style-type: none"> <li>▪ Responds to own name</li> <li>▪ Understands a few words</li> <li>▪ Creeps and crawls</li> <li>▪ Pokes with index finger</li> <li>▪ Plays peek-a-boo</li> <li>▪ May show anxiety with strangers</li> </ul>
1 year	<ul style="list-style-type: none"> <li>▪ Pulls to stand</li> <li>▪ May take steps alone</li> <li>▪ Pincer grasp</li> <li>▪ Says 1-3 words</li> <li>▪ Waves "bye-bye"</li> <li>▪ Imitates vocalization</li> </ul>
15 months	<ul style="list-style-type: none"> <li>▪ Says 3-10 words</li> <li>▪ Points to body parts</li> <li>▪ Understands simple commands</li> <li>▪ Feeds self with fingers</li> <li>▪ Listens to story</li> <li>▪ Communicates wants by pointing or grunting</li> </ul>

## APPENDIX 7-F Monitoring Growth, Nutrition and Development of HIV-exposed Infants and Children *(continued)*

Age	Developmental Milestones and Assessments
18 months	<ul style="list-style-type: none"> <li>▪ Walks quickly</li> <li>▪ Throws ball</li> <li>▪ Says 15-20 words</li> <li>▪ Talks using 2-word phrases</li> <li>▪ Uses spoon and cup</li> <li>▪ Looks at pictures and names objects</li> <li>▪ Shows affection</li> <li>▪ Follows simple direction</li> </ul>

### Monitoring Nutritional Status

#### Nutritional assessment and support

In infants and children with HIV infection, malnutrition further impairs immune function, and the opportunistic infections that may arise due to impaired immunity negatively impact upon nutrition status. Therefore, early and ongoing nutritional assessment should be an integral part of the care of infants and children who are HIV-exposed or HIV-infected. Nutritional assessment provides the opportunity to provide nutrition education that may prevent malnutrition and to intervene and prevent growth failure and wasting.

- If the infant or child's HIV status is unknown, the nutritional assessment is an important diagnostic tool.
- HIV places increased metabolic demands on a growing child. If a child is experiencing growth failure it is recommended that caloric intake be increased using locally available and affordable foods.
- ARV drugs may have side effects that affect food intake and nutrition (Appendix 7-E).

A nutritional assessment consists of:

- Growth monitoring
- Assessment of food intake
- Assessment of food availability
- Assessment of psychosocial factors that can affect food intake

### Role of the Healthcare Worker

- Weigh and measure child and plot results on a national growth curve and/or WHO Growth Curves.
- Measure head circumference for children 2 years and under.
- Provide health education on the importance of growth monitoring and good nutrition.
- Ask mother about her child's eating habits and potential constraints in providing food.
  - What did your child eat/drink today?
  - How about yesterday?
  - Do you normally have enough food to prepare regular meals for your family?
- Counsel and educate mother about the child's nutritional needs.
- If child is stunted or wasted, explore with the mother possible causes of growth failure. Discuss management or refer appropriately.
- Educate mother on hygienic food preparation and the need for safe water.
- Discuss the child's developmental needs: see table below for specific milestones. If you suspect a problem, refer for developmental testing according to national policy and availability.

## **APPENDIX 7-F Monitoring Growth, Nutrition and Development of HIV-exposed Infants and Children** *(continued)*

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### **Role of the Mother**

- With HCW at each visit, review the child's growth using a national growth curve and/or the WHO Child Growth Standards.
- Discuss your child's nutritional habits and needs: what your child eats—how much and how often.
- Breastfeed or prepare nutritious foods and replacement feeds as recommended.
- Alert HCW of any concerns about the growth or development of a child.

Adapted from:

- WHO. Child Growth Standards 2006. Available at: <http://www.who.int/hiv/pub/guidelines/en/>
- National Center for Education in Maternal and Child Health. *Bright Futures, Guidelines for Health Supervision of Infants, Children, and Adolescents (2nd ed. rev.) Pocket Guide*. Available at: <http://www.brightfutures.org/pocket/index.html>

## APPENDIX 7-G WHO Immunization Recommendations for Infants and Children with HIV<sup>1</sup>

Age of Infant	Vaccine
Birth <sup>2</sup>	OPV-0
6 weeks	DPT-1 <sup>3</sup> , OPV-1 <sup>4</sup> , Hib-1 <sup>5</sup> , PCV-1 <sup>6</sup> , HepB-1 <sup>7</sup>
10 weeks	DPT-2, OPV-2, Hib-2, PCV-2, HepB-2
14 weeks	DPT-3, OPV-3, Hib-3, PCV-3, HepB-3
6 months	Measles <sup>8</sup> or MMR
9 months	Measles or MMR
<b>Key:</b>	
BCG = bacille Calmette-Guérin	Hib = <i>haemophilus influenzae</i> type b
OPV = oral polio	PCV = pneumococcal conjugate
DPT = diphtheria, pertussis, tetanus	HepB = Hepatitis B
<p><sup>1</sup> Additional immunizations may be included in national recommendations that account for local disease prevalence.</p> <p><sup>2</sup> <b>BCG.</b> WHO recommends (2007) that children who are known to be HIV-infected, even if asymptomatic, should not be immunized with BCG vaccine. Recent evidence shows that children who were HIV-infected when vaccinated with BCG at birth and who later developed AIDS, were at increased risk of developing disseminated BCG disease. Among these children, the benefits of potentially preventing severe TB are outweighed by the risks associated with the use of BCG vaccine. However, because of the difficulties in identifying infants infected with HIV at birth, BCG vaccination may need to be given at birth to all infants regardless of HIV exposure, in areas with high endemicity of tuberculosis and populations with high HIV prevalence.</p> <p><sup>3</sup> <b>DTP.</b> 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 DTP vaccination should not receive subsequent DTP vaccinations. For those children, substitute the DT (diphtheria–tetanus) formulation. All subsequent DT immunizations may be given.</p> <p><sup>4</sup> <b>OPV.</b> If the child has diarrhoea and is scheduled to receive OPV, the dose should be given as scheduled. However, the dose should not be counted in the schedule, and an additional dose of OPV should be given after the diarrhoea has resolved.</p> <p><sup>5</sup> <b>Hib.</b> The first dose of <i>Haemophilus influenzae</i> type b vaccine can be given at six weeks of age or older. Give three doses at 4-8 week intervals. Some countries recommend a booster dose at 12-18 months of age. Hib should be delayed if the child is severely immunocompromised.</p> <p><sup>6</sup> <b>PCV.</b> The first dose of PCV can be given at 6 weeks of age or older, and then at intervals of at least 4 weeks. The vaccine may be administered along with other vaccines provided that a separate syringe and injection site are used.</p> <p><sup>7</sup> <b>HepB.</b> There are multiple Hepatitis B vaccinations schedules depending on local epidemiology. Provide 3 doses of the vaccine at least four weeks apart (minimum four week intervals). Doses may be given as noted above or first dose can be given at birth, followed by a second and third dose at the time of the first and third diphtheria–tetanus–pertussis (DTP) vaccination. Alternatively, a four-dose schedule may be used where the dose at birth is followed by three additional doses, following the schedules commonly used for DTP or Hib.</p> <p><sup>8</sup> <b>MMR.</b> Because of the increased risk of early and severe measles infection, HIV-exposed infants who are not severely immunocompromised should receive a dose of standard measles vaccine (or where measles-mumps-rubella (MMR) combined vaccine is given, combined MMR vaccine is recommended whenever one or more of the individual components are indicated) at 6 months of age with a second dose as soon after the age of 9 months as possible. Children who are severely immunosuppressed (based on age-specific CD4 lymphocyte) due to HIV infection should not receive measles vaccine until immunological improvement is observed.</p>	

## **APPENDIX 7-G WHO Immunization Recommendations for Infants and Children with HIV<sup>1</sup>** *(continued)*

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All children who have been exposed to HIV should be fully immunized according to age. Because most children who are HIV-infected do not have severe immune suppression during the first year of life, immunization should occur as early as possible after the recommended age to optimize the immune response.

**BCG and live attenuated vaccines (including influenza, Japanese encephalitis, measles, mumps, rubella, typhoid, varicella and yellow fever)** should not be given to children with signs or symptoms of HIV infection.

## APPENDIX 7-H Co-trimoxazole Prophylaxis in HIV-exposed and HIV-infected Infants and Children

When to Start Co-trimoxazole Prophylaxis in Infants and Children			
HIV-exposed Infants and Children <sup>a</sup>	Infants and Children Confirmed <sup>b</sup> to be living with HIV		
	Less than 1 Year	1–4 Years	5 years and older
Co-trimoxazole prophylaxis is universally indicated, starting at 4 to 6 weeks after birth and maintained until cessation of risk of HIV transmission and exclusion of HIV infection.	Co-trimoxazole prophylaxis is indicated regardless of %CD4 or clinical status <sup>c</sup>	WHO clinical stages 2, 3 and 4 regardless of %CD4 <b>OR</b> Any WHO stage and CD4 < 25%	Follow adult recommendations outlined in Appendix 7-A
Universal option: prophylaxis for all infants and children born to mothers confirmed or suspected of living with HIV. This strategy may be considered in settings with high prevalence of HIV, high infant mortality due to infectious diseases and limited health infrastructure.			

- a. Defined as a child born to mother living with HIV or a child breastfeeding from a mother living with HIV until HIV exposure stops (six weeks after complete cessation of breastfeeding) and infection can be excluded.
- b. Among children younger than 18 months, HIV infection can only be confirmed by virologic testing.
- c. Once a child is started on co-trimoxazole prophylaxis, it should be continued until 5 years of age regardless of clinical symptoms or CD4 percentage. Specifically, infants who begin co-trimoxazole prophylaxis before the age of 1 year and who subsequently are asymptomatic and/or have CD4 levels greater than 25% should remain on co-trimoxazole prophylaxis until they reach five years of age.



## APPENDIX 7-H Co-trimoxazole Prophylaxis in Infants and Young Children *(continued)*

<b>Co-trimoxazole Formulation &amp; Dosage for HIV-Infected/Exposed Children</b>				
<b>Recommended Daily Dosage<sup>a</sup></b>	<b>Suspension (5ml Syrup 200mg /40mg)</b>	<b>Paediatric tablet (100mg/20mg)</b>	<b>Single strength adult tablet (400mg/80mg)</b>	<b>Double strength adult tablet (800mg/160mg)</b>
Less than 6 months 100mg SMX/20mg TMP	2.5ml	One Tablet	¼ tablet, possibly mixed with feeding	—
6 months–5 years 200mg SMX/40mg TMP	5ml	Two Tablets	Half Tablet	—
6–14 years 400mg SMX/80mg TMP	10 ml	Four Tablets	One Tablet	Half Tablet
Greater than 14 years 800mg SMX/160mg TMP	—	—	Two Tablets	One Tablet
<b>Frequency—once a day</b>				

- a. This column uses the abbreviations for the two medications in co-trimoxazole, SMX refers to sulphamethoxazole and TMP refers to trimethoprim.

Source: WHO. *Guidelines for Co-trimoxazole Prophylaxis for HIV-related Infections in Children, Adults and Adolescents*. Available at: <http://www.who.int/hiv/pub/guidelines/ctx/en/index.html>

## APPENDIX 7-I WHO Recommendations on When to Start ARV Therapy in Infants and Children According to Clinical Stage and Laboratory Measures

WHO Paediatric Stage	Availability of CD4 cell measurements	Age-specific treatment recommendation	
		Under 12 months of age	12 months and older
4 <sup>a</sup>	CD4 <sup>b</sup>	Treat all	
	No CD4		
3 <sup>a</sup>	CD4	Treat all	Treat all, CD4 guides in those children with TB <sup>c</sup> , LIP, OHL, thrombocytopaenia.
	No CD4		Treat all <sup>b</sup>
2	CD4 <sup>b</sup>	Treat all	CD4-guided (See next page for threshold values)
	No CD4	Treat all	Total lymphocyte count (TLC) <sup>d</sup> -guided
1	CD4 <sup>b</sup>	Treat all	CD4-guided (See next page for threshold values)
	No CD4 <sup>b</sup>	Treat all	Do not treat

**Notes:**  
LIP lymphoid interstitial pneumonia; OHL- Oral hairy leukoplakia; TB - tuberculosis  
a. Stabilize any opportunistic infection prior to initiation of ARV therapy  
b. Baseline CD4 value useful for monitoring ARV therapy even if it is not required to start ARV therapy  
c. In children with pulmonary or lymph node tuberculosis, the CD4 level and clinical status should be used to determine the need for and timing of initiation of ARV therapy in relation to tuberculosis treatment  
d. Total Lymphocyte Count can be used as a surrogate for CD4 counts, when they are not available. The accuracy of TLC in the asymptomatic phases of HIV infection is disputed.

## APPENDIX 7-I WHO Recommendations on When to Start ARV Therapy in Infants and Children According to Clinical Stage and Laboratory Measures *(continued)*

### Recommendations for initiating ARV therapy in infants and children according to age-related laboratory measures

Immunological marker <sup>a</sup>	Age-specific recommendation to initiate ARV Therapy <sup>b</sup>			
	< 12 months	12–35 months	36–59 months	≥ 5 years
%CD4 <sup>c</sup>	treat all	< 20%	< 20%	< 15%
Absolute CD4 count <sup>c</sup>	treat all	< 750 cells/mm <sup>3</sup>	< 350 cells/mm <sup>3</sup>	As in adults < 200 cells/mm <sup>3</sup>
<b>To be used only in absence of CD4 measurements:</b>				
Total lymphocyte count (TLC)	treat all	< 3000 cells/mm <sup>3</sup>	< 2500 cells/mm <sup>3</sup>	< 2000 cells/mm <sup>3</sup>
<b>Notes:</b>				
a. Immunological markers should be used in combination with clinical staging				
b. ARV therapy should be initiated by these cut-off levels, regardless of clinical stage; a drop of CD4 or TLC below these levels significantly increases the risk of mortality.				
c. Absolute CD4 count is naturally less constant and more age-dependent than %CD4, it is not therefore appropriate to define a single threshold. %CD4 is preferred for children less than 5 yrs.				

### Summary of WHO Recommendations

Infants and children with established HIV infection should be started on ARV therapy as follows:

- **ALL infants less than 12 months of age** with confirmed HIV infection should be started on ARV therapy, irrespective of clinical or immunological state.
  - Where virological testing is not available, infants less than 1 year of age with clinically diagnosed presumptive severe HIV should start ARV therapy. Confirmation of HIV infection should be obtained as soon as possible.
- **Children 1 year of age or older**, should be started on ARV therapy if they have:
  - WHO clinical stage 4 disease (irrespective of CD4)
  - WHO clinical stage 3 disease (irrespective of CD4, although it may add guidance) for children aged over 12 months and older with TB, lymphocytic interstitial pneumonia, oral hairy leukoplakia or thrombocytopaenia ARV therapy may be delayed if CD4 is available and result is above threshold values for initiating ARV therapy.
  - WHO clinical stage 2 disease **AND** CD4 or TLC value at or below threshold (see above)
  - WHO clinical stage 1 disease **AND** CD4 value at or below threshold (see above)

Adapted from:

- WHO. *Antiretroviral therapy of HIV infection in infants and children: towards universal access, Recommendations for a public health approach*. WHO: Geneva. Available at: <http://www.who.int/hiv/pub/guidelines/art/en/index.html>
- WHO. *Report of the WHO Technical Reference Group, Paediatric HIV/ART Care Guideline Group Meeting, WHO Headquarters, Geneva, Switzerland, 10-11 April 2008*. Available at: [http://www.who.int/hiv/pub/meetingreports/art\\_meeting\\_april2008/en/index.html](http://www.who.int/hiv/pub/meetingreports/art_meeting_april2008/en/index.html)

## APPENDIX 7-J WHO Recommendations Preferred First-line ARV Regimens for Infants and Children

### Summary of recommended preferred first-line ARV regimens for infants and children

Exposure to maternal NNRTI-containing ARVs (including NVP)	No or unknown exposure to maternal or infant ARVs
Regimen of a protease inhibitor-based triple ARV therapy	Regimen of 2 NRTIs plus NNRTI <sup>a</sup>  AZT <sup>b</sup> + 3TC <sup>c</sup> + NVP <sup>d</sup> /EFV <sup>e</sup> d4T <sup>b</sup> + 3TC <sup>c</sup> + NVP <sup>d</sup> /EFV <sup>e</sup> ABC + 3TC <sup>c</sup> + NVP <sup>d</sup> /EFV <sup>e</sup>
a. The use of AZT, d4T, ABC with 3TC results in several possible dual nucleoside combinations. b. AZT should not be given in combination with d4T. c. Where available, FTC (emtricitabine) can be used instead of 3TC in children over 3 months of age. d. NVP should be used with caution in postpubertal adolescent girls (considered as adults for treatment purposes) with baseline CD4 absolute cell counts > 250/mm <sup>3</sup> . e. EFV is not currently recommended for children under 3 years of age and should be avoided in postpubertal adolescent girls who are either in the first trimester of pregnancy or are sexually active and not receiving adequate contraception.	

Adapted from:

- WHO. *Antiretroviral therapy of HIV infection in infants and children: towards universal access, Recommendations for a public health approach*. WHO: Geneva. Available at: <http://www.who.int/hiv/pub/guidelines/art/en/index.html>
- WHO. *Report of the WHO Technical Reference Group, Paediatric HIV/ART Care Guideline Group Meeting, WHO Headquarters, Geneva, Switzerland, 10-11 April 2008*. Available at: [http://www.who.int/hiv/pub/meetingreports/art\\_meeting\\_april2008/en/index.html](http://www.who.int/hiv/pub/meetingreports/art_meeting_april2008/en/index.html)

## APPENDIX 7-K Community Resources Worksheet

List the contact information for agencies that provide services to families living with HIV.

COMMUNITY RESOURCES THAT SUPPORT THE PMTCT PROGRAMME			
Resource Category	We Have...	We Need...	Our Plan to Address Need....
HIV care and treatment for adults	Name of agency: Contact person: Address: Telephone number:		
HIV care and treatment for infants and children	Name of agency: Contact person: Address: Telephone number:		
Testing and counselling for partners	Name of agency: Contact person: Address: Telephone number:		

## APPENDIX 7-K Community Resources Worksheet *(continued)*

COMMUNITY RESOURCES THAT SUPPORT THE PMTCT PROGRAMME			
Resource Category	We Have...	We Need...	Our Plan to Address Need....
Healthcare services (STI treatment, reproductive health, TB treatment, etc).	Name of agency: Contact person: Address: Telephone number:		
Family planning services	Name of agency: Contact person: Address: Telephone number:		
Nutritional support	Name of agency: Contact person: Address: Telephone number:		

**APPENDIX 7-K Community Resources Worksheet** *(continued)*

<b>COMMUNITY RESOURCES THAT SUPPORT THE PMTCT PROGRAMME</b>			
<b>Resource Category</b>	<b>We Have...</b>	<b>We Need...</b>	<b>Our Plan to Address Need....</b>
Support group(s) or club(s)	Name of agency: Contact person: Address: Telephone number:		
Community-based HIV service, including faith-based organizations	Name of agency: Contact person: Address: Telephone number:		
Domestic violence resources	Name of agency: Contact person: Address: Telephone number:		



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## **Module 8** Safety and Supportive Care in the Work Environment

**SESSION 1** Standard Precautions and Creating a Safe Work Environment

**SESSION 2** Managing Occupational Exposure to HIV

**SESSION 3** Supportive Care for the Caregiver

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**After completing the module, participants will be able to:**

- Describe strategies for preventing HIV transmission in the healthcare setting.
- Define Standard Precautions in the context of PMTCT.
- Identify principles and key steps involved in the decontamination of equipment and materials.
- Describe the management of occupational exposure to HIV.
- Identify measures to recognize and reduce stress and support HCWs and other caregivers.



# SESSION 1    Standard Precautions and Creating a Safe Work Environment

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**After completing the session, the participant will be able to:**

- Describe strategies for preventing HIV transmission in the healthcare setting.
- Define Standard Precautions in the context of PMTCT.
- Identify principles and key steps involved in the decontamination of equipment and materials.

## Basic Concepts of HIV Infection Prevention

Blood-borne pathogens include viruses—such as HIV—bacteria and other disease-causing microorganisms carried in the blood. This module focuses on prevention of infection from blood-borne pathogens with a focus on HIV. HIV may be transmitted in healthcare settings from a patient to a HCW, from a HCW to a patient, or from a patient to another patient. HIV infection can be transmitted through contact with blood or other body fluids, either by direct contact with an open wound or by needlestick or sharps injury.

Blood is the primary fluid associated with HIV transmission in the healthcare setting. Other body fluids containing small quantities of blood can also be associated with transmission of HIV in healthcare settings.

HIV transmission to HCWs is almost always associated with needlestick injuries with needles used in the care of HIV-infected patients. In practice, needlestick injuries can occur during:

- Intravenous, intramuscular and subcutaneous injections
- Blood donations
- Dialysis
- Transfusions

However, many needlestick injuries occur when needles are being discarded or when they are not disposed of properly in sharps containers.

## Creating a Safe Work Environment

Proper infection prevention can create a safe work environment that protects HCWs. Creating a safe work environment involves managing the work environment, using Standard Precautions, and providing ongoing education about infection prevention for employees.

## Managing the Work Environment

The following policies and safety measures support the establishment of a facility-wide safe work environment:

- Continually assess risks in the work setting.
- Develop, disseminate and enforce policies and procedures that address infection control, worker safety, risk reduction and first aid.
- Develop, disseminate and enforce policies and procedures for reporting and treating occupational exposure to HIV infection, including post-exposure prophylaxis (PEP).
- Ensure appropriate staffing levels to avoid excessive staff workloads.
- Provide supportive measures that reduce staff stress, isolation and burnout, e.g., regular staff meetings, encourage HCW involvement in identifying safety risks and strategies to reduce risks, ensure appropriate staff workloads.
- Understand and address the needs of HCWs who are HIV-infected.

- Provide adequate supplies of protective clothing and equipment, including gloves, plastic aprons, gowns, goggles.
- Ensure availability of appropriate disinfectants to clean up spills of blood or other body fluids.
- Provide puncture-proof sharps containers in locations easily reached by staff.

## Standard Precautions

### Standard Precautions

A simple set of effective practices designed to protect HCWs and patients by reducing the risk of transmission of microorganisms, including HIV and other blood-borne pathogens. These practices are used when caring for **all** patients.

Standard Precautions apply to all patients, regardless of their diagnosis or presumed HIV infection status. Standard Precautions apply to 1) blood; 2) all body fluids, secretions and excretions except sweat, regardless of whether they contain visible blood; 3) non-intact skin; and 4) mucous membranes.

It is not feasible or cost-effective to test *all* patients for *all* microorganisms before providing care. Therefore, HCWs should use precautionary measures based on the procedure involved, not on the patient's actual or assumed HIV status.

## Activities to Reduce the Risk of HIV Transmission

In practice, implementing Standard Precautions, as they apply to the prevention of HIV infection in PMTCT settings, includes the following actions:

- Handwashing
- Using personal protective equipment
- Safe handling and disposal of sharps
- Decontaminating patient care equipment and linen
- Environmental control

### Environmental control

Standards specifying procedures to be followed for the routine care, cleaning and disinfection of environmental surfaces, beds, bedrails, bedside equipment and other frequently touched surfaces.

## Hand Hygiene

Effective hand hygiene is strongly recommended to reduce transmission of blood-borne pathogens and other infectious agents. Strategies for hand hygiene are described below and illustrated in Appendix 8-A.

### Handwashing with soap and water

- Wet hands and apply plain or antimicrobial soap needed to cover hands, rub all surfaces (for at least 20 seconds—over front and back of hands, between fingers and finger tips), rinse hands and dry thoroughly with a single use towel, use towel to turn off faucet—the entire procedure requires a total of 40-60 seconds.
- Wash hands with soap and water when hands are visibly dirty, visibly soiled with blood or other body fluids, contaminated with human tissue or after using the toilet.

**Handwashing** with soap and water is one of the most effective methods for preventing transmission of blood-borne pathogens and limiting the spread of infection.

- In other clinical situations—when hands are not visibly soiled—hand hygiene may be with an alcohol-based handrub or handwashing with soap and water.

### Alcohol-based handrubs

- Apply a palmful of the product and cover all surfaces of the hand. Rub hands together (front, back, between fingers and finger tips) until hands are dry—the entire procedure requires a total of 20-30 seconds.

Hand hygiene recommendations	
<b>Wash before:</b>	<ul style="list-style-type: none"> <li>▪ Putting on gloves</li> <li>▪ Examining a patient</li> <li>▪ Performing any procedure that involves contact with blood or body fluids</li> <li>▪ Eating</li> </ul>
<b>Wash after:</b>	<ul style="list-style-type: none"> <li>▪ Removing gloves</li> <li>▪ Examining a patient</li> <li>▪ Performing any procedure that involves contact with blood or body fluids</li> <li>▪ Handling contaminated items such as dressings and used instruments</li> <li>▪ Making contact with body fluids, mucous membranes, non-intact skin, or wound dressings</li> <li>▪ Handling soiled instruments and other items</li> <li>▪ Using a toilet</li> </ul>
<p>It may be necessary to wash hands between tasks and procedures on the same patient to prevent cross-contamination of different body sites, e.g., moving from a contaminated site to a clean site.</p>	

## Use of Personal Protective Equipment

Personal protective equipment safeguards patients and staff. Use the following equipment when possible:

- Gloves
- Aprons and gowns
- Eyewear
- Footwear

*When resources for purchasing protective equipment are limited, gloves should receive priority over other protective equipment.*

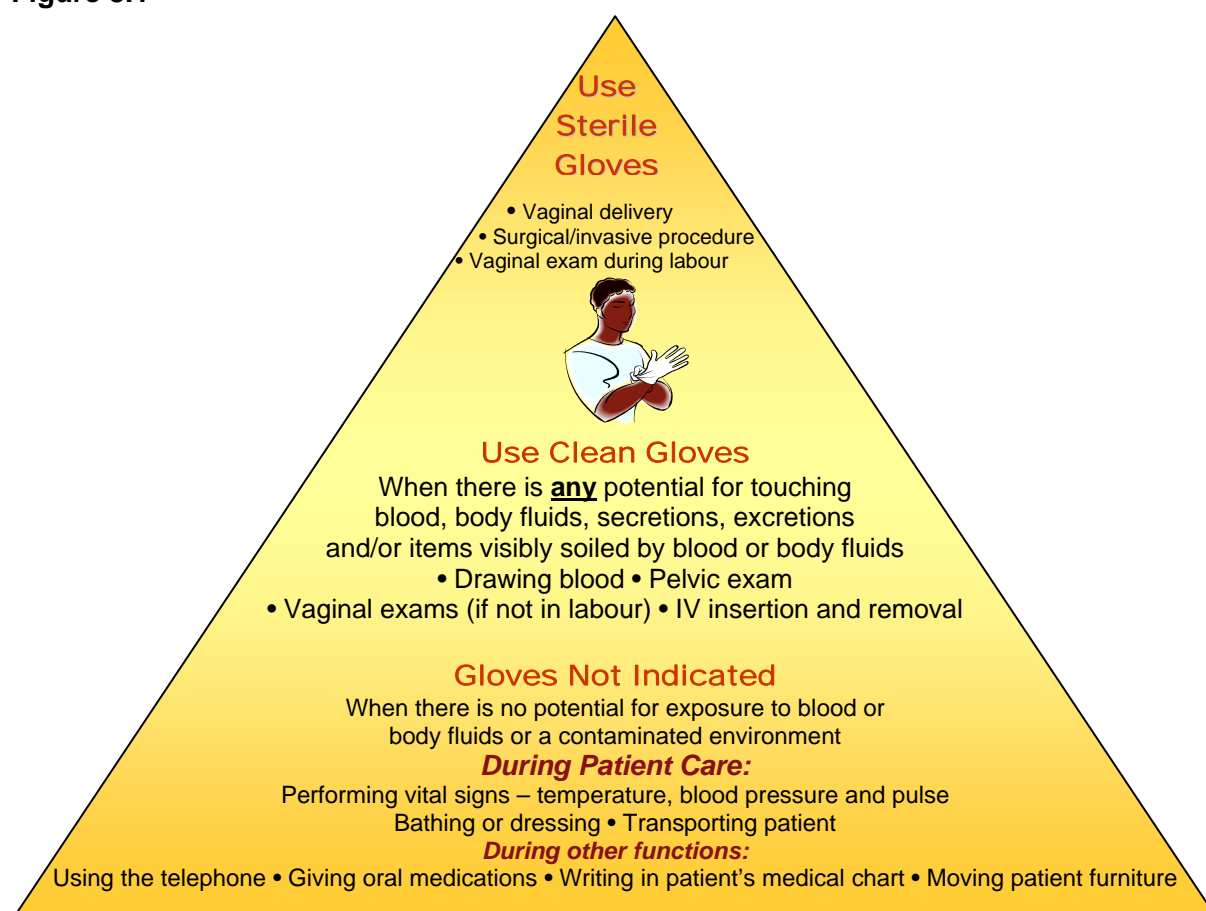
### Gloves

The use of a new pair of gloves for each procedure helps prevent the transmission of infection from person-to-person. Protection with gloves is recommended when:

- There is a reasonable chance of hand contact with blood, other body fluids, mucous membranes or broken or cut skin.
- Performing an invasive procedure
- Handling potentially contaminated items

It is important to select the appropriate type of gloves to wear for specific clinical situations and to know those situations where glove use is not indicated. The pyramid in Figure 8.1 below provides clinical examples of situations in which *sterile* gloves are indicated as well as those situations in which *clean* gloves or no gloves are indicated.

Figure 8.1



In resource-limited countries, gloves are sometimes reused. **WHO strongly discourages reusing gloves and urges that every possible effort be made to prevent glove reuse.** Financial constraints leading to this practice should be assessed and addressed.

#### Tips for using gloves effectively

- Wear gloves that are the correct size.
- Use water-soluble hand lotions to prevent hands from drying, cracking and chapping. Avoid oil-based hand lotions or creams because they will damage latex rubber gloves.
- Do not wear rings because they may serve as a breeding ground for bacteria, yeast and other disease-causing microorganisms.
- Keep fingernails short (tips less than 0.5 cm long [3/16 inch]). Long nails provide a breeding ground for bacteria, yeast and other disease-causing microorganisms. Long fingernails are also more likely to puncture gloves.
- Store gloves in a place where they are protected from extreme temperatures, which can damage the gloves. Keep gloves away from windows where they might be exposed to excessive sunlight and heat.

#### Aprons and gowns

Rubber or plastic aprons provide a protective waterproof barrier along the front of the HCW's body. Gowns protect skin and prevent soiling of clothing.

## **Eyewear**

Eyewear, such as plastic goggles, safety glasses, face shields or visors, protects mucous membranes of the eyes, nose and mouth from accidental splashes of blood or other body fluids.

## **Footwear**

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. Avoid wearing sandals, thongs, open-toed shoes or shoes made of soft materials.

### **Strategies for resource-constrained settings**

Standard Precautions are difficult to practise when supplies are low and protective equipment is not available. *Use resources wisely* by prioritizing the purchase and use of supplies, e.g., if gloves are in short supply, use them for childbirth and suturing instead of routine injections or bed making.

The most important way to *reduce occupational exposure to HIV* is to decrease contact with blood and other body fluids. Healthcare facilities should develop and use safety procedures that allow them to deliver effective patient care without risking safety.

## **Safe Handling and Disposal of Sharps**

Most HIV transmission to HCWs in work settings is the result of skin puncture with contaminated needles or sharps. These injuries occur when sharps are recapped, cleaned or are not discarded safely such as when used needles are left at the bedside.

### **Recommendations for use of sterile injection equipment**

- Use a sterile syringe and needle for each injection, and for reconstituting each unit of medication. If single-use syringes and needles are unavailable, use equipment designed for steam sterilization.
- Use new, quality-controlled disposable syringes and needles whenever possible.
- Avoid recapping and other handling of needles. If recapping is necessary, use a single-handed scoop technique (see below).
- At the point of use, put used syringes and needles in a sharps container that is puncture-proof and leak-proof and that can be sealed.
- Completely destroy or bury filled sharps containers so people cannot use contaminated needles and syringes and groundwater contamination is prevented.

### **When it is necessary to recap, use the single-handed scooping method:**

- Place the needle cap on a firm, flat surface.
- With one hand holding the syringe, use the needle to “scoop” up the cap, as shown in Step 1, Figure 8.2.
- With the cap now covering the needle tip, turn the syringe upright (vertical) so the needle and syringe are pointing toward the ceiling.
- Use the forefinger and thumb on your other hand to grasp the cap just above its open end and push the cap firmly down onto the hub (the place where the needle joins the syringe under the cap) (Step 2, Figure 8.2).

### Tips for careful handling of sharps

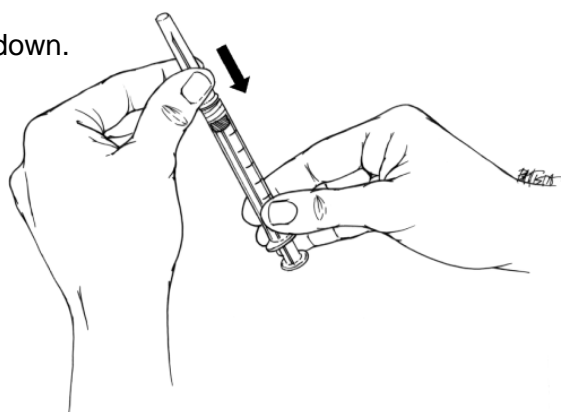
- Always point the sharp end away from yourself and others.
- Pass scalpels and other sharps with the sharp end pointing away from staff; or place the sharp on a table or other flat surface (a tray) where the receiving person can then pick it up.
- Pick up sharps one at a time. Do not pass handfuls of sharps or needles.

### Figure 8.2 One-handed recap method:

Step 1: Scoop up the cap.



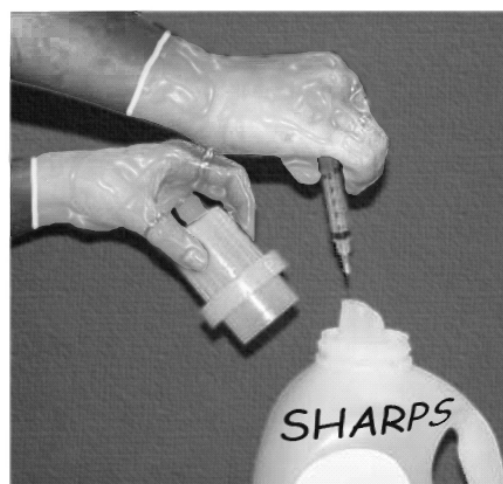
Step 2: Push cap firmly down.



### Sharps Containers

Sharps disposal containers help prevent injuries from disposable sharps. Sharps containers should be fitted with a cover, and should be puncture-proof, leak-proof, and tamper-proof (i.e., difficult to open or break). If plastic or metal containers are unavailable or too costly, use containers made of dense cardboard that meet WHO specifications (leak-proof and puncture-proof cardboard safety boxes). *If cardboard safety boxes are unavailable, many easily available objects can substitute as sharps containers:*

- Tin with a lid
- Thick plastic bottle
- Heavy plastic box
- Heavy cardboard box



### Recommendations for safe use of sharps containers

- All sharps containers should be clearly marked “SHARPS” and/or have pictorial instructions for the use and disposal of the container.
- Place sharps containers away from high-traffic areas and as close as possible to where the sharps will be used. The placement of the container should be practical (ideally within arm’s reach) but not in the way. Do not place containers near light switches, overhead fans, or thermostat controls, where people might accidentally put a hand into them.

Attach sharps containers to walls or other surfaces if possible. Position the containers at a convenient height so staff can use and replace sharps containers easily but out of reach of children.

- Never empty a sharps container to reuse it.
- Never recycle sharps containers.
- Label sharps containers clearly, so people will not unknowingly use them as garbage pails.
- Seal and close sharps containers before they are completely full to avoid needlesticks when discarding needles or sealing the container.
- Avoid shaking a container to settle its contents to make room for more sharps.

### Infection Prevention Processes

HIV transmission can be prevented by disinfecting or sterilizing equipment and devices used for invasive and surgical procedures. Handle used patient-care equipment soiled with blood or other body fluids so that it does not come in contact with skin or clothing. Ensure that reusable equipment is not used for the care of another patient until it has been cleaned and reprocessed. The method used to neutralize or remove harmful agents from contaminated equipment or supplies should be based on:

- Risk of infection associated with the instrument or piece of equipment
- Decontamination process the object can tolerate

The basic processes to reduce infection transmission are:

- Decontamination
- Cleaning
- Sterilization or high-level disinfection

**Decontamination:** Process that makes objects safer to be handled by HCW before cleaning—requires a 10-minute soak in a 0.5% dilution of household chlorine bleach. This important step reduces bacterial contamination, inactivates both hepatitis B and HIV.

**Cleaning:** Efficient cleaning with soap and hot water is essential prior to sterilization or high-level disinfection:

- Remove a high proportion of microorganisms, including endospores that cause tetanus.
- Remove contaminants such as dust, soil, salts and the organic matter that protects them.

**Sterilization:** Destroys all microorganisms.

When sterilization is not feasible or equipment is not available, then **high-level disinfection** is the only acceptable alternative.

*Instruments and other items that touch only mucous membranes or broken skin require high-level disinfection.*

**High-level disinfection:** A process that eliminates most pathogenic microorganisms but does not destroy all microbial forms (e.g., some bacterial endospores). High-level disinfection can be achieved by boiling in water, steaming (moist heat) or soaking instruments in chemical disinfectants.

After completing an invasive or surgical procedure, and while still wearing gloves, the HCW should:

- Dispose of contaminated objects such as gauze, cotton or other waste items in a plastic bag or leak-proof, covered container.
- Place disposable sharps such as scalpel blades and suture needles in a sharps container.
- **Decontaminate** all instruments and reusable items such as syringes, and suction cannulae, whether or not they were used during the procedure, by soaking for 10 minutes in a 0.5% dilution of household chlorine bleach. Rinse immediately in cool water to remove organic material before cleaning.
- After decontamination, thoroughly **clean** the instruments and reusable items with soap and water. Rinsing with water is important to remove any soap residue that would interfere with sterilization or high-level disinfection. Instruments or equipment should also be dry to avoid dilution of the sterilization or high-level disinfection process.
- Then, **sterilize** surgical instruments and items that came in contact with the blood stream or touch tissue beneath the skin.



**Decontaminate**



**Clean**



**Sterilize**



**Disinfect**

### **Disinfection and sterilization**

Detailed information to assist with procedures for decontaminating infectious waste materials and equipment is in Appendix 8-B. Routine procedures for decontamination of equipment include:

- Use heavy gloves.
- Dismantle all equipment before cleaning.
- Clean with soap and hot water prior to disinfection or sterilization.
- Wear additional protective clothing such as aprons, gowns, goggles and masks when at risk for being splashed with body fluids.
- After chemical high-level disinfection, rinse equipment thoroughly with boiled and filtered (if necessary) water three times and air dry.



## Environmental control

All healthcare facilities should have and enforce procedures for the routine care, cleaning, and disinfection of beds, bedrails, bedside equipment, and other frequently touched surfaces. Wear heavy-duty gloves and other barrier protection if needed. Wipe surfaces clean with an absorbent material. Disinfect surfaces by wiping with a 0.5% dilution of household chlorine bleach or dry chlorine (see Appendix 8-C). Discard contaminated materials in an appropriately labelled plastic bag (preferably a heavy-duty garbage bag) or leak-proof, covered container.

## Decontamination of blood or body fluid spills

Wear heavy-duty gloves and other barrier protection if needed. Either:

- Clean the visible spill with disposable absorbent material (such as paper towel if available) and discard the contaminated materials in an appropriately labelled plastic bag (preferably a heavy-duty garbage bag) or leak-proof, covered container. Wipe the area with a cloth or paper towels moderately wetted with disinfectant (such as a 0.5% dilution of household chlorine bleach) until surface is thoroughly wet. Keep area moist for at least 5 minutes. Then allow the surface to dry. OR
- If a spill involves large amounts of blood or body fluids, or if a blood or culture spill occurs in the laboratory, use a 0.5% dilution of household chlorine bleach to thoroughly wet the spill (absorbent material may be placed on the spill before the diluted bleach to ease clean up). Alternatively, liberally sprinkle chloramine granules<sup>1</sup>, leave for 30 minutes. Wipe the area with a cloth or paper towels moderately wetted with disinfectant (such as a 0.5% dilution of household chlorine bleach) until surface is thoroughly wet. Keep area moist for at least 5 minutes. Then allow the surface to dry.

Dispose of contaminated absorbent material used for disinfection in an appropriately labelled plastic bag (preferably a heavy-duty garbage bag) or leak-proof, covered container. If cloth is used for final disinfection, ensure it is disinfected.

## Linen

Handle used linen soiled with blood or other body fluids in a way that prevents exposure to skin or contamination of clothing. Handle all used linen with care as it can contain used syringes or surgical instruments. Thick utility gloves should be used to minimize the risk of a needle or sharps injury along with other available personal protective equipment when collecting, handling, transporting, sorting and washing soiled linens. Consider all linen that was used during a surgical procedure as infectious even if there are no visible contaminants.

**Table 8.1 Washing soiled linens**

Step	Hand washing	Machine washing
1	Wash heavily soiled linen separately from nonsoiled linen. Presoak in soap, water and bleach only if linen is heavily soiled.	
2	Wash the entire item in water with liquid soap: <ul style="list-style-type: none"><li>▪ Use warm water if available.</li><li>▪ Add bleach (e.g., 30–60 mL, about 2–3 tablespoons of 5% household chlorine bleach) to aid cleaning and bactericidal action.</li></ul>	Adjust the temperature and time cycle of the machine according to manufacturer's instructions and the type of soap or other washing product being used. <sup>1</sup> <ul style="list-style-type: none"><li>▪ Add bleach (e.g., 30–60 mL, about 2–3 tablespoons of 5% household</li></ul>

<sup>1</sup> Chloramine granules, or calcium hypochlorite powder, contain approximately 25% available chlorine. Chloramine granules are convenient for the disinfection of spills of blood, particularly under field conditions, as it is available in granules/powder form. If mixed with clean water (20 g of powder to 1 litre of clean water) it makes a solution with 5% available chlorine, equivalent to the concentration in most household bleach preparations.

	<ul style="list-style-type: none"> <li>▪ Add sour (a mild acid agent) to prevent yellowing of linen, if desirable.</li> </ul>	<p>chlorine bleach) to aid cleaning and bactericidal action.</p> <ul style="list-style-type: none"> <li>▪ Add sour (a mild acid agent) to prevent yellowing of linen, if desirable.</li> </ul>
3	<ul style="list-style-type: none"> <li>▪ Rewash if it is dirty or stained.</li> <li>▪ Rinse the item with clean water.</li> </ul>	<ul style="list-style-type: none"> <li>▪ When the wash cycle is complete, check for cleanliness and rewash if dirty or stained.</li> </ul>
4	Completely air or machine dry before further processing.	
<p>Use hot water above 71°C (160°F) and soap to aid in loosening soil. Lower temperatures or cold water washing are satisfactory if the cleaning products (type of soap or detergent, amount of bleach and other additives) are appropriate and used in proper concentrations. Using cold water also saves energy.</p>		

<b>Exercise 8.1 Promoting a safe work environment resource list: large group discussion</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To compare the availability of safety resources, practices and materials at our PMTCT sites.</li> </ul>
<b>Duration</b>	15 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ Refer to the “Promoting a safe work environment resource list” below.</li> <li>▪ The trainer will lead a discussion on the availability of the items in the resource list as well as strategies participants use when supplies and resources are limited.</li> </ul>

<b>Exercise 8.1 Promoting a safe work environment resource list: large group discussion, Resource list</b>	
<b>Personal protective equipment</b>	
<ul style="list-style-type: none"> <li>▪ Gloves—various sizes, sterile and clean</li> <li>▪ Aprons</li> <li>▪ Gowns</li> <li>▪ Eyewear, mask, face shield</li> <li>▪ Footwear</li> <li>▪ Waterproof dressings</li> </ul>	
<b>Materials</b>	
<ul style="list-style-type: none"> <li>▪ Cleaning and disinfecting agents</li> <li>▪ Equipment for sterilization, e.g., autoclave</li> <li>▪ Sharps disposal containers</li> <li>▪ Waterproof waste containers for contaminated items</li> <li>▪ Alcohol-based hand rubs or soap</li> </ul>	
<b>Safety standards</b>	
<ul style="list-style-type: none"> <li>▪ Policies on use of Standard Precautions</li> <li>▪ Procedures for disposal of infectious or toxic waste</li> <li>▪ Procedures for sterilization of equipment</li> <li>▪ Policies on handling and disposal of sharps</li> <li>▪ Immunization against the hepatitis B virus</li> <li>▪ Guidelines for management of PEP, including antiretroviral (ARV) drugs and hepatitis B immunoglobulin and/or vaccine.</li> <li>▪ Procedures for minimizing exposure to infection in high-risk settings, such as labour and delivery</li> </ul>	

## Education

- New employee orientation infection control procedures
- Ongoing training to build skills in safe handling of instruments, equipment and supplies
- Monitoring and evaluation of safety practices and making the changes necessary to ensure safety of HCWs and patients

## Risk Reduction in the Labour and Delivery Settings

The potential for exposure to HIV-contaminated blood and other body fluids is highest during labour and delivery. Module 3, “Specific Interventions for the Prevention of Mother-to-Child Transmission of HIV (PMTCT),” includes recommendations for safer obstetric practices designed to minimize this risk. In labour and delivery settings, HCWs should:

- Provide appropriate and sensitive care to all women regardless of HIV status.
- Work in a manner that ensures safety and reduces the risk of occupational exposure for themselves, their co-workers and their patients.

### Tips for reducing occupational exposure risk in the labour and delivery setting

- Cover broken skin or open wounds with watertight dressings.
- Wear gloves when exposure to blood or other body fluids is likely.
- Wear a waterproof plastic apron during the delivery.
- Pass all sharps onto a tray, rather than hand-to-hand.
- Use long, cuffed gloves during manual removal of a placenta.
- Use needle holders when suturing.
- Workers with dermatitis should make sure they are wearing protective clothing.
- When episiotomy is necessary, use an appropriate-size needle (21 gauge, 4 cm, curved) and needle holder during the repair.
- Wear sterile gloves for any surgical or invasive procedure including vaginal delivery.
- When possible, wear an eye shield during caesarean section and episiotomy suturing.
- If blood splashes on skin, immediately wash the area with soap and water. If splashed in the eye, wash the eye with water only.
- Dispose of solid waste (e.g., blood-soaked dressings and placentas) safely according to local procedures.
- If the placenta will be given to the mother or her partner to take home, discuss proper handling and disposal. Ensure placenta is sent home in a leak-proof container or bag.

## Ongoing Infection Prevention Education for Employees

- All staff, including all non-medical staff, should be educated about infection control policies and practices. New staff should be oriented before they start work.
- All HCW routinely exposed to blood and body fluids (e.g., physicians, midwives, nurses and housekeeping personnel) should receive ongoing training on safe handling of equipment and materials.
- It is the responsibility of supervisors to regularly monitor safety practices and address HCW gaps in knowledge.

### Exercise 8.2 Reducing HIV transmission risk in labour and delivery: case studies in the large group

<b>Purpose</b>	▪ To review the use Standard Precautions in high-risk settings.
<b>Duration</b>	40 minutes

<b>Exercise 8.2 Reducing HIV transmission risk in labour and delivery: case studies in the large group</b>	
<b>Instructions</b>	<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>▪ Participants will review the use of Standard Precautions using two case studies</li> <li>▪ The goal of the first case study is to discuss how policies are put into practice in the work setting</li> <li>▪ The goal of the second case study is to consider ways to reduce HIV transmission during a home birth</li> </ul> <p><b>Case Studies</b></p> <ul style="list-style-type: none"> <li>▪ Participants will need to review Standard Precautions and policies for infection control for this exercise.</li> <li>▪ Refer to Case study 1 and Case study 2, below. Case study 1 is divided into three parts and case study 2 is in one part.</li> <li>▪ The trainer will lead a discussion focusing on the Standard Precaution principles that apply in each case study.</li> </ul>

### **Exercise 8.2 Reducing HIV transmission risk in labour and delivery: case studies in the large group**

#### **Case study 1**

##### **Part A**

Salma arrives at the labour and delivery unit of the local hospital. She gives you her patient-held medical record that identifies her as having received care at a neighbouring ANC clinic. This card is coded to let you know that she is HIV-infected. She explains that her contractions are steady and about four minutes apart. You perform a vaginal examination and estimate that Salma has at least 2 more hours until delivery. You give her AZT, sdNVP and 3TC (ARV prophylaxis regimen as per national guidelines) at this time.

- *What are some precautions that you, as a HCW, should take during the vaginal examination?*
- *Should HCWs use gloves when caring for patients who are HIV-infected? If so what type of gloves?*
- *Does your clinic require gloves when performing a vaginal exam in labour?*
- *According to Standard Precautions, would the same gloving requirements apply for all labour and delivery patients, regardless of HIV status?*
- *In your facility, are gloves and antiseptics in good supply?*
- *As a review, what is the relationship between MTCT and vaginal examinations for pregnant HIV-infected women?*

##### **Part B**

Salma is now fully dilated and ready to deliver. As the head is delivered, you use gauze to carefully free the infant's eyes, mouth and nostrils of fluids. Then, with one final push, the infant is delivered completely. You hand the newborn to a gloved assistant, who wipes him dry and continues with neonatal care. Then the placenta is delivered.

- *List the protective clothing that would be appropriate in a labour and delivery setting.*
- *What do you do with any sharps that are used during delivery?*
- *What should be done with the placenta and other contaminated materials?*

##### **Part C**

Salma was your 30<sup>th</sup> delivery in the past 24 hours. You need to get home and tend to your family but your replacement has not yet arrived. You speak with your supervisor and she is able to locate someone else to take your place.

- *Why is it important that you not stay and continue to work tonight?*
- *In your facility, do you have someone who will help you find staffing relief if needed?*

## **Exercise 8.2 Reducing HIV transmission risk in labour and delivery: case studies in the large group**

### **Case study 2**

Margaret is a skilled birth attendant (SBA) you've known for many years. She tells you that her patient Anna is planning a home delivery. Margaret knows the patient personally and is aware that she is HIV-infected. Margaret asks you for advice about how to perform a safer delivery in the home setting.

- *As a nurse trained in PMTCT and Standard Precautions, what advice can you give to Margaret so that she can protect herself during the home delivery?*
- *As a review, what are some ways Margaret can minimize the risk of HIV transmission during labour and delivery?*

## SESSION 2 Managing Occupational Exposure to HIV

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**After completing the session, the participant will be able to:**

- Describe the management of occupational exposure to HIV.

### HIV Transmission in the Workplace

It has been estimated that worldwide, each year, more than 3 million HCWs experience the stressful event of a contaminated sharps injury and 327,000 HCWs are exposed to HIV as a result. The risk of becoming HIV-infected from an individual sharps injury (including needlesticks) is relatively small (0.3%). Yet, overall, it is estimated that 4.4% of HIV infections in healthcare workers are caused by sharps injuries.<sup>2</sup>

The proportion of HIV infection among HCWs that is acquired through sharps injuries at work is likely to be even higher in settings where HIV prevalence is high, the availability of personal protective equipment is limited, the rates of sharps injuries are high, and where mechanisms to report occupational injuries and to receive post-exposure prophylaxis for HIV infection are limited or absent.

As more persons with HIV come to healthcare settings for care and treatment, it is increasingly important to address occupational exposure through policy and practice to:

- Prevent needlesticks and sharps injuries from occurring.
- Provide post-exposure prophylaxis for health workers exposed to HIV through a sharps injury.

### Occupational Risk of HIV Infection

The risk of HIV transmission varies according to injury. The risk of infection from exposure to infected fluids other than blood, or injuries that do not cause bleeding is believed to be very low. Injuries from needles used in deep punctures, in a patient's artery or vein, with visible blood on the device, or that result in spontaneous bleeding, such as a needlestick from a large-bore hollow needle, carry a higher risk of infection.

Risk of occupational exposure to HIV may be increased when:

- Safe handling of sharps and Standard Precautions are not followed.
- Waste management guidelines are inadequate or not consistently implemented.
- Individual protective equipment is in short supply.
- HIV infection rates are high in the patient population.

HCWs are at risk for HIV infection if they are exposed to blood, tissue, or other body fluids containing visible blood. Most cases of HIV exposure come from:

- Injury that breaks the skin with an instrument used on an HIV-infected client (e.g., a puncture from a needle or a cut from a sharp object like razor or scalpel)
- Contact of mucous membrane or non-intact skin (e.g., exposed skin that is chapped, abraded, or affected by dermatitis) with blood, tissue, or other body fluids of an HIV-infected person

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<sup>2</sup> Prüss-Ustün A, Rapiti E, Hutin Y. (2005). Estimation of the global burden of disease attributable to contaminated sharps injuries among health-care workers. *American Journal of Industrial Medicine* 48:482-490.

*To prevent occupational exposure to HIV and minimize the need for PEP, national strategies to create a safe work environment are necessary, including education and training of HCWs in Standard Precautions and waste management.*

### **Post exposure prophylaxis (PEP)**

Post Exposure Prophylaxis (PEP) is short-term antiretroviral therapy to reduce the likelihood of HIV infection after potential exposure, either occupationally or through sexual intercourse. Within the health sector, PEP should be provided as part of a comprehensive universal precautions package that reduces staff exposure to infectious hazards at work. The availability of PEP may reduce the occurrence of occupationally acquired HIV infection in health care workers.

## **Post-exposure Prophylaxis**

PEP is a key component in creating a safe work environment. Each health facility should have PEP guidelines detailing the steps following an occupational exposure. All HCWs should be trained on these guidelines. Sample PEP guidelines are in Appendix 8-D.

### **Benefits of PEP guidelines include:**

- Decrease in occupationally-acquired HIV infections in HCWs
- Increased retention of HCWs who are concerned about HIV exposure in the workplace
- Increased staff willingness to care for HIV-infected patients

### **Detailed PEP guidelines for the healthcare setting should:**

- Call for education of staff and managers, which includes Standard Precautions, safe disposal of infectious waste, and injury prevention.
- Cover all people who may be in a workplace, including employees, visitors, volunteers, students and patients in all settings including laboratories, housekeeping, laundry and sterilizing departments.
- Include all exposures: occupational exposure (clinical care as well as housekeeping) as well as exposure through sexual or other physical assault.
- Ensure that HIV testing, counselling and ARV drugs are available for PEP.
- Ensure that exposed HCWs receive an HIV test soon after exposure and after completing PEP.
- Ensure HIV antibody testing is offered to exposed HCWs if they experience an illness compatible with acute retroviral syndrome.
- Ensure the establishment of confidential data collections system to foster a climate where reporting of exposures is encouraged.

### **Additional components of PEP guidelines:**

- A system for monitoring drug side effects and toxicities
- HCW training to report all occupational injuries to a designated staff person, so that the PEP guidelines can be instituted and all occupational exposures recorded on the facility register
- A plan for educating HCWs and other staff at risk for occupational exposure to blood-borne pathogens about the PEP guidelines during job orientation and on an ongoing basis. The plan may include posting the PEP guidelines in a prominent place and highlighting the first step HCWs should take if they sustain an occupation injury.
- Information about monitoring and evaluating the occurrence of occupational exposures and a summary of efforts to prevent them
- Guiding principles, partner organizations and legal framework

## Guidelines for Managing Occupational Exposure to HIV

### Step 1: Administer first aid

If occupational exposure to HIV occurs, HCWs should take **immediate** action:

- Apply first aid to reduce contact time with blood or body fluids.
  - Wash site immediately using soap and water. Avoid milking the site.
  - If running water is not available, clean site with a gel or hand rub solution.
  - To the eye: irrigate exposed eye immediately with water or normal saline.
  - To the mouth: spit the fluid out immediately, rinse mouth using water or saline, and spit out again. Repeat process several times.

### Step 2: Report the exposure

- Report the exposure to supervisor or manager.

### Step 3: Establish eligibility for PEP

- A risk assessment should be undertaken by a trained person immediately after every occupational exposure no matter what time of day it occurs. The risk assessment determines the severity of the exposure and if any immediate action is required. If the risk is assessed as “not significant”, complete report of occupational accident. No further action is required.

### Step 4: Prescribe and dispense PEP medications

- If the exposure is assessed as “significant”—and HCW gives informed consent—give first dose of post-exposure prophylaxis of ARV drugs—as soon as possible after an exposure—according to national PEP guidelines.
- PEP should be prescribed by an experienced HCW in accordance with national or institutional PEP guidelines. The current WHO recommended PEP regimen is a 4 week course of two or three ARV drugs.
- Pregnant HCWs or workers of childbearing age may receive PEP, but should not receive efavirenz, which can be harmful to the fetus.

#### When to start the PEP regimen

PEP should be started as soon as possible after the injury, ideally within 2 to 4 hours. The drugs used in the PEP regimen stop the virus from multiplying in the body, so the earlier they are taken, the better the chance they have to be effective in preventing HIV infection.

#### On-site access to PEP

Access to the first dose of PEP must be available 24 hours a day.

- The HCW on PEP should be referred to a counsellor and a specialist for follow-up including management of side effects.
- It is important that HCWs have access to a full month’s supply of ARV drugs once PEP has been started.
- An individual taking PEP may experience side effects of

ARV drugs including nausea, malaise, headache and/or anorexia. For more information on management of common side effects of ARV drugs, see Appendix 7-D.

### Step 5: Assess source

If the exposure is assessed as “significant”, early HIV testing of the source patient (if possible) can help determine the need for PEP and may avert the unnecessary use of ARV drugs, which can have adverse side effects.

- If the source can be identified and contacted, request that he or she be tested for HIV immediately. HIV testing should follow standard HIV testing and counselling guidelines.
- If the source is unknown, unable to be contacted, or unable or unwilling to consent to HIV testing, assess the likelihood of the source being HIV-positive. If there is a possibility that the source patient could be HIV-infected, PEP should be continued in the absence of source patient’s test results.



- If source results are negative, further assessment should consider whether the source could be in the window period (for recent exposure to HIV). For significant exposure, PEP may still be made available even if the source test results are negative.

### Step 6: Counsel and test HCW

- After the HCW has given informed consent, test the exposed HCW for HIV within five days after exposure. The baseline test result will show if the exposed HCW has pre-existing HIV infection. If the HCW is HIV-positive at baseline, PEP should be discontinued, as it has the potential to create drug resistance. The individual should instead be referred for HIV treatment, care and support.
- The HIV counsellor should review the sequence of events that preceded the exposure in a sensitive and non-judgmental way to support adherence to workplace Standard Precautions and prevent future exposures. The counsellor should also strongly encourage the exposed HCW to practise safer sex until confirmed HIV-negative.

### Step 7: Provide follow-up

The exposed HCW needs to be followed-up by a designated person, such as a staff health doctor or nurse, infection control coordinator or human resources manager. This person should coordinate blood results, arrange post-test counselling and remind the HCW when any follow-up blood tests are due.

- If the exposed HCW did not start PEP, he or she should be retested at 3 months after the exposure.
- If the exposed HCW received PEP, he or she should be retested 6 months after exposure. Additional laboratory tests may be done to monitor the effect of ARV drugs according to national guidelines.

<b>Exercise 8.3 PEP: case study in small groups</b>	
<b>Purpose</b>	▪ To review implementation of PEP guidelines.
<b>Duration</b>	30 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ Participants will be divided into three groups.</li> <li>▪ The trainer will either distribute copies of local or national PEP guidelines or refer you to the sample guidelines in Appendix 8-D.</li> <li>▪ Refer to the PEP case study below. Within your group:               <ul style="list-style-type: none"> <li>▪ Choose a recorder to write your team's answers</li> <li>▪ Read the case study</li> <li>▪ Record the step-by-step process for implementing PEP guidelines to manage the situation in the case study.</li> </ul> </li> <li>▪ You will have 15 minutes for this task</li> <li>▪ Upon completion, groups will be directed by the trainer to summarize their discussions for the larger group.</li> </ul>

### Exercise 8.3 PEP: case study in small groups

#### Case study

Nurse Andrews is working late on the labour and delivery unit. When removing an intravenous needle from the arm of a patient who is in labour, Nurse Andrews accidentally punctures her finger. The injury bleeds.

- *What is the first thing Nurse Andrews should do?*
- *What should be done to manage Nurse Andrews' needlestick injury? List steps in the PEP guidelines.*

## SESSION 3 Supportive Care for the Caregiver

**After completing the session, the participant will be able to:**

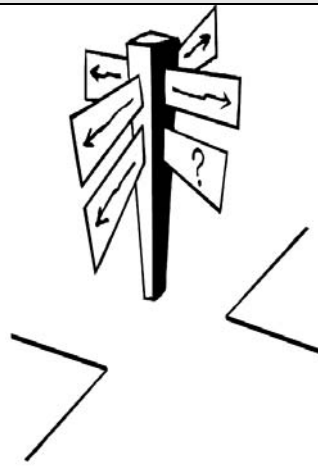
- Identify measures to recognize and reduce stress and support HCWs and other caregivers.

### Burnout

Extended exposure to job-related stress can result in burnout, also known as compassion fatigue. HCWs who provide ongoing care to pregnant women who are HIV-infected (or whose HIV status is unknown) and their infants are vulnerable to burnout.

The characteristics of burnout include:

- Emotional exhaustion: feelings of helplessness, depression, anger and impatience
- Depersonalization: loss of interest in the job and an increasingly negative view of patients and co-workers
- Decreased productivity: because of a real or perceived sense that their efforts do not seem to make a difference

Signs and symptoms of burnout		
<p><b>Behavioural</b></p> <ul style="list-style-type: none"> <li>Having frequent changes in mood</li> <li>Eating too much or too little</li> <li>Drinking alcohol and/or smoking too much</li> <li>Becoming “accident prone”</li> </ul> <p><b>Cognitive</b></p> <ul style="list-style-type: none"> <li>Unable to make decisions</li> <li>Forgetful</li> <li>Having trouble concentrating</li> <li>Sensitive to criticism</li> <li>Feeling of depression</li> <li>Feelings of anxiety or panic</li> <li>Increased desire to be alone, away from people</li> <li>Tearfulness</li> </ul>	 <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%; text-align: center;"> <p><i>Presenteeism</i> is the feeling that one must show up for work even if too sick, stressed, or distracted to be productive; the feeling that one needs to work extra hours even if there is no extra work to do.</p> </div>	<p><b>Physical</b></p> <ul style="list-style-type: none"> <li>High blood pressure</li> <li>Palpitations, trembling</li> <li>Dry mouth, sweating</li> <li>Stomach upset</li> <li>Sleep disturbance</li> <li>Fatigue</li> <li>Headaches</li> <li>Frequent illnesses</li> </ul> <p><b>Occupational</b></p> <ul style="list-style-type: none"> <li>Taking more days off</li> <li>Taking excess sick time</li> <li>Presenteeism</li> <li>Fighting with co-workers</li> <li>Working more hours but getting less done</li> <li>Having low energy, being less motivated</li> <li>Feeling of inadequacy, helplessness and guilt</li> <li>Loss of sensitivity in dealing with patients</li> </ul>

### Institutional or job-related risk factors for burnout

- Work overload with limited or no breaks
- Long working hours
- Poorly structured work assignments (worker not able to use skills effectively)
- Inadequate leadership and support

- Lack of training and skills-building specific to the job

### Personal risk factors for burnout

- Unrealistic goals and expectations for the job
- Low self-esteem
- Anxiety
- Patients with a fatal disease

### Personal Strategies for Minimizing or Preventing Burnout

Seeking support from others, taking care of yourself, and engaging in relaxing activities, such as reading and exercising, may reduce or minimize burnout syndrome.

#### Tips for managing burnout

- Take a trip to your hometown/village.
- Take structured breaks during work hours. Take a break: for lunch or for tea/coffee.
- Talk to your manager or someone else to discuss better managing your time, learn to prioritize and to say “no” when you can’t do something.
- If you are a manager, pay attention to your staff. Take note if a member of your staff is burning out and find ways to address it. Reward your staff appropriately with: time off, small gift, retreat, pay increase and promotion.
- Find or establish a support group of peers.
- Search out a mentor—someone who can confidentially support you, listen to you, and guide you.
- Read books or listen to recordings (tapes, CDs, etc.) that provide strategies for coping with stress.
- Take a course to learn about a subject relevant to your work (or take a refresher course on a previously-studied subject).
- Make time for yourself and your family.
- Exercise, eat properly and get enough rest.
- If you are spiritual, pray or meditate; turn to your place of faith for support.

#### Exercise 8.4 Burnout in PMTCT programmes: large group discussion

<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ To examine the factors that contribute to burnout and develop creative prevention and “treatment” strategies.</li> </ul>
<b>Duration</b>	15 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ The trainer will read aloud the questions in the “Questions for Discussion” box below and will ask participants to discuss their answers.</li> <li>▪ After reviewing the questions, the trainer will invite participants to share their personal experiences with burnout and to consider ways to prevent and “treat” burnout in the clinical setting.</li> <li>▪ Trainer will refer you to Appendix 8-E to complete the survey “Are You Burning Out?”</li> </ul>

#### Exercise 8.4 Questions for discussion

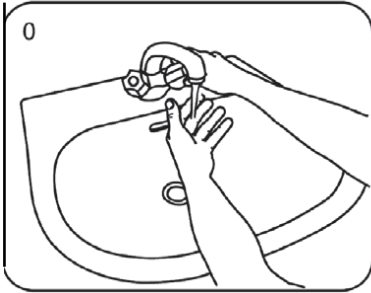
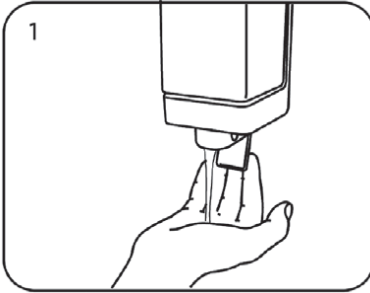
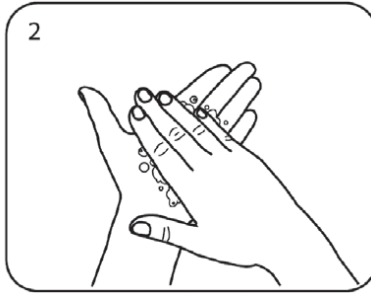
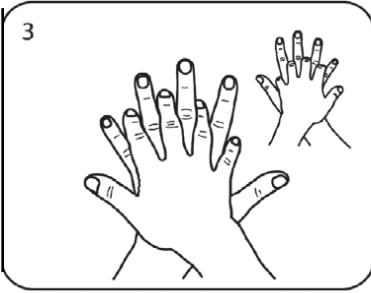
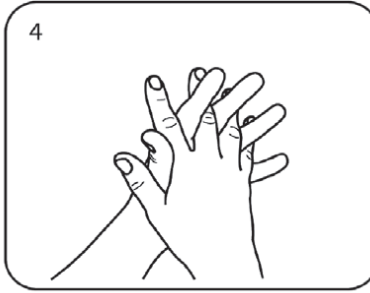
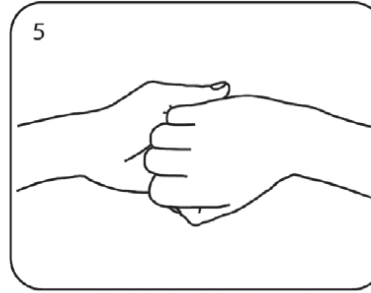
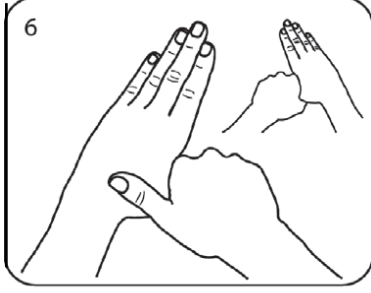
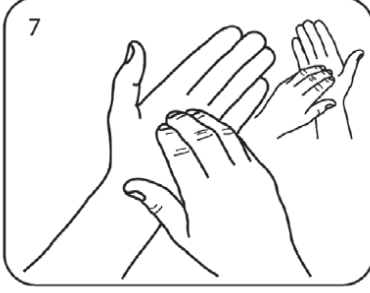
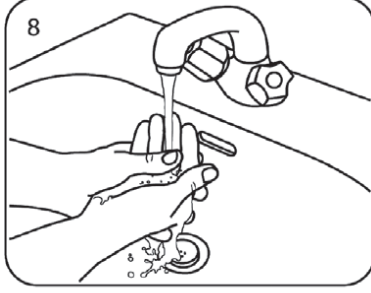
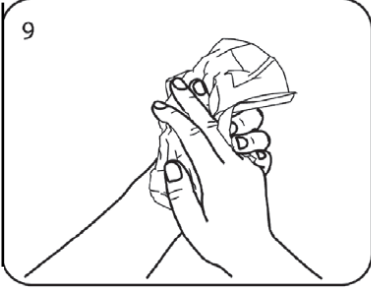
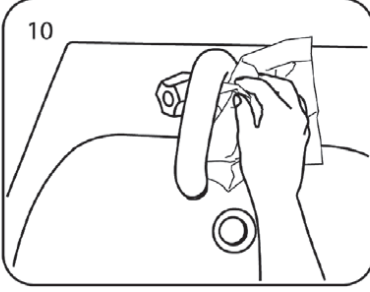
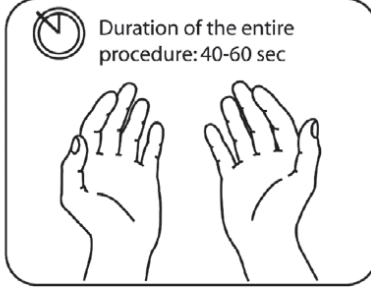
1. How does your facility support and assist HCWs and other staff?
2. Is there someone you can turn to who will help you with your workplace concerns?
3. Are you connected to community services that make your job easier?
4. Do you have your own source of peer support? Who are your supporters?
5. Do you use stress-reduction techniques that work well for you?
6. What are three things that would make your job easier and less stressful?

#### Module 8: Key Points

- Creating a safe work environment includes three components: managing the work environment, using Standard Precautions, and providing ongoing infection prevention education for employees.
- Standard Precautions apply to all patients, regardless of diagnosis.
- Key components of Standard Precautions include:
  - Handwashing
  - Using personal protective equipment
  - Safe handling and disposal of sharps
  - Decontaminating patient-care equipment and linen, environmental control
- Cleaning, disinfecting and sterilizing all instruments used in invasive procedures reduce the risk of patient-to-patient transmission of infection.
- Safe care practices during labour and childbirth reduce the risk of occupational exposure.
- The most common source of HIV transmission in the workplace is from injury that breaks the skin with an instrument used on an HIV-infected client (e.g., a puncture from a needle or a cut from a sharp object like a razor or scalpel).
- After occupational exposure, short-term use of ARV drugs, also known as PEP, reduces the risk of HIV infection.
- Burnout can be caused by prolonged job stress.
- Burnout can be managed and the effects reduced by individual and organizational supports.

## APPENDIX 8-A Hand Hygiene Techniques

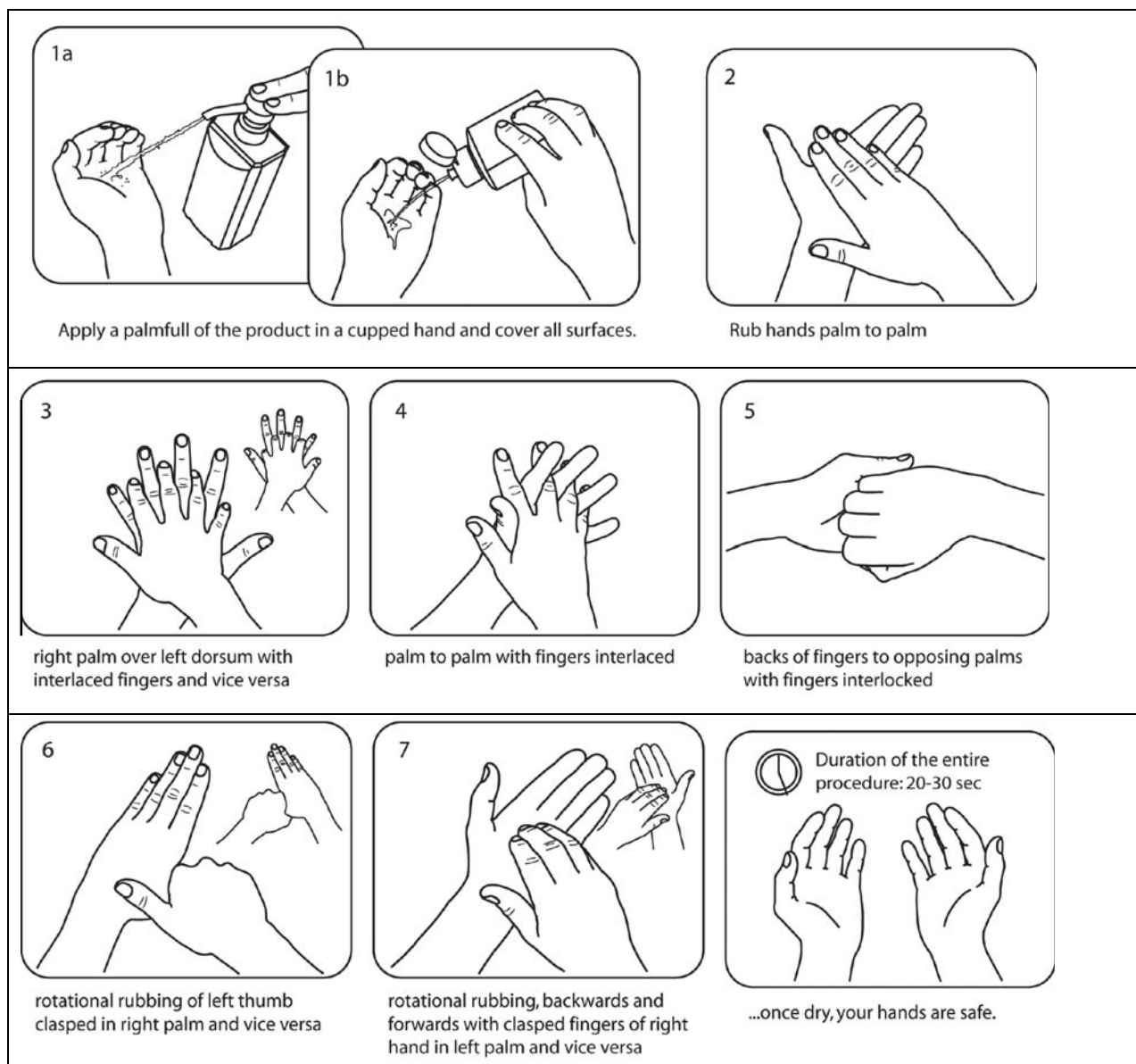
### Handwashing Technique with Soap and Water

 <p>0</p>	 <p>1</p>	 <p>2</p>
Wet hands with water	apply enough soap to cover all surfaces	rub hands palm to palm
 <p>3</p>	 <p>4</p>	 <p>5</p>
right palm over left dorsum with interlaced fingers and vice versa	palm to palm with fingers interlaced	backs of fingers to opposing palms with fingers interlocked
 <p>6</p>	 <p>7</p>	 <p>8</p>
rotational rubbing of left thumb clasped in right palm and vice versa	rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa	rinse hands with water
 <p>9</p>	 <p>10</p>	 <p>Duration of the entire procedure: 40-60 sec</p> <p>...and your hands are safe.</p>
dry thoroughly with a single use towel	use towel to turn off faucet/tap	

Source: WHO Guidelines on Hand Hygiene (Advanced Draft)/Modified according to EN1500. Available at [http://www.who.int/patientsafety/information\\_centre/Last\\_April\\_versionHH\\_Guidelines%5b3%5d.pdf](http://www.who.int/patientsafety/information_centre/Last_April_versionHH_Guidelines%5b3%5d.pdf)

## APPENDIX 8-A Hand Hygiene Techniques *(continued)*

### Hand Hygiene Technique with Alcohol-Based Formulation



Source: WHO Guidelines on Hand Hygiene (Advanced Draft)/Modified according to EN1500. Available at [http://www.who.int/patientsafety/information\\_centre/Last\\_April\\_versionHH\\_Guidelines%5b3%5d.pdf](http://www.who.int/patientsafety/information_centre/Last_April_versionHH_Guidelines%5b3%5d.pdf)

## APPENDIX 8-B Guidelines for Cleaning, Sterilizing and Disposing of Infectious Waste Materials

Level of Risk	Item Description	Appropriate Decontamination Method
<b>High-risk or critical items</b>	Equipment and instruments that come in contact with blood stream or penetrate the skin and touch normally sterile tissue	<p>Sterilization is a process that destroys all microorganisms. Use the following methods:</p> <ul style="list-style-type: none"> <li>▪ Use of steam under pressure is the preferred method.</li> <li>▪ Use ethylene oxide gas or other low-temperature process for heat-sensitive equipment.</li> <li>▪ Use chemical sterilants with adequate pre-cleaning and follow guidelines.</li> </ul>
<b>Moderate risk or semi-critical items</b>	Equipment and instruments that touch non-intact (broken) skin or mucous membranes	<p>Sterilize with heat or steam.</p> <p>Use high-level disinfection. This method destroys all microorganisms except some bacterial endospores. Use the following methods:</p> <ul style="list-style-type: none"> <li>▪ Boil for 20 minutes in pot with lid, or longer if above sea level.</li> <li>▪ Perform chemical disinfection by soaking for 20 minutes in 2-4% glutaraldehyde, 6% stabilized hydrogen peroxide, or 0.1% dilution of household chlorine bleach followed by a sterile water rinse (3 times); dry with forced air, when possible.</li> </ul>
<b>Low risk or non-critical items</b>	Equipment and instruments that touch intact skin	Perform disinfection with diluted germicidal detergent solution, isopropyl alcohol or 0.5% dilution of household chlorine bleach.

When possible, surgical high-risk or critical equipment and instruments should be pre-packaged, disposable and designed for single-use.

### Cleaning

Cleaning removes all foreign material (dirt, body fluids and lubricants) from objects by washing or scrubbing the object using water and detergents or soaps. Detergents and hot water are generally adequate for the routine cleaning of floors, beds, toilets and walls.

To clean a spill involving body fluids:

- Use heavy-duty rubber gloves and remove body fluid with an absorbent material.
- Discard the material in a leak-proof container.

## **APPENDIX 8-B Guidelines for Cleaning, Sterilizing and Disposing of Infectious Waste Materials** *(continued)*

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Note the following when handling soiled linen:

- Use clean gloves, but avoid handling as much as possible.
- Do not sort or rinse in patient care areas.
- Transport linen soiled with large amounts of body fluid in leak-proof bags.
- Fold linen so that the soiled parts are on the inside.

### **Safe Disposal of Infectious Waste Materials**

The purpose of waste management is to:

- Protect people who handle waste items from injury, and
- Prevent the spread of infection to HCWs and the local community.

To dispose of solid waste contaminated with blood, body fluids, laboratory specimens, or body tissue:

- Place in leak-proof containers and burn or bury away from all sources of water (see next page).

To dispose of liquid waste, such as blood or body fluids, pour liquid waste down a drain connected to an adequately treated sewer or pit latrine.

### **Recommendations on disposal of sharps**

Disposable sharp items, such as hypodermic needles, require special handling because they are the items most likely to injure HCWs. If these items are disposed of in the landfill, they are a danger to the community.

Note the following to dispose of sharps containers safely:

- Wear heavy-duty gloves.
- When the sharps container is three-quarters full, completely seal the opening of the container using a cap, a plug or tape.
- Be sure that no sharp items are sticking out of the container.
- Dispose of the sharps container by burning, encapsulating or burying it.
- Remove the heavy-duty gloves.
- Wash your hands and dry them with a clean cloth or air dry.

### **Burning waste containers**

High-temperature burning or incineration destroys waste and kills microorganisms. This method reduces the bulk volume of waste and ensures that the items are not found and reused.

### **Encapsulating waste containers**

Encapsulation is recommended as the easiest way to dispose of sharps safely. In this method, collect sharps in puncture-resistant and leak-proof containers. When the container is three-quarters full, pour a material such as cement (mortar), plastic foam or clay into the container until completely filled. After the material has hardened, seal the container and dispose it in a landfill, store it or bury it.



## APPENDIX 8-B Guidelines for Cleaning, Sterilizing and Disposing of Infectious Waste Materials *(continued)*

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### Burying waste

In healthcare facilities with limited resources, safe burial of waste on or near the facility may be the only option available for waste disposal. Take the following precautions to limit health risks:

- Restrict access to the disposal site. Build a fence around the site to keep animals and children away.
- Line the burial site with a material of low permeability (for example, clay or cement), if available.
- Select a site at least 30 meters (about 100 feet) away from any water source to prevent contamination of the water table.
- Ensure that the site has proper drainage, is located downhill from any wells, is free of standing water, and is not in a flood-prone area.
- Dig a pit 1 meter square and 2 meters deep. Cover contaminated waste with 10-15 cm (4-6 inches) of dirt each day. The final layer of dirt should be 50-60 cm (20-24 inches).
- The bottom of the burial pit should be at least 2 meters above the level of groundwater and take into consideration changes in the level of groundwater during the wet season.

Because on-site burial of waste is only for limited amounts of time (1-2 years) and relatively small amounts of waste, it is important to look for a better, more permanent method of waste disposal.

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This appendix includes original material and material adapted from the following:

- Tietjen, Bossemeyer, McIntosh. Infection Prevention: Guidelines for Healthcare Facilities with Limited Resources. JHPIEGO Corporation, Baltimore, March 2003. Available at [http://www.reproline.jhu.edu/english/4more/rh/4ip/IP\\_manual/ipmanual.htm](http://www.reproline.jhu.edu/english/4more/rh/4ip/IP_manual/ipmanual.htm)
- International Council of Nurses, World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS). 2000. Fact Sheet 11 HIV and the workplace and Universal Precautions (Fact sheets on HIV/AIDS for nurses and midwives). Available at [http://library.unesco-iiicba.org/English/HIV\\_AIDS/cdrom%20materials/WHO/WHOhtml%2011.htm](http://library.unesco-iiicba.org/English/HIV_AIDS/cdrom%20materials/WHO/WHOhtml%2011.htm)
- World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS). 1999. HIV in Pregnancy: A Review. Pp 39-42. Available at [http://www.who.int/reproductive-health/publications/archive/rhr\\_99\\_15/index.html](http://www.who.int/reproductive-health/publications/archive/rhr_99_15/index.html)

## APPENDIX 8-C Preparing Dilute Household Chlorine Bleach Solutions for Decontamination

### Preparing dilute household chlorine bleach solutions for decontamination and high-level disinfection from liquid bleach (sodium hypochlorite solution)

- Check concentration of the chlorine product you are using
- Determine the total parts water needed to dilute the product using the formula or table below.
- Mix 1 part bleach with the total parts water required.

### Formula for making a dilute solution from a concentrated solution

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

**Example:** To make a 0.5% chlorine bleach solution from a concentrated liquid solution of 3.5% use the following formula:

$$\text{Total Parts (TP) water} = \left[ \frac{3.5\%}{0.5\%} \right] - 1 = 7 - 1 = 6$$

Mix one part of chlorine bleach with 6 parts of water.

**Example:** To make a 0.1% dilute chlorine bleach solution from 5% concentrated solution

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

Mix 1 part concentrated solution and with 49 parts boiled (and filtered if necessary) water

Type or Brand of Bleach	% Available Chlorine	Parts Water to 1 part bleach <sup>a</sup>	
		0.5% chlorine solution	0.1% chlorine solution <sup>b</sup>
8% °chlorum <sup>c</sup>	2.4%	4	23
JIK (Kenya), Robin Bleach (Nepal)	3.5%	6	34
12% °chlorum	3.6%	6	35
Household bleach (USA, Indonesia), ACE (Turkey), Eau de Javal (France)	5%	9	49
Blanquedor, Cloro (Mexico)	6%	11	59
Lavandina (Bolivia)	8%	15	79
Chloros (UK)	10%	19	99
Chloros (UK), Extrait de Javel (France)	15%	29	149

<sup>a</sup> Read as 1 part (cup or glass) concentrated bleach to x parts water. For example, to make a 0.5% dilution of household chlorine bleach solution using JIK, mix 1 cup bleach (3.5% chlorine) with 6 cups water producing a total of 7 cups of a 0.5% dilution of household chlorine bleach.

<sup>b</sup> Use boiled water when preparing a 0.1% dilution of household chlorine bleach because tap water contains microscopic organic matter than inactivates chlorine at this concentration.

<sup>c</sup> In some countries, the concentration of sodium hypochlorite is expressed in chlorometric degrees (°chlorum). One °chlorum is approximately equivalent to 0.3% available chlorine.

## APPENDIX 8-C Preparing Dilute Household Chlorine Bleach Solutions for Decontamination *(continued)*

### Preparing dilute chlorine bleach solutions from dry chlorine powders

- Check concentration of the chlorine powder. Determine the amount of concentrated powder needed to make a litre of the dilute chlorine bleach solution desired using the formula or table below.
- Measure the correct amount of dried chlorine powder and add to the appropriate volume of water.

### Formula for making a dilute chlorine solution from a dry powder

$$\text{Grams/Litre} = \left[ \frac{\% \text{ Dilute}}{\% \text{ Concentrate}} \right] \times 1000$$

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

$$\text{Grams/Litre} = \left[ \frac{0.5\%}{35\%} \right] \times 1000 = 14.2\text{g/L}$$

Measure 14.2 grams (approximately 14g) of powder and add to 1 litre of water to get a solution that is 0.5% chlorine.

Concentrated Powder and Available Chlorine	0.5% chlorine solution	0.1% chlorine solution <sup>a</sup>
Calcium hypochlorite (70% available chlorine)	7.1 g/L <sup>b</sup>	1.4 g/L
Calcium hypochlorite (35% available chlorine)	14.2 g/L	7.1 g/L
NaDCC <sup>c</sup> (60% available chlorine)	8.3 g/L	7.1 g/L
Chloramine tablets <sup>d</sup> (1 g of available chlorine per tablet)	20 g/L (20 tablets/litre) <sup>d</sup>	40 g/L (20 tablets/litre) <sup>d</sup>
NADCC based tablets (1.5 g of available chlorine per tablet)	4 tablets/litre	1 tablet/litre

<sup>a</sup> Use boiled water when preparing a 0.1% chlorine solution because tap water contains microscopic organic matter that inactivates chlorine at this concentration.

<sup>b</sup> For dry powders, read as x grams per litre. For example, to make a 0.5% chlorine solution using calcium hypochlorite with 70% available chlorine, measure 7.1 grams of powder and mix with 1 litre of water.

<sup>c</sup> Sodium dichloroisocyanurate

<sup>d</sup> Chloramine releases chlorine at a slower rate than does hypochlorite. Before using the solution, be sure that the tablet is completely dissolved.

## APPENDIX 8-C Preparing Dilute Household Chlorine Bleach Solutions for Decontamination *(continued)*

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### Caution

Household chlorine bleach solutions should not be mixed with cleaning solutions containing an acid (e.g., phosphoric acid), ammonia or ammonium chloride. Doing this will release chlorine gas and other by-products that can result in temporary illness (nausea, tearing, headache or shortness of breath).

To find out if a cleaning solution contains ammonia, first check the label. If it does not say there is ammonia, you may be able to detect ammonia when opening the product by its pungent, burning smell.

If you are exposed to chlorine gas or ammonium chloride or other unpleasant (noxious) gases with strong odours, leave the room or area immediately until the room can be completely ventilated.

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Source. Tietjen, Bossemeyer, McIntosh. *Infection Prevention: Guidelines for Healthcare Facilities with Limited Resources*. JHPIEGO Corporation, Baltimore, March 2003. Available at: [http://www.reproline.jhu.edu/english/4more/rh/4ip/IP\\_manual/ipmanual.htm](http://www.reproline.jhu.edu/english/4more/rh/4ip/IP_manual/ipmanual.htm)

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## APPENDIX 8-D Managing Occupational Exposure to HIV: Post Exposure Prophylaxis (PEP) Guidelines

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### First Aid

The aim of first aid is to reduce contact time with the source person's blood or body fluids, and to clean and decontaminate the site of the exposure to reduce the risk of infection.

<b>If the skin is broken following an injury with a used needle or sharp instrument:</b>	
<ul style="list-style-type: none"> <li>▪ Wash site immediately using soap or a mild solution.</li> <li>▪ If running water is not available, clean site with a gel or hand rub solution.</li> <li>▪ Do not use any strong solutions, such as alcohol, bleach or iodine, as these may irritate the wound and make the injury worse.</li> </ul>	
<b>After a splash of blood or body fluids:</b>	
To unbroken skin	<ul style="list-style-type: none"> <li>▪ Wash the area immediately.</li> <li>▪ If running water is not available, clean the area with a gel or hand rub solution</li> </ul>
To the eye	<ul style="list-style-type: none"> <li>▪ Irrigate exposed eye immediately with water or normal saline.</li> <li>▪ If wearing contact lenses, leave them in place while irrigating, as they form a barrier over the eye and will help protect it. Once the eye has been cleaned, remove the contact lenses and clean them in the normal manner.</li> <li>▪ Do not use soap or disinfectant on the eye.</li> </ul>
To the mouth	<ul style="list-style-type: none"> <li>▪ Spit the fluid out immediately.</li> <li>▪ Rinse the mouth thoroughly, using water or saline, and spit out again. Repeat this process several times.</li> <li>▪ Do not use soap or disinfectant in the mouth.</li> </ul>

### Reporting

The injured HCW needs to report the exposure to their supervisor or manager. The worker should then be released from duty so that an immediate risk assessment can be performed by the trained HCW in charge of implementing the PEP guidelines.

### Risk Assessment

A risk assessment should be undertaken by a trained person immediately after every occupational exposure no matter what time of day it occurs. The risk assessment is conducted to determine the severity of the exposure. If the injury is assessed as "significant", i.e., an exposure that may be associated with HIV transmission such as a puncture from a needle used on patient that is HIV infected or whose HIV status is unknown, PEP needs to be offered. If PEP is taken, it needs to be started as soon as possible after the exposure to have the maximum benefit. If there is no one on duty with the necessary skills to conduct a risk assessment, this could be performed over the telephone.

All occupational exposures do not carry equal risk. There is no standard classification of probability of infection which could be applied in all settings to determine at what level of risk PEP should be given. If there is a significant risk of HIV transmission, PEP should be offered immediately—without waiting for results of HIV testing from the source patient.

## APPENDIX 8-D Managing Occupational Exposure to HIV: Post Exposure Prophylaxis (PEP) Guidelines *(continued)*

Factors which will be considered in a risk assessment are:	
Sharps injury	<ul style="list-style-type: none"> <li>▪ The type and size of the needle or sharp instrument</li> <li>▪ What the needle or sharp had been used for</li> <li>▪ The severity of the injury</li> <li>▪ The type of body fluids or tissues involved</li> <li>▪ The amount of blood or body fluids or tissues</li> <li>▪ Whether the wound bled</li> <li>▪ Whether the injury was through gloves or clothing</li> <li>▪ When the exposure occurred</li> <li>▪ How recently the sharp had been used</li> </ul>
Splash exposure	<ul style="list-style-type: none"> <li>▪ The type of body fluids splashed</li> <li>▪ Whether the fluid contained blood</li> <li>▪ The amount of body fluids or tissues</li> <li>▪ Whether non-intact skin or mucous membrane was exposed</li> <li>▪ When the exposure occurred</li> </ul>
Source (of the blood or body fluids or tissues)	<ul style="list-style-type: none"> <li>▪ Known or unknown</li> <li>▪ HIV status (if known)</li> <li>▪ Stage of HIV infection (if known)</li> <li>▪ Antiretroviral therapy (ARV) history (if known)</li> <li>▪ Estimated population prevalence of HIV (this includes geographical region and country prevalence and also prevalence within the cultural, ethnic or behavioural group)</li> </ul>

### Prescription of PEP

If it is decided that the occupational exposure carries sufficient risk to offer PEP, it should be prescribed and taken as soon as possible. The earlier the ARV drugs are taken, the more chance they have to be effective.

**Preparation.** PEP should be prescribed by an experienced HCW. Before it is prescribed, discuss the following with the HCW who has been exposed to HIV:

- **Consent:** it must be the worker's choice to take PEP. It is preferable to get this in writing.
- **When to start:** PEP should be started as soon as possible for maximum benefit.
- **Length of the medication regimen:** the current recommended regimen of ARV drugs for PEP is 4 weeks.
- **Possibility of pregnancy:** this may affect which ARV drugs will be prescribed. However, if the exposure is significant, PEP would be strongly advised even if the worker is pregnant.
- **Adherence issues:** how and when to take the ARV drugs and strategies to avoid missed doses.
- **Side effects:** the worker needs information about common side effects and how to manage them. The HCW should also understand what side effects they might experience so that they are not confused with acute HIV infection.
- **Effectiveness of the ARVs drugs: while there is strong evidence PEP will prevent infection with HIV, it is still not guaranteed.**

## APPENDIX 8-D Managing Occupational Exposure to HIV: Post Exposure Prophylaxis (PEP) Guidelines *(continued)*

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**Accessibility.** Access to the first dose of PEP must be available 24 hours a day. All facilities need to outline arrangements for PEP to be accessible at all times for all HCWs.

**Minimizing side effects.** Side effects cause about one-third of HCWs who begin PEP to discontinue before completing the prescribed regimen. All exposed persons taking PEP should be educating on the potential for side effects and how to manage them.

### Source Assessment

HIV testing of the source patient is only necessary if the result will change the clinical management of the exposed HCW, i.e., in a situation where PEP is recommended. If the source patient is confirmed HIV-negative, then the exposed HCW may decide to stop taking the ARV drugs for PEP.

**Rapid testing.** The source patient can be asked, but never forced, to have an HIV test. HIV rapid tests can help clarify the severity of an exposure quickly and accurately.

**HIV status of source unknown.** If the source patient is unknown, unable to be contacted, or unable or unwilling to consent to HIV testing, the likelihood of the source patient being HIV-infected should be assessed. This would take into account population prevalence of HIV as well as what is known of the risk history of the source. If the exposure is significant, PEP should be continued in the absence of HIV testing, if there is even a small chance that the source patient could be HIV-infected.

**If source patient HIV test results are negative.** If the HIV test results are negative, this does not necessarily mean that the source patient is not infected with HIV or infectious. Further assessment should take into possible consideration whether the source patient is in the window period (from recent exposure to HIV). For these situations, PEP should still be made available even if the source patient's test result is negative.

### HIV Testing and Pre-test Counselling

Test the exposed HCW soon after an occupational exposure to establish a "baseline" against which to compare future test results. If the HIV test result is negative at baseline and future results are positive, there is a good chance that the injury transmitted HIV infection.

In some settings, it may be important to establish that a subsequent infection is related to the occupational exposure (depending on the time of the infection and the consideration of other risks or exposures), thus giving a basis for the worker to receive compensation, support, or financial benefits.

If the worker is HIV-infected at baseline, PEP should be stopped and the HCW referred for further care, treatment and support of HIV infection. In this situation, the ARV drugs should be stopped as soon as possible to prevent development of viral resistance to drugs which may be used as part of ARV therapy to treat the HCW's pre-existing HIV infection.

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## APPENDIX 8-D Managing Occupational Exposure to HIV: Post Exposure Prophylaxis (PEP) Guidelines *(continued)*

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### Blood Testing

**Baseline blood tests.** The initial blood tests—done as soon as possible but within five days of exposure—do not provide any information regarding this exposure. Their function is to measure any existing infections with blood-borne diseases—providing a baseline result to which future blood tests can be compared. Usually blood will be tested for HIV, hepatitis B and hepatitis C antibodies. Other baseline tests may be taken if the exposed person starts a PEP regimen.

**Follow-up blood tests.** Follow-up blood tests for HIV are done to demonstrate whether the worker has been infected from this exposure. These need to be done:

- Up to 3 months after the exposure if PEP was not taken
- Up to 6 months after exposure if PEP was taken

Testing for hepatitis B and C will usually continue until 6 months after the exposure.

### Counselling and Support

**Prevention of transmission.** If the exposure was assessed as significant (whether or not they elected to take PEP), the exposed HCW needs to be given advice on safe practices to follow until they are known to be HIV-negative. They should be advised to practise safer sex, not to share injecting equipment, not to donate blood or tissues, and not to breastfeed.

**Ongoing support.** The exposed HCW needs to know how to access support until the entire process—including all testing—is completed. Support should also be offered to the HCW's family and partner.

### Results and Follow-up

The exposed worker needs to be followed up by a designated person, who will coordinate blood results, arrange post-test counselling and remind the HCW when any follow-up blood tests are necessary. They should also complete any forms and documentation and ensure confidential storage of all documentation. An incident report should always be completed to be used for an occupational health and safety review.

Whether the exposure was considered significant or not, there should always be an occupational health and safety review of the incident to determine whether there are unsafe practices or equipment in the workplace which need to be addressed.

### Education and Training

Effective implementation of policies for managing occupational exposures to HIV is dependent on appropriately trained staff to implement guidelines. Training programmes need to raise HCWs' awareness of the availability and rationale of the policy as well as ensuring there are trained staff to do a risk assessment and prescribe PEP.

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— Source. *WHO Guidelines for the use of HIV post exposure prophylaxis after occupational exposure to blood or body fluids or tissues*. Draft, December 2005.



## APPENDIX 8-E Are You Burning Out?

### Check your stress level.

Think back over the past month, paying specific attention to your workload and any challenges you've faced on the job. As you consider each of the following questions, think about how the demands and problems of your work have affected you. In the blank space to the left of each question, write a number from 1 (little or no change; this is slightly true for you) to 5 (a great deal of change; this is very true for you) to indicate how you have felt during the past month.

	Do you tire more easily? Feel fatigued rather than energetic?
	Are people telling you, "You are not looking well lately" or something similar?
	Are you working harder and harder and accomplishing less and less?
	Are you increasingly cynical and disenchanted?
	Are you often invaded by a sadness you cannot explain?
	Are you forgetting appointments (deadlines, personal possessions, etc)?
	Are you increasingly irritable? More short-tempered? More disappointed?
	Are you seeing close friends and family members less frequently? Or feeling you do not want to be around others?
	Are you too busy or tired to do even routine things like make phone calls, read mail, or answer mail?
	Are you suffering from physical complaints (aches, pains, headaches and/or a lingering cold)?
	Do you feel disoriented when the activity of the day comes to a halt?
	Is it difficult for you to feel joy?
	Are you unable to laugh at a joke about yourself?
	Does sex seem like more trouble than it's worth?
	Do you have very little to say to people?
	Do you avoid getting ready for work or find yourself late to work?

Add your scores and place yourself on the Burnout Scale below. Keep in mind that this is merely an approximation of where you are. Don't let a high total alarm you, pay attention to it. Burn out is reversible, no matter how far along it is. The higher number signifies that the sooner you start being kinder to yourself, the better.

Burnout scale	
0–25	You are doing fine.
26–35	Be careful. Review your signs and symptoms. Make sure you are taking care of yourself.
36–50	You are reaching a critical point. You are a candidate for burnout. Re-evaluate your workload. Make more time for taking care of yourself.
51–64	You are past the critical point. You are experiencing burnout. Take more time for stress relief.
65 and up	Your physical and mental well-being are at risk. You may need to take some time off. Ask for supervision and/or mentoring.

Adapted from:

- Burnout Self-Test, MindTools.com, <http://www.mindtools.com/stress/Brn/BurnoutSelfTest.htm#>
- Burnout Inventory, Lessons for Living.com, [http://www.lessons4living.com/burnout\\_inventory2.htm](http://www.lessons4living.com/burnout_inventory2.htm)
- Botswana Prevention of Mother-to-Child Transmission of HIV Handbook, 2002.



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## Module 9 PMTCT Programme Monitoring

**SESSION 1** PMTCT Programme Monitoring at the Health Facility

**SESSION 2** PMTCT Data Collection

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**After completing the module, the participant will be able to:**

- Discuss the importance of clearly-defined indicators for programme monitoring.
- Describe how healthcare facility indicators can be used in programme decision-making.
- Understand the role of healthcare workers (HCWs) in monitoring PMTCT programmes.
- Gain familiarity with PMTCT healthcare facility forms and how to correctly complete these forms.

# SESSION 1 PMTCT Programme Monitoring at the Health Facility

**After completing this session, the participant will be able to:**

- Discuss the importance of clearly-defined indicators for programme monitoring.
- Describe how healthcare facility indicators can be used in programme decision-making.

## What is Monitoring?

Monitoring is routine tracking of key parts of a programme using recordkeeping and regular reporting.

PMTCT programme monitoring will help:	
<ul style="list-style-type: none"> <li>▪ Assess whether the programme is meeting its established targets.</li> </ul>	<p><i>Example:</i> National PMTCT programme target: <b>To test at least 90% of antenatal care (ANC) clients for HIV.</b></p> <p><i>Data needed:</i></p> <ul style="list-style-type: none"> <li>▪ Number of ANC clients tested for HIV</li> <li>▪ Total number of ANC clients seen (or client visits)</li> </ul> <p>To determine the percentage of ANC clients tested for HIV, e.g., 90 clients tested out of 100 clients seen = <math>90/100 \times 100\% = 90\%</math>.</p> <p>In the example above “ANC clients seen” is likely to be the same as “first ANC visit”, particularly if HIV testing is routinely offered at first ANC visit.</p>
<ul style="list-style-type: none"> <li>▪ Identify and improve problem areas in a PMTCT programme.</li> </ul>	<p><i>Example:</i> If monitoring data shows that 50% of ANC clients are tested for HIV (far short of the 90% target), then barriers to uptake of HIV testing and strategies to increase HIV testing rates should be investigated and addressed.</p>
<ul style="list-style-type: none"> <li>▪ Improve efficiency of the use of PMTCT programme resources.</li> </ul>	<p><i>Example:</i> Barriers to the uptake of HIV testing may include: lack of staff to provide pre-test information and/or testing, lack of trained staff; lack of test kits; testing not offered routinely to clients. Identification of the problem is the first step towards fixing the problem.</p>

Monitoring data provide much of the information needed to follow programme performance. This session focuses on routine data collection from healthcare facility records.

## What is Evaluation?

Evaluation is assessing the change in *indicator* measurements resulting from an intervention or programme.

*Example of a healthcare facility indicator:* Percentage of women who received HIV pre-test information during ANC.

An evaluation of a PMTCT programme will demonstrate to what extent the programme contributed to changes in the indicators. Evaluations should be conducted periodically to look at changes that occur as the PMTCT programme is being implemented. This will enable programme staff to identify areas of programme strength and weakness.

### Indicators for PMTCT programme evaluation

Indicators used by PMTCT facilities represent the progress healthcare facilities are making toward implementing and achieving PMTCT programme objectives. See Table 9.1 for further information about facility, national and global indicators.

#### What is an indicator?

**Indicators** are measures used to track changes in a programme over time. They provide information on the status of programme activities and targets. Indicators signal the current situation or status of an intervention. Appendix 9-A provides examples of PMTCT performance indicators.

**Table 9.1: Indicators**

Level of indicator	Source	Function and example
Healthcare facility	Information collected at healthcare facilities is essential to monitoring and evaluation. Many national and global indicators are based on healthcare facility indicators.	<ul style="list-style-type: none"> <li>▪ Facilitate tracking of national PMTCT targets.</li> <li>▪ Help identify progress, problems, challenges and solutions in the delivery of PMTCT services.</li> <li>▪ Inform the setting and revision of national targets</li> </ul> <p><i>Example of a healthcare facility indicator:</i> Percentage of pregnant women who received HIV testing</p>
National	National indicators are estimated from the information provided at the local level.	<ul style="list-style-type: none"> <li>▪ Reflect the goals, objectives and activities of the national HIV/AIDS programme.</li> <li>▪ Assess the effectiveness of the national response to MTCT.</li> </ul> <p><i>Example of a national indicator:</i> Percentage of pregnant women in the country who received HIV testing</p>
Global	Global indicators are based on national indicators.	<ul style="list-style-type: none"> <li>▪ Reflect, in a few summary numbers, the current worldwide situation regarding PMTCT efforts.</li> <li>▪ Provide a picture of how countries, on average, are addressing PMTCT.</li> <li>▪ Help donors understand how to assess the results of past spending and prioritize future funding.</li> </ul> <p><i>Example of a global PMTCT indicator:</i> Percentage of countries worldwide in which at least 50% of pregnant women accepted and received HIV testing</p>

## What is a Monitoring System?

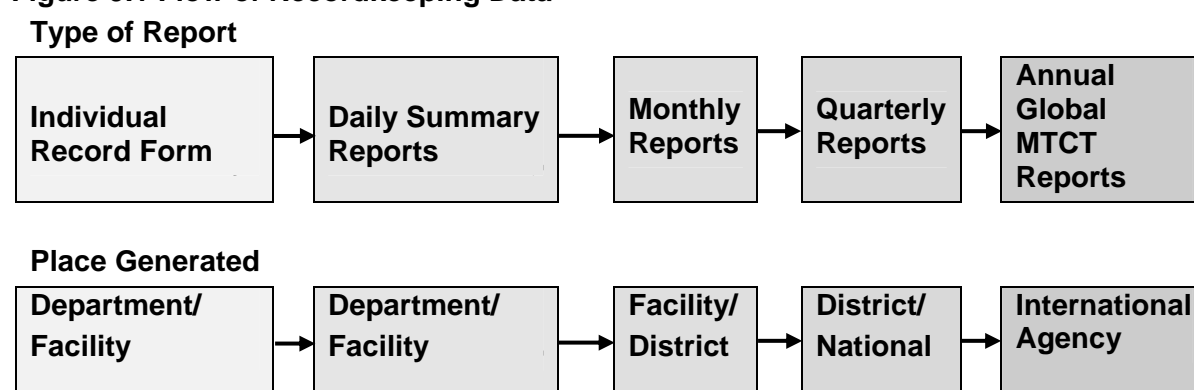
A monitoring system includes the forms, registers, records and procedures to collect and report information on the indicators used to track programme activities and examine whether the programme is meeting its goals. Monitoring a PMTCT programme requires tracking indicators that will determine if the PMTCT programme has met its targets. The key interventions to be monitored include:

- HIV testing and counselling for pregnant women
- Partner testing and counselling
- Use of ARV therapy or prophylaxis
- Safer delivery practices

- Infant feeding information, counselling and support
- Referrals for HIV-related treatment, care and support for the HIV-infected mother and her family
- Referrals for treatment, care and support for HIV-exposed and HIV-infected children
- Infant and child growth and development monitoring
- HIV testing for infants and children
- Family planning counselling or referral

Counting or measuring the frequency or occurrence of each of the above interventions provides information for monitoring and evaluating the achievement of PMTCT programme goals. Typically, data (information) on these activities are recorded at the health care facility on forms. District-level HCWs compile the data from the healthcare facilities and forward them to HCWs at the national level for analysis. This flow of recordkeeping data is illustrated in Figure 9.1.

**Figure 9.1 Flow of Recordkeeping Data**



**Components of a PMTCT programme monitoring system:**

- Clearly-defined indicators
- Standard data collection forms, tools and methodologies
- Clear procedures for filling out forms
- Clear guidelines and protocols for data management

**Establishing guidelines and protocols for data management within a monitoring system:**

- What quality assurance procedures should be implemented to ensure the accuracy and reliability of collected data?
- How often and to whom will reports be sent?
- How will reports be used?
- How will reports be disseminated and used?

Ideally, as part of routine MCH data collection, HCWs will record data about the PMTCT services provided in the ANC clinic and maternity ward registers. Monthly or quarterly reports will summarize register information to be used for local programme management and for reporting to the national PMTCT programme.

*See Appendix 9-B for examples of PMTCT-related information that could be added to standard MCH registers and PMTCT monthly summary forms.*

In every healthcare facility where PMTCT services are delivered, it is important to outline HCWs' responsibilities in the monitoring process. Clear roles and responsibilities should be defined for the HCWs involved in:

- Data collection
- Data analysis

- Reporting and dissemination
- Use of data

## Using Monitoring Information for Decision-making

Monitoring information should be reviewed periodically to assess programme performance and improve programme procedures. Monitoring information is used for decision-making about the PMTCT programme at local, national and global levels.

Consider an example of decision-making based on a healthcare facility indicator:

### Percentage of women who deliver at a PMTCT site who know their HIV status

If decision-makers at the healthcare facility offering PMTCT services see that a low percentage of women know their HIV status, they should first try to understand the causes before making recommendations to remedy the situation. They might further investigate:

- Is HIV testing available on-site?
- Are staff appropriately trained?
- Do the staff have the equipment and supplies they need to provide HIV testing?
- Is staffing adequate?
- Of the women who do not know their HIV status at delivery, what percentage attended ANC?
- Is HIV testing and counselling during labour being offered to women according to national guidelines?

Depending on the answers to these or similar questions, possible interventions or recommendations might include:

- Modify ANC procedures to increase HIV testing and counselling coverage (e.g. provide group pre-test information sessions rather than individual sessions).
- Ensure staff have the training they need to provide the pre- and post-test sessions.
- Ensure the necessary equipment and supplies are available to test blood samples
- Advocate for adequate staffing.
- Improve outreach to pregnant women to increase ANC attendance.
- Increase maternity ward staffing resources in an effort to increase HIV testing rates during labour.

<b>Exercise 9.1 Reviewing a PMTCT indicator report: large group discussion</b>	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ This exercise will engage participants in reviewing local data and offer the opportunity to analyse the data.</li> </ul>
<b>Duration</b>	30 minutes
<b>Instructions</b>	<ul style="list-style-type: none"> <li>▪ The trainer will present fictitious PMTCT data on the flipchart or on a slide (the same data appear in the table below). <i>These data were developed for the exercise and are not from a real report.</i></li> <li>▪ For this exercise, imagine you are a PMTCT HCW reviewing data from one of the hospitals in your country.</li> <li>▪ You'll notice that the table presents PMTCT indicators for a 12-month period divided into 4 quarters. The indicators (e.g., First ANC visits, Women receiving testing and counselling, Women testing HIV-positive and ARVs—which includes ARV therapy or prophylaxis—given to mother) are in the column on the far left.</li> <li>▪ Take 5 minutes to review the data on your own. Consider the following:               <ul style="list-style-type: none"> <li>▪ What patterns do you see in the data? You may want to calculate percentages before comparing.</li> <li>▪ What other data would be important to have available to interpret this information?</li> </ul> </li> </ul>

**Exercise 9.1 Reviewing a PMTCT indicator report: large group discussion**

- If the national target was to provide testing and counselling to 90% of ANC attendees, is the goal being met? If not, what should be done to consider how to better meet this target?
- If the national target was to provide ARVs to 90% of women testing HIV-positive, is the goal being met? If not, what should be done to consider how to better meet this target?

**Exercise 9.1 Reviewing a PMTCT indicator report: large group discussion  
PMTCT indicators data report**

	Jan – March	April – June	July – Sept	Oct – Dec
Number of first ANC visits	<b>60</b>	<b>65</b>	<b>65</b>	<b>70</b>
Number of women received testing & counselling at first ANC visit	<b>40</b>	<b>50</b>	<b>30</b>	<b>50</b>
Number of women testing HIV-positive	<b>5</b>	<b>10</b>	<b>5</b>	<b>10</b>
Number of women accepting ARVs (Uptake)	<b>3</b>	<b>4</b>	<b>4</b>	<b>8</b>

## SESSION 2 PMTCT Data Collection

**After completing this session, the participant will be able to:**

- Understand the role of HCWs in monitoring PMTCT programmes.
- Gain familiarity with PMTCT healthcare facility forms and how to correctly complete these forms.

### Ensure Data Collected are Useful

Ensuring usefulness of data for decision-making, effective programme management and quality healthcare services requires that the data is collected accurately and in a timely manner.

The information from a monitoring system is only as useful as the quality of the information collected in clinic registers or on patient forms.

HCWs who are responsible for recording PMTCT services and patient health information are advised to:

- *Understand the data to be collected.* Before you record information, make sure you understand what data are required.
- *Record the data every time.* Record required data on the appropriate form each time you interact with a patient, perform a procedure, prescribe an ARV drug, receive a test result, provide a referral or engage in any other PMTCT activity that is being monitored.
- *Record all of the data.* Make sure you have provided all the information requested on the monitoring form. Doing so might even require noting when you did *not* provide a service.
- *Record the data in the same way every time.* Use the same definitions, same procedure, and the same rules, for reporting the same piece of information over time. Sometimes, however, doing so will not be possible, particularly when definitions change as the result of research findings or new technologies. When it is not possible to record the data in the same way, make a note that describes the change and the date the change was implemented.

HCWs and their managers can contribute to making the overall monitoring process as accurate and reliable as possible by providing feedback about whether:

- Forms and registers are easy to complete accurately and reliably (i.e., the same every time)
- Guidelines and written instructions for data collection and data management are helpful
- Forms and registers are being used in a standard manner by all HCWs

### Recordkeeping

Within the PMTCT programme, records maintained at the healthcare facility are the foundation of the monitoring system. It is therefore important that information in the records is both complete and accurate. Some countries use patient-held records to make sure that important medical information is transferred when a patient goes to different healthcare facilities. It is important to complete these records at each patient visit.

#### Mother's patient-held record

- A mother's patient-held record, which may be referred to as a health card, typically includes important PMTCT-related information on HIV testing and counselling; HIV status, other lab results e.g., syphilis and haemoglobin; ARV prophylaxis regimen and any other medications; immunizations and medical history. Delivery information is included as well as post-delivery care. Putting HIV status on the card can be useful for mothers and HCWs (e.g., so HCWs can determine a mother's HIV status if she delivers



at a different facility, so that HCWs know to follow-up closely with HIV-exposed infants to ensure they start co-trimoxazole prophylaxis and have a schedule of HIV tests.)

### Child's patient-held record

- The child patient-held record, which may be referred to as a child health card, typically includes date of birth, birth weight, immunization record, medical history and a chart for monitoring growth and development from birth through 5 years of age. The child patient-held record should also include information about the schedule of HIV testing, HIV status, ARV prophylaxis given and referrals for HIV care and treatment if indicated.

## Registers

At the healthcare facility, registers are extremely useful tools. They could include, for example:

- ANC Register
- ARV Drug Register
- Labour and Delivery Register
- Laboratory Register
- Mother/Infant Follow-up Register

Facility registers should always be kept in a secure place to protect the confidentiality of patient information.

### ANC register

This register may include basic information on name, age, residence, visit number, gravida (number of pregnancies) and para (number of deliveries), last menstrual period (LMP), estimated date of delivery (EDD), medications, results of antenatal laboratory tests, including HIV tests and whether the mother was given ARVs for PMTCT.

### ARV drug register

This register may include the names of the ARV drugs used for therapy or prophylaxis, the unit of issue, stocks and flows of ARVs at the facility and amount of drugs needed and requested.

### Labour and delivery register

This register may include data related to gestation at birth, duration of labour, mode of delivery, blood loss and placenta delivery; HIV status of the mother, if known; ARV therapy or prophylaxis given; and infant feeding choice. It also includes the newborn's Apgar score, weight and sex.

### Laboratory register

This register may include information on all test results, including HIV testing.

### Mother/Infant follow-up register

This register may include information on all aspects of post-delivery care and treatment of mothers and infants.

<b>Exercise 9.2 Data collection: group discussion</b>	
<b>Purpose</b>	▪ This exercise provides an opportunity to practise recording data in the PMTCT columns of the ANC and Labour and Delivery Registers.
<b>Duration</b>	35 minutes
<b>Instructions</b>	<p><b>Part A</b></p> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p><i>Anna is a 30-year-old woman who comes to the ANC clinic today (18.04.07) for her first visit. She is 16 weeks pregnant with her third child. After pre-test counselling she consents to testing; the rapid test results come back and her HIV test was reactive. A second test performed the same day confirms the</i></p> </div>

**Exercise 9.2 Data collection: group discussion**

*positive result.*

*She tells the nurse that her partner has moved away and she has no contact with him. The HCW provides her with information on the PMTCT programme and she chooses to take advantage of the interventions.*

- The trainer will present the case study above and review the boxes to be completed on the ANC and Partner Registers. Follow along and complete the boxes on your sample form in Appendix 9-C to practise recording the necessary information.
- The trainer will then present the next part of the case study and will review the boxes to be completed on the ANC Register (Part B) and then the Labour and Delivery Register (for Parts C and D). As was done previously, follow along and complete the boxes on your sample form in Appendix 9-C.

**Part B**

*Anna comes for all of the ANC visits and at 28 weeks (11.07.07) is started on an ARV prophylaxis regimen. She takes 300 mg of AZT twice a day, as prescribed. She is also given a single dose of NVP to take when labour begins.*

**Part C**

*At 38 weeks (19.09.07), she presents to the ward in active labour. She is given AZT (600 mg) and 3TC (150 mg); she states that she took the sdNVP (200 mg) at home. She delivers a healthy 3kg male.*

**Part D**

*Anna chooses exclusive breastfeeding and the baby is placed on the breast. The counsellor also refers Anna and the baby to the HIV clinic and strongly recommends that they go to the MCH clinic for all scheduled immunizations. The baby receives the recommended ARV prophylaxis regimen—a single-dose of NVP followed by a week of AZT.*

### **Module 9: Key Points**

- Monitoring is the routine tracking of programme information.
- Evaluation is assessing the change in indicator measurements resulting from an intervention or programme.
- Monitoring and evaluation are key steps in assessing progress made toward achieving PMTCT programme goals, identifying where improvements need to be made and designing interventions aimed at making those improvements.
- Records completed by HCWs are the foundation of the monitoring system; it is essential to have clearly defined roles and responsibilities for monitoring data.
- Registers are important tools used to record information about and monitor PMTCT-related services.
- Indicators are programme measures used to track changes in a programme over time.
- Global, national and facility-level indicators measure progress toward programme goals and are used for decision-making.
- Good data collection procedures help ensure reliable and timely reporting.
- Accurate monitoring at the healthcare facility is an important step in the implementation and ongoing improvement of national PMTCT services.

## APPENDIX 9-A Examples of PMTCT Performance Indicators

### Sample national and health facility PMTCT indicators

- Number and percentage of pregnant women attending ANC who received HIV counselling and testing for PMTCT and received their test results
- Number and percentage of women attending ANC who tested HIV-positive
- Number and percentage of male partners who are HIV-tested
- Number and percentage of HIV-infected pregnant women who received ARVs to reduce the risk of mother-to-child transmission (total and by regimen).
- Number and percentage of HIV-infected pregnant women initiating ARV therapy
- Number and percentage of pregnant women with unknown HIV status at delivery
- Number and percentage of women with unknown HIV status who were tested at/after delivery
- Number and percentage of infants who were HIV-exposed and received ARV prophylaxis
- Number and percentage of women who are HIV-infected and intend to replacement feed

Adapted from:

- UNAIDS, WHO, USAID, UNICEF, CDC, UNFPA, 2004. *National Guide to Monitoring and Evaluating Programmes for the Prevention of HIV in Infants and Young Children*. Available at: [http://www.who.int/hiv/pub/prev\\_care/en/nationalguideyoungchildren.pdf](http://www.who.int/hiv/pub/prev_care/en/nationalguideyoungchildren.pdf)
- The United States President's Emergency Plan for AIDS Relief. *Indicators, Reporting Requirements, and Guidelines for Focus Countries - Revised for FY2006*. Available at: <http://www.pepfar.gov/pepfar/guidance/76849.htm>

### Global and national PMTCT indicators

#### 1. Percentage of HIV-infected pregnant women who received ARVs to reduce the risk of mother-to-child transmission

**Note:** Countries are encouraged to track the actual or estimated percent distribution who received:

- 1) Single-dose Nevirapine
- 2) Prophylactic regimens using a combination of two ARVs
- 3) Prophylactic regimes using a combination of three ARVs
- 4) ART for HIV-positive pregnant women eligible for treatment

#### 2. Percentage of infants born to HIV-infected mothers who are infected.

**Note:** Countries are not required to submit any data for this indicator. The indicator is to be modelled at UNAIDS Headquarters.

Adapted from:

- UNAIDS, 2007. *Monitoring the Declaration of Commitment on HIV/AIDS, Guidelines on Construction of Core Indicators, 2008 Reporting*. Available at: [http://data.unaids.org/pub/Manual/2007/20070411\\_ungass\\_core\\_indicators\\_manual\\_en.pdf](http://data.unaids.org/pub/Manual/2007/20070411_ungass_core_indicators_manual_en.pdf)

## APPENDIX 9-B Sample PMTCT-related Information to Add to MCH Forms

### Sample PMTCT antenatal clinic (ANC) monthly summary form

Facility: _____	Level of Facility: _____	Month of Report: _____
District: _____	Date Form Completed: _____	Year of Report: _____
Region: _____		

#### ANC Testing and Counselling

All women attending ANC during the month of report.	Number
ANC 01. Number starting ANC this month.....	_____
ANC 02. Not pre-test counselled.....	_____
ANC 03. Pre-test counselled.....	_____
ANC 04. Did not have HIV test.....	_____
ANC 05. Had HIV test.....	_____
ANC 06. Tested HIV-negative.....	_____
ANC 06.1. Post-test counselled.....	_____
ANC 06.2. Not post-test counselled.....	_____
ANC 07. Tested HIV-positive.....	_____
ANC 07.1. Post-test counselled.....	_____
ANC 07.2. Not post-test counselled.....	_____
ANC 08. Given ARV prophylaxis for PMTCT.....	_____
ANC 09. Given ARV therapy for PMTCT.....	_____
ANC 10. Tested but unknown/lost result.....	_____
ANC 11. Referred for HIV care and treatment.....	_____

#### ANC Partner Testing

These numbers do not always relate directly to the numbers of women starting ANC this month.

ANC 12. Number of partners tested for HIV.....	_____
ANC 12.1. Tested HIV-negative.....	_____
ANC 12.2. Tested HIV-positive.....	_____
ANC 12.3. Tested but unknown/lost result.....	_____
ANC 13. Partner referred for HIV care and treatment.....	_____

#### ANC Antiretroviral Coverage

Numerator data: women starting on drug during the month of report. These numbers do not relate directly to the numbers from the Antenatal Testing and Counselling section.

ANC 14. Started on, or given AZT and given sdNVP.....	_____
ANC 15. Started on, or already taking ARV therapy.....	_____

Adapted from: CDC. *Prevention of Mother-to-Child HIV Transmission – Monitoring System (PMTCT-MS)*, Reference Version 1.0, 2005.

## APPENDIX 9-B Sample PMTCT-Related Information to Add to MCH Forms *(continued)*

### Sample PMTCT maternity (L&D) monthly summary form

Facility: _____	Level of Facility: _____	Month of Report: _____
District: _____	Date Form Completed: _____	Year of Report: _____
Region: _____		

	<b>Number</b>
<b>MAT 01.</b> Number of women who delivered.....	_____
<b>MAT 02.</b> Number of women who had HIV test from ANC.....	_____
<b>MAT 02.1.</b> Number of women with known HIV-negative test from ANC.....	_____
<b>MAT 02.2.</b> Number of women with known HIV-positive test from ANC.....	_____
<b>MAT 03.</b> Number of women with unknown HIV status at delivery.....	_____
<b>MAT 04.</b> Number of women tested for HIV at/after delivery.....	_____
<b>MAT 04.1.</b> Number HIV-negative.....	_____
<b>MAT 04.2.</b> Number HIV-positive.....	_____
<i>The section below pertains to all identified HIV-positive women who delivered live births.</i>	
<b>MAT 05.</b> All HIV-positive women (MAT 02.2. + MAT 04.2).....	_____
<b>MAT 06.</b> Number who took AZT in ANC.....	_____
<b>MAT 06.1.</b> Took AZT <4 weeks.....	_____
<b>MAT 06.2.</b> Took AZT >4 weeks.....	_____
<b>MAT 07.</b> Number who took single-dose nevirapine (sdNVP).....	_____
<b>MAT 08.</b> Number who took sdNVP only.....	_____
<b>MAT 09.</b> Number who were given 3TC/AZT 7-day tail.....	_____
<b>MAT 10.</b> Number who took ARV therapy.....	_____
<b>MAT 10.1.</b> Took ARV therapy <4 weeks.....	_____
<b>MAT 10.2.</b> Took ARV therapy >4 weeks.....	_____
<b>MAT 11.</b> Number whose infant(s) received ARV prophylaxis.....	_____
<b>MAT 12.</b> Number whose infants discharged with ARV prophylaxis .....	_____
<b>MAT 13.</b> Number intending to breastfeed.....	_____
<b>MAT 14.</b> Number intending to replacement feed.....	_____
<b>MAT 15.</b> Number referred for HIV care and treatment after delivery.....	_____

Adapted from: CDC. Prevention of Mother-to-Child HIV Transmission – Monitoring System (PMTCT-MS), Reference version 1.0 (2005).

## APPENDIX 9-C Sample PMTCT Columns for Use in Exercise 9.2 Data Collection

### ANC Register

Date Started ANC (dd/mm/yy)	ANC Card No. (Record XXX code if 1st ANC visit at another facility)  (###-YR-XXX)	Gest'n Age in Weeks	Date Pre-Test Counsellled  (dd/mm/yy)	Date HIV-Tested  (dd/mm/yy)	Date Post-Test Counsellled  (dd/mm/yy)	HIV Test Result			Referrals		Date ARV Proph. started  (dd/mm/yy)	ARV Proph. Regimen (AZT at 28 weeks, sdNVP, 3TC tail, other)  (Specify Regimen)	Remarks
			√ if same as Date Started ANC (1st col.)			If Missing, describe in "Remarks"	HIV Care & Treatment	Other (Specify)					
						P	N	M	<input type="checkbox"/>				
									<input type="checkbox"/>				

### ANC Partner Register

Partner's Reg. No.	Woman's ANC Card No. Record XXX code if attended 1st ANC visit at another facility  (###-YR-XXX)	Date Pre-Test Counsellled  (dd/mm/yy)	Date HIV-Tested  (dd/mm/yy)	Date Post-Test Counsellled  (dd/mm/yy)	HIV Test Result			Referrals For HIV+ Partners		Remarks	
					If Missing, describe in "Remarks"	HIV Care & Treatment	Other (Specify)				
						P	N	M	<input type="checkbox"/>		
									<input type="checkbox"/>		

### Labour and Delivery Register

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Date of Admission  (dd/mm/yy)	ANC Card No.  (###-YR-XXX)	HIV Status from ANC (Noted on ANC card)  Circle P, N or U	HIV Test Result from Test at L&D  Circle P or N	Woman Took ARV Prophylaxis During Pregnancy (specify regimen)	Weeks Woman Took ARV proph. during Pregnancy  < 4    >4	Sd NVP given at onset of labour  check	Infant Given ARV proph.  specify regimen	Infant Feeding  Circle BF or RF	Referrals For HIV+ Women  HIV Care & Treatment    Other (Specify)	Remarks
		P   N   U	P   N	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>		BF   RF	<input type="checkbox"/>	



---

## Field Visit (optional)

### Goal of the Field Visit

The goal of the field visit is to reinforce classroom learning by providing participants with an observation experience in a health facility—such as an ANC clinic, labour and delivery facility, or post-delivery care clinic—that offers PMTCT services. The field visit provides an opportunity to learn about the practical aspects of service provision.

### Timing and Objectives of the Field Visit

The field visit can take place any time after Module 7 “Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection”. If necessary, the field visit can take place the week after the training course. The timing of the visit and the people with whom trainees will meet is based on the learning objectives.

Depending on the type of site visited, objectives may include any of the following:

- To observe an HIV group information session
- To observe HIV counselling sessions
- To observe rapid HIV testing
- To observe the provision of advice and support around ARV therapy or prophylaxis
- To observe the provision of information on infant feeding options
- To observe the provision of infant feeding counselling and support
- To observe the use of Standard Precautions and safer delivery practices in the labour and delivery setting
- To gain an understanding of the management of occupational exposure to HIV including post-exposure prophylaxis
- To discuss PMTCT programme monitoring
- To observe the provision of support to a patient who is HIV-infected
- To observe referral and follow-up of patients to treatment, care and support services

### Key observations

- Observe the layout of the health facility
- Consider the flow of patients and staff movement through the health facility during patient visits
- Notice the attitudes of the staff
- Identify ways in which stigma affects treatment
- Notice strategies in place that decrease stigma
- Look for safety measures in the workplace and mechanisms in place to maintain safety measures
- Observe the general atmosphere of the site



## Field Visit Guide

This guide was developed as a resource for planning and conducting a field visit to a health facility providing PMTCT services. The questions should be reviewed in advance and modified as appropriate for the local context. The questions can be posed by one person or participants can take turns asking questions. Participants should feel free to ask additional questions or to drop questions that no longer seem appropriate. Listen closely to all the questions and answers to prevent repetitive questioning, ensure fellow participants can hear the response and show appreciation for the learning opportunity.

### Antenatal care (ANC)

- How many ANC patients come here per month? How many new patients?
- What is the typical flow of activities during a woman's first visit to ANC?
- Where does she go?
- Whom does she see?
- What activities occur?
- Do men ever attend ANC appointments with their partners?

### HIV testing and counselling

- Observe if the patients are routinely offered HIV testing. Is an provider- or client-initiated?
- Observe if the following pre-testing services are provided:
  - Group information session
  - Individual pre-test counselling
  - Couples pre-test counselling
  - Ongoing HIV counselling for women who refuse testing
- Who offers each of the above services? What are their qualifications?
- Observe the HIV testing process for adults and infants.
  - Type of test and testing algorithm
  - Staff who perform testing
  - Average number of tests per week
  - Procedures for providing HIV test results

### ARV therapy or prophylaxis for PMTCT

- Observe the regimens provided.
- What are the main counselling messages and recommendations about ARV therapy or prophylaxis?
- What is the process for providing ARVs to the women who are HIV-infected and their infants?
- How is it decided if a woman is eligible for ARV therapy?
- If ARV therapy is provided by referral, how does this clinic communicate with the HIV care and treatment site?

### Labour, delivery and post-delivery care

- How many babies are delivered each month?
- Approximately what percentage of women deliver at home?
- Approximately what percentage of women who deliver here know their HIV status?
- Do you provide testing and counselling during labour? If so:
  - What are the main messages conveyed during the pre-test session?

- Where is the blood tested (assuming rapid testing technology is used)?
- When do you conduct the post-test counselling session? What are the main messages?
- What post-delivery care is available to women after they leave the maternity ward or hospital? At how many weeks post-delivery do they attend for this care?

#### **Infant feeding**

- Who provides information on infant feeding options?
- Who provides the infant feeding counselling and support?
- When is infant feeding counselling provided?
- What are the main infant feeding messages provided to a pregnant woman with HIV?
- What are the most common infant feeding questions you get from clients?
- How do most women decide to feed their infants: breastfeed or replacement feed?
- Do most of the women who breastfeed do so exclusively for 6 months? If not, what are the barriers to exclusive breastfeeding?
- Does the client observe and participate in a demonstration of her chosen method?
- Is commercial infant formula provided here, at the clinic? If so, have there been any lapses in the supply over the past 12 months?

#### **Stigma and discrimination related to MTCT**

- What are the systems or steps used to protect confidentiality?
- What are the systems or steps used to reduce stigma and discrimination in the health facility?
- What are common client concerns and experiences regarding stigma and discrimination?

#### **Comprehensive care and support for pregnant women, mothers and families with HIV infection**

- What are the linkages to other programmes or community organizations providing the following services?
  - Follow-up HIV testing and counselling, including diagnosis of HIV-exposed infants and children and older siblings
  - HIV care and treatment, including ARV therapy
  - Infant feeding support
  - Psychosocial services for persons living with HIV
  - Family planning
- What are the mechanisms used to follow up referrals?
- How do all of these services communicate with one another?

#### **Safety and supportive care in the work environment**

- Do healthcare workers (HCWs) receive emotional support to share experiences and alleviate burnout?
- What are the HCWs attitudes towards the PMTCT programme, their supervisors and co-workers and workload? (Do you think your colleagues look forward to coming to work each morning?)
- Are supplies and equipment adequate for following infection control procedures?
- How do you dispose of potentially contaminated waste and items that are not reused?

(e.g., bandages, syringes, etc.)?

- What happens to sharps containers and bags filled with hazardous waste once full?
- What is the method used to decontaminate, clean, sterilize and high-level disinfect equipment?

#### **PMTCT programme monitoring**

- What is the PMTCT data collection and reporting process?
- What tools are used to record the PMTCT services provided?
- What are the measures used to ensure quality information is collected and reported?
- How is information collected in the PMTCT programme used to improve the programme?



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## Frequently Asked Questions (FAQs)

*This section reviews questions that are often asked about HIV and related topics. It is intended to be a resource for healthcare workers (HCWs) who provide counselling and education for clients.*

### **What is HIV?**

HIV is the human immunodeficiency virus. Over time, the virus multiplies and weakens the body's immune system by destroying a specific type of white blood cells (CD4 cells). This process makes the body unable to fight infection.

### **What is the difference between HIV and AIDS?**

AIDS stands for acquired immunodeficiency syndrome and is the most advanced stage of HIV-infection. In this advanced stage, the virus has done enough damage to the immune system to allow infections and cancers the "opportunity" to develop. These infections and cancers are called opportunistic infections. They are sometimes referred to as AIDS-defining illnesses or HIV-related conditions and include candidiasis, *Pneumocystis pneumonia* (PCP), tuberculosis and certain cancers like Kaposi's sarcoma.

### **How long does it take HIV to cause AIDS?**

The time between infection with HIV and development of AIDS varies from person to person; it may be several months or as long as 15 years. AIDS is the final and most severe phase of HIV infection and will lead to death if not treated.

### **Where did HIV come from?**

Scientists have different theories about the origins of HIV, but none have been proven. We know that the virus has been in the United States, Haiti and Africa since the late 1970s. At the beginning of the epidemic, HCWs noticed that patients had rare forms of pneumonia, cancer and other illnesses. These observations prompted the first research about the virus that became known as HIV.

## **How does HIV make someone sick?**

With a weakened immune system, the body cannot protect itself from germs in the environment. Common germs can cause serious infections in people with HIV. Medicines and proper health care can strengthen the immune system of a person with HIV.

## **What are the signs and symptoms of early HIV infection?**

Following infection with HIV, or seroconversion, a person can develop flu-like symptoms such as fever, rash, joint pain, fatigue and enlarged lymph nodes/glands. This is also referred to as acute retroviral syndrome. Symptoms usually resolve within 1-2 weeks. During the process of seroconversion a person is highly infectious. After seroconversion, it can be years before a person who is infected with HIV experiences symptoms.

## **How can I tell if I am infected with HIV?**

The only way to know if you are infected with HIV is to have your blood tested. You cannot rely on symptoms alone. If you think you were exposed to HIV or have symptoms of the virus, seek healthcare immediately.

## **How is HIV transmitted?**

HIV is found in the blood, semen (including pre-ejaculatory fluid), vaginal secretions and breast milk of an infected person. HIV can be transmitted from a person with HIV to another person if one of these body fluids from a person with HIV gets into another person's body. HIV can be transmitted by having unprotected oral, vaginal and anal sex, where there is an exchange of blood, semen, vaginal secretions and/or breast milk. It can also be transmitted by using syringes and/or needles (or any other sharp object used to pierce or cut the skin) after a person who is HIV-infected (without cleaning it in between). An HIV-infected mother can transmit the virus to her infant during pregnancy, labour, delivery and breastfeeding. You can protect yourself from getting HIV by abstaining from high-risk activities—such as unprotected sex and the re-use of sharps to puncture or cut the skin.

## **How can I protect myself from getting HIV?**

You can protect yourself from getting HIV by:

- Not having sex (being abstinent)—a person who does not engage in sexual intercourse has almost no chance of contracting HIV.
- Not having unprotected, oral, vaginal or anal sex—people who use a condom correctly every time they have sex protect themselves from HIV.
- Only have sex with one partner known to be HIV-negative—people who are both HIV-negative and are mutually faithful (i.e., they only have sex with each other) are not at risk of getting HIV by having sex.
- Avoid using needles, knives, razors, or other sharp implements that were used on someone else for any procedure or rite that involves piercing the skin. This includes exercising your right to ask for sterile needles if you are getting an injection in a healthcare setting.

### **What happens if you live close to someone with HIV?**

You will not get HIV or AIDS from living or working with someone who is infected. You can live and work together safely, provided that the person is not your sexual partner and that you take special care if you are handling any of the body fluids that contain HIV (specifically, blood, semen, vaginal secretions and breast milk).

### **Can a woman give HIV to a man during vaginal intercourse?**

Yes. If the woman is infected, HIV is present in vaginal and cervical secretions—the wetness in a woman's vagina—as well as menstrual blood. These fluids can enter the penis through the urethra (the hole at the tip) or through cuts or abrasions on the skin of the penis. The presence of other STIs in either the man or woman can increase the risk of transmission. The correct use of a latex male or female condom can reduce the risk of transmitting HIV during intercourse. HIV can also be transmitted from a woman to a man during anal intercourse due to the possibility of contact with blood due to trauma.

### **Can I get HIV from oral sex?**

While the risk of becoming infected with HIV during oral sex is lower than the risk of becoming infected during anal or vaginal intercourse, any exposure to the semen, vaginal secretions or blood of an HIV-infected person puts the partner at risk of becoming infected. The risk of being infected during oral sex increases if sores, cuts and/or bleeding gums are present.

### **Can I get HIV from kissing?**

Casual contact through closed-mouth or "social" kissing does not put a person at risk of getting infected with HIV. Kissing with an open mouth, sometimes called "French kissing", may provide an opportunity for contact with blood. However, the risk of acquiring HIV during open-mouth kissing is believed to be very low. The risk of getting HIV by kissing is increased by the presence of sores, cuts, poor dental hygiene, and/or bleeding gums.

### **If an HIV test can detect the virus in a person's saliva, why can't I get HIV by kissing someone who is infected?**

The HIV test used to detect the virus in saliva, detects the presence of HIV *antibodies*, not the virus itself. So, yes, in the person with HIV, there are HIV *antibodies* in the saliva, but antibodies cannot transmit the virus from one person to another.

The actual virus is rarely present in saliva in its infectious form and when present, it tends to be there at very low levels. In addition, there appears to be a protein in saliva that inhibits viral transmission, making it even harder for the virus to be transmitted from one person to another. There are no documented cases of HIV transmission through saliva.

### **Should I be concerned about getting infected with HIV while playing sports?**

There are no documented cases of HIV infection acquired while participating in sports. The risk of HIV transmission is present *only* if a player with HIV is in an accident that causes extensive bleeding and the blood of this person comes in contact with a major cut or wound (not just a scratch, there needs to be an actual break in the skin) of another player. As this scenario is somewhat unlikely, it can confidently be stated that even in sports involving direct

body contact, the risk of transmission is very low. If an injury that causes bleeding occurs, the player should be removed from play until the wound stops bleeding, is antiseptically cleaned and securely bandaged. There is no risk of transmission during sports activities when bleeding does not occur.

**Can I get HIV from casual contact, such as shaking hands, hugging or drinking from the same glass as an HIV-infected person? Can I get HIV from using a public toilet? Can I get HIV if someone with HIV coughs or sneezes near me?**

No. HIV is a fragile virus that cannot survive outside of the human body. HIV cannot be carried in food or in the air by a cough or sneeze. HIV is not transmitted by day-to-day contact in the home, workplace, school, or other social settings. HIV cannot be transmitted by shaking hands, hugging, or by social kissing. You cannot become infected from a toilet seat, drinking fountain, doorknob, dishes, drinking glasses, food, or pets.

**Can I get infected with HIV from a mosquito bite?**

No. Studies have shown no evidence of HIV transmission through insects, even in areas with a high prevalence of HIV that also have large populations of biting or bloodsucking insects. If mosquitoes were responsible for spreading HIV, then people of all ages would be infected and this is not the case. The virus lives in cells of the human body and does *not* live in the cells of mosquitoes or any other insects.

**Can the HIV survive outside of the body?**

HIV is unable to reproduce or survive well outside of the human body. The virus dies once the body fluids dry up.

**How long can the HIV live outside of the body?**

Scientists agree that HIV does not survive well in the environment, making the possibility of environmental transmission remote. HIV is very fragile, and many common substances, including hot water, soap, bleach, and alcohol, will kill it. HIV is also sensitive to fluctuations in temperature and the presence of oxygen. One place that HIV has been known to survive is in syringes used to inject drugs, since these are airtight and often contain blood from the person on whom the syringe was previously used.<sup>1</sup>

**What is the connection between HIV and other sexually transmitted infections (STIs)?**

STIs can cause visible or invisible sores or other breaks in the skin and mucous membranes of the vagina and penis. Sex can also cause microscopic breaks or tears in the skin that are not visible to the eye. This can increase a person's risk of becoming infected with HIV, because these openings in the skin make it easier for HIV to enter the body during sexual contact. Everyone should assess whether they have or are at risk for STIs and seek HIV testing and, if necessary, treatment.

*A woman who is infected with HIV during pregnancy or breastfeeding is at increased risk of transmitting HIV to her infant. For this reason, it is especially important that pregnant women at risk of STIs seek early testing and treatment and protect themselves from both STIs and HIV by using a female condom or having her partner use a male condom during sex.*

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<sup>1</sup> Adapted from <http://hivinsite.ucsf.edu/inSite?page=ask-00-00>

### **Do I still need to practise safer sex when taking antiretroviral (ARV) drugs?**

Yes. ARV drugs are not a cure for HIV infection; the virus remains in your body and you can still infect others while taking these medications. If you are HIV-infected and have unprotected sex, your immune system may become even weaker if you are re-infected with HIV. ARV drugs do not prevent transmission or re-infection with HIV. Protect yourself and your partner by:

- a) Abstaining from sexual intercourse **or**
- b) Being faithful to one partner with whom you have protected sex **or**
- c) Using a condom every time you have sex

### **Can HIV-infected women use hormonal contraceptives such as oral birth control pills?**

Hormonal contraceptives, such as birth control pills, may be taken safely by HIV-infected women, but they do not protect against STIs or re-infection with HIV. Oral contraceptives should be used in combination with a barrier method, such as a condom.

Certain classes of ARVs, including the protease inhibitors and the drug nevirapine (NVP), *may* decrease the effectiveness of hormonal contraception. Women who are HIV-infected should discuss with a HCW the possible interactions between hormonal contraceptives, ARV drugs and some antibiotics used to prevent and treat HIV-related conditions.

WHO recommends that there should be *no* restriction on the use of hormonal contraception options for women, other than those already put forth in the current “*WHO Medical Eligibility Criteria for Contraceptive Use*”.

### **How effective are latex condoms for preventing HIV?**

Several studies have demonstrated that latex condoms are highly effective for preventing HIV transmission when used correctly and consistently. The studies examined uninfected people involved in sexual relationships with HIV-infected persons and found that even with repeated sexual contact, 98–100% of those people who consistently used latex condoms remained uninfected.

### **Can oil be used to lubricate a male condom?**

No. Most condoms are made from a rubber known as latex, which is chemically reactive with oil- and petroleum-based substances. Many types of oils or lubricants can cause latex condoms to break or tear during sex, making them useless in preventing HIV, other STIs, and pregnancy. Lubricants that are not designed specifically for use with latex condoms should never be used. Always use a water-based lubricant if it is needed during oral, vaginal or anal sex.

### **How do I know that my HIV test is accurate?**

HIV tests are very accurate. Every HIV-positive test result is confirmed by at least one other HIV test before the test result is discussed with the client. If you are concerned about an inaccurate negative test result (“false negative”) due to recent exposure to HIV, you should return for another HIV test 3 months after the first test. This will allow time for antibodies to develop, so that the test can detect HIV infection if it is present.

If you think you might have an inaccurate positive result (“false positive”), tell a HCW immediately. The HCW can discuss your risk of HIV infection with you, if she or he agrees



that the test might be a false positive, another HIV test on a new sample of blood (or saliva) can be ordered.

### **If I test negative for HIV does that mean my partner is also negative?**

No. Every person must have the HIV test performed on his or her own blood.

Your negative test result does not tell you anything about the HIV status of your partner(s). Similarly, if you test positive, this does not confirm the status of your partner either. HIV is not transmitted every time there is an exposure, although there is a risk with each exposure. No one's test result should be used to determine another person's HIV status.

### **If I test positive for HIV, what should I do?**

A positive test result indicates that you are infected with HIV. The sooner you take steps to protect your health, the better. Prompt medical care can prevent serious illness and delay the onset of AIDS. A healthy lifestyle, nutritious diet and hopeful attitude also may help you stay well. If you receive a positive test result, there are many important steps you should take immediately to protect your health:

- Visit a HCW as soon as possible, even if you feel well. If possible, find a HCW who has experience treating HIV. The HCW will offer you important tests, immunizations and treatments that can help you maintain good health. It is never too early to start thinking about ARV therapy.
- If available, get screened for TB. Undetected TB can cause serious illness for persons with HIV and vice versa. If detected early, TB can be treated successfully.
- Eat healthy and nutritious foods and do some form of exercise at least 3 days per week.
- Stop using recreational drugs. If you drink alcohol, do so only moderately. Stop smoking. These substances can weaken your immune system.
- Consider joining a support group for people with HIV infection or finding out about other resources available in your area.
- Learn as much as you can about HIV infection and ways to take care of yourself.

Simple, daily practices can help you remain healthy for many years, even with HIV infection.

### **Why should a pregnant woman test for HIV?**

There are a number of reasons why a pregnant woman should test for HIV:

- Knowing your HIV status can help you make informed decisions about your current and future pregnancies.
- If you are infected, knowing your status can help you access HIV care and treatment services—which can help you live a longer productive life.
- If you are infected, you can learn how to prevent transmitting HIV to your baby.
- If you are infected, you can learn how to reduce the risk of infecting other people.
- If you find out that you are not infected, you can learn how to stay uninfected and keep your family safe from HIV infection.
- Whether you are infected or not, testing can help you plan for the future.

### **What is the treatment for HIV?**

There is no cure for HIV infection but there are medicines that reduce the amount of HIV in the body, slow the spread of HIV and preserve the body's immune system. Less virus means more functioning CD4 cells; which enable a body to fight infection. These medicines, called antiretroviral (ARV) drugs are most effective when taken daily, in the correct amount, at the correct times of day. When receiving ARV therapy, a client typically will begin to gain weight

and appetite will improve. Many clients report an increase in their energy level; many return to work.

### How do I take antiretroviral drugs?

It is very important that you take the medicine exactly as prescribed by your HCW. ARVs only work when the amount of medicine circulating in the body is at the correct level. For this to happen, you must take each medicine:

- **At the correct dose.** If you take less than the dose prescribed, the treatment will not be effective.
- **At the right time of the day.** Most ARV drugs are taken twice a day. This means you will take your medicines every 12 hours, for example at 7am and again at 7pm, according to your daily activities.
- **According to any dietary restrictions.** Some ARV drugs need to be taken with food; others need to be taken on an empty stomach.
- **Consistently.** Treatment is for life.

### Can women with HIV have babies?

Women who are infected with HIV are able to have normal, healthy pregnancies.

- It is important that HIV-infected pregnant women attend antenatal care to decrease the risk of transmitting the virus to their infants during pregnancy.
- Because of the risk of HIV transmission from mother to baby during labour and delivery, an HIV-infected mother should plan to deliver her baby in a healthcare facility, where there will be HCWs experienced in safer delivery practices.
- It is also critical that the baby and mother continue to receive ongoing care in the post-delivery period to reduce the likelihood of transmission through breastfeeding and to monitor the infant's health, growth and development.
- Unless viral HIV testing is available, it is not possible to know if the HIV-exposed infant is infected with HIV until 12–18 months after birth, due to the presence of maternal antibodies.

### Is it possible that my baby won't be born with HIV?

Yes, it is possible for an HIV-infected mother to give birth to a healthy, HIV-negative baby. Even with no intervention, the chance that an HIV-infected mother will give birth to an HIV-infected baby is 20–45%; so there is a 55–80% chance that the baby will *NOT* be infected. This chance can be substantially reduced (by half or more) if HIV-infected women have access to ARVs, safer delivery practices and information, counselling and support for safer infant feeding.

### Can a woman pass HIV to her infant through breast milk?

Yes. It is estimated that for every 100 infants born to HIV-infected mothers, 5 to 20 are infected during breastfeeding (a risk of between 5% and 20%). The risk of transmitting HIV through breastfeeding increases if:

- The mother also provides replacement feeds
- The mother mix feeds (a woman who mix feeds is **eleven** times more likely to pass HIV to her infant than the woman who breastfeeds exclusively)
- The mother breastfeeding for a longer duration (the longer she breastfeeds the higher the risk)
- The mother has HIV symptoms, mastitis or other breast condition
- The infant/child has ulcers or sores in the mouth

However, the risk of *not* breastfeeding an infant puts the infant at higher risk for other common diseases of childhood like diarrhoea and respiratory infections. Breast milk protects infants by stimulating the development of their immune system. The decision to breastfeed or replacement feed (replacement feeding carries no risk of HIV transmission) may be very difficult and should be made by the mother with the support of an infant feeding counsellor and her family.

### **How will I decide whether to breastfeed my baby or use replacement feeding?**

All mothers who are HIV-infected should seek and receive information on infant feeding options as well as infant feeding counselling and support to assist them through the decision-making process and to provide opportunity to practise their preferred option.

### **Can I breastfeed my child if I am HIV-infected?**

Yes, exclusive breastfeeding is recommended for HIV-infected women for the first 6 months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS—see “Definitions” below) for them and their infants before that time. When replacement feeding is AFASS, avoidance of all breastfeeding by HIV-infected women is recommended. At six months, if replacement feeding is still not acceptable, feasible, affordable, sustainable and safe, continuation of breastfeeding with additional complementary foods is recommended, while the mother and baby continue to be regularly assessed. All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided.

### **Can I breastfeed if my status is unknown and my child’s HIV status is also unknown?**

Because of the benefits of breastfeeding, the following are the recommendations for women who do not know their status:

- Breastfeed **exclusively** for the first six (6) months of life.
- Continue breastfeeding for up to 2 years or longer.
- After the infant reaches 6 months of age, introduce safe, nutritious complementary foods.

However, women of unknown HIV status should be encouraged to get tested.

### **Can I breastfeed if my infant is HIV-infected?**

Experts suggest that because the infant already is HIV-infected, the risk of transmitting HIV through breastfeeding is no longer an important issue. In addition, the well-described benefits of breastfeeding become particularly important for the HIV-infected infant.

### **What is mixed feeding?**

Mixed feeding is the feeding of both breast milk and other foods or liquids. Risks associated with mixed feeding before 6 months of age include:

- Breast milk is replaced with less nutritious foods
- Increased risk of diarrhoea in infants
- Increased risk of HIV transmission to the infant, which may be due to irritation of infant’s intestinal mucosa

Recent studies have suggested that the risk of HIV transmission from mother to infant during the first six months of exclusive breastfeeding is about 4%. If the infant is given formula in addition to breast milk, that risk doubles. But the breastfed infant given solid foods in the

first six months has a risk of HIV infection **eleven** times as high as the exclusively breastfed infant.

### **How often and how long should I breastfeed to bring in the milk supply?**

Begin breastfeeding within 30 minutes after delivery and breastfeed on demand at least 8–12 times, day and night. Breastfeeding patterns may vary from day-to-day and infant to infant. Some general advice on ensuring a good milk supply: offer and empty both breasts during each feeding and allow the baby to feed as long as he or she wants. Alternate the breast the infant starts feeding on. By allowing a baby to nurse as long as he or she wants, a mother can ensure that her baby will receive the most benefit from the high-fat and calorie-rich hind milk. Mothers should be encouraged to rest and nap throughout the day and drink plenty of fluids.

### **How can I tell if my baby is getting enough breast milk?**

The most reliable way of assessing if a baby is getting enough breast milk is weight gain. Your HCW will monitor the baby's weight gain and record growth on a standardized growth chart. A mother can get a general sense of whether her baby is getting enough breast milk by monitoring output: a baby who is getting enough breast milk will wet 6–8 nappies/diapers and have at least one bowel movement (preferably 3–5) per 24 hour period.

### **How can I tell if my baby is getting sick?**

All HIV-exposed infants need to be followed closely by HCWs who are familiar with the signs and symptoms of HIV infection. Mothers should be taught to recognize the following danger signs that indicate the need for medical care as soon as possible:

- Baby shows signs of dehydration: fewer than 3 wet nappies/diapers per day, pink-coloured urine, sunken fontanel (the soft spots on top of a baby's head), sunken eye sockets, or dry mouth
- Baby refuses to breastfeed for more than 8 hours
- Baby does not have bowel movements or has many more than usual. The baby should have 3–5 good-sized, soft, yellow-coloured, seedy bowel movements per day and 6–8 wet diapers (nappies) per day. However, this is reliable only when a child is not given other foods or fluids, other than breast milk, during the first 6 months.
- Any drastic change from the baby's normal behaviour: e.g., baby is highly irritable or unusually calm
- Baby is breathing rapidly with possible chest heaves

### **How does co-infection with malaria in pregnancy affect an HIV-infected woman?**

An HIV-infected woman with malaria is more likely to develop severe malarial illness, including anaemia and infection of the placenta. Infants born to women with HIV and malaria have an increased risk of low birthweight and a higher chance of illness and death as a result.

Pregnant women with HIV infection are more susceptible to treatment failure of antimalarial drugs. Preventive treatment is recommended for women at risk of malaria, and includes the use of insecticide-treated bed netting and daily co-trimoxazole prophylaxis or presumptive treatment according to national guidelines.

## **How do people get tuberculosis?**

TB infection in a person with HIV is very dangerous. Worldwide, TB is the leading cause of death among HIV-infected people. TB is primarily an airborne disease; it is spread from person to person in tiny microscopic droplets when a TB sufferer coughs, sneezes, speaks, sings or laughs. Only people with active disease are contagious.

It usually takes lengthy contact with someone with active TB before a person becomes infected. On average, people have a 50% (1 out of 2) chance of becoming infected with TB if they spend eight hours a day for six months or 24 hours a day for two months working or living with someone with active TB. The risk may be higher for people living with HIV (PLHIV), as they are particularly vulnerable to developing active TB when they are first infected with TB. However, people with TB who have been treated with appropriate drugs for at least two weeks are no longer contagious and do not spread TB to others.

People with TB may have an infection that was recently transmitted from another person, but often PLHIV have reactivated TB. That is, they had TB earlier in life, but the infection went into remission for many years. For people with HIV, the TB bacteria become active because of their weakened immune system.

## Glossary

<b>Abstinence</b>	Deliberate avoidance of sexual activity.
<b>Acquired immunodeficiency syndrome</b>	<p>A: Acquired—(not inherited) to differentiate from a genetic or inherited condition</p> <p>I: Immuno—refers to the immune system</p> <p>D: Deficiency—inability to protect against illness</p> <p>S: Syndrome—a group of symptoms or illnesses that occur as a result of the HIV infection</p> <p>AIDS is the most advanced stage of HIV infection.</p>
<b>AIDS</b>	See acquired immunodeficiency syndrome.
<b>Anaemia</b>	A condition in which the number of red blood cells (RBCs), the amount of haemoglobin or the total volume of red blood cells is decreased in the blood. Red blood cells and haemoglobin are responsible for carrying oxygen to cells throughout the body.
<b>ANC</b>	See antenatal care.
<b>Antenatal care</b>	Care of a pregnant woman and her unborn child or fetus before delivery.
<b>Antibody</b>	A protein formed by the body's immune system in response to a foreign invader, like HIV, that infects the body. HIV antibody tests are designed to detect the antibodies the body makes in response to HIV infection.
<b>Antigen</b>	A particle that is attached to a virus that serves as a marker for the invader, so it can be identified by the body's immune system and destroyed.
<b>Antiretroviral prophylaxis</b>	Short term use of antiretroviral drugs after possible exposure to HIV with the aim of preventing transmission. Antiretroviral prophylaxis is used to reduce HIV transmission from mother-to-infant during pregnancy, labour and delivery (PMTCT) as well as for post-exposure prophylaxis (PEP) after possible occupational or sexual exposure to HIV. See post-exposure prophylaxis.
<b>Antiretroviral therapy</b>	<p>Long-term use of a combination of three or more ARV drugs to slow replication of HIV. ARV therapy aims to:</p> <ul style="list-style-type: none"><li>▪ Reduce deaths from AIDS</li><li>▪ Reduce HIV-related illness</li><li>▪ Reduce MTCT</li><li>▪ Reduce symptoms and improve health status</li><li>▪ Reduce HIV-related hospitalizations</li><li>▪ Improve quality of life and survival</li></ul> <p>Also referred to as highly active antiretroviral therapy (HAART).</p>
<b>APGAR</b>	See APGAR score.

<b>APGAR score</b>	Developed by Dr. Virginia Apgar as a rapid scoring system to assess the health of a newborn and determine the need for resuscitation. Scores are given at 1 minute and 5 minutes, and is based on five characteristics: heart rate, respiratory effort, muscle tone, reflex, irritability and colour; each has an assigned numerical value of 0, 1 or 2. The word APGAR is also used as a mnemonic learning aid: <b>A</b> ppearance (skin color), <b>P</b> ulse (heart rate), <b>G</b> rimace (reflex irritability), <b>A</b> ctivity (muscle tone), and <b>R</b> espiration.
<b>Artificial rupture of membranes</b>	Technique used to accelerate the delivery process by manually breaking the amniotic membrane.
<b>Asymptomatic</b>	Without physical signs or symptoms of illness or disease.
<b>Azidothymidine</b>	A nucleoside reverse transcriptase inhibitor (NRTI) used for treatment of HIV-infected adults. The drug is also effective in preventing HIV transmission from mothers to infants. Also known as zidovudine (ZDV).
<b>AZT</b>	See azidothymidine.
<b>Baby-Friendly Hospital Initiative</b>	A worldwide effort launched in 1991 by UNICEF and the World Health Organization to ensure that all maternities, whether free-standing or in a hospital, become centres of breastfeeding support.
<b>Bacille Calmette-Guérin</b>	Bacille Calmette-Guérin—a tuberculosis vaccine.
<b>Bacterial vaginosis</b>	A common condition in women in which the normal balance of bacteria in the vagina is disrupted and replaced by an overgrowth of certain bacteria. It is sometimes accompanied by discharge, odour, pain, itching or burning.
<b>Barrier methods</b>	A device that prevents semen and other bodily fluids from passing from one partner to another during sexual intercourse. Barrier methods, such as the male condom and female condom, act as a contraceptive and reduce the risk of STIs, including HIV.
<b>BCG</b>	See bacille Calmette-Guérin.
<b>BFHI</b>	See Baby-Friendly Hospital Initiative.
<b>Bloodborne pathogens</b>	Viruses, bacteria or other disease-causing microorganisms carried in blood.
<b>Breast-milk substitute</b>	Any food being represented as a partial or total replacement for breast milk, including commercial infant formula and home-modified animal milk.
<b>BV</b>	See bacterial vaginosis

<b>CD4 cells</b>	T-lymphocyte cells in the immune system, a specific type of white blood cell that is the immune system's key infection fighter. HIV infects and kills CD4 T-cells.
<b>CD4 count</b>	The number of CD4 T-lymphocyte cells usually expressed as the number of cells per cubic millimetre. The CD4 count reflects the “health” of the immune system. A normal count in a healthy adult is variable and can range from 500–1400 cells/mm <sup>3</sup> .
<b>Cessation of breastfeeding</b>	Completely stopping breastfeeding, including suckling.
<b>Chorioamnionitis</b>	Inflammation or infection of the membranes and fluid surrounding the baby.
<b>Chronic illness</b>	Any persistent medical condition that limits activity and may require ongoing care.
<b>Commercial infant formula</b>	Breast-milk substitute specially formulated powdered milk made specifically for infants. Commercial infant formula is sold in shops/stores or provided to HIV-infected mothers to prevent HIV transmission to infants.
<b>Commercial sex worker</b>	A woman or man who offers sexual services for a fee or other gain. The terms prostitute or prostitution are used more frequently outside of the healthcare environment.
<b>Complementary food</b>	Any solid or semi-solid food suitable as a complement to breast milk or a breast-milk substitute, when either becomes insufficient to satisfy the nutritional requirements of the infant.
<b>Condom</b>	A sheath or medical device worn during sexual intercourse that provides protection against pregnancy and STIs. The male condom is usually made of latex rubber, polyurethane or lambskin and worn on the penis; the female condom is made of polyurethane and lines the entire vaginal canal.
<b>Co-trimoxazole</b>	Also known as trimethoprim/sulfamethoxazole (TMP-SMX). A combination antibiotic drug effective at preventing and treating Pneumocystis pneumonia (PCP); also serves as prophylaxis against toxoplasmosis and malaria and is effective against many bacterial infections.
<b>Counselling</b>	The confidential dialogue between a client and a healthcare worker.
<b>CSW</b>	See Commercial Sex Worker.
<b>Cup feeding</b>	Being fed from or drinking from an open cup.
<b>DDT</b>	See dichlorodiphenyltrichloroethane.
<b>Dehydration</b>	Loss of fluid from body tissues.
<b>Diarrhoea</b>	Frequent loose and/or watery bowel movements often caused



	by viruses, bacteria or parasites.
<b>Dichlorodiphenyltrichloroethane</b>	One of the first modern synthetic pesticides used to combat mosquitoes that spread malaria.
<b>Dual protection</b>	The use of one or more methods of contraception to prevent STIs, including HIV, and unintended pregnancy.
<b>EFV</b>	See efavirenz.
<b>Efavirenz</b>	A non-nucleoside reverse transcriptase inhibitor (NNRTI) used for treatment of HIV infection in adults. It is not recommended to treat HIV-infected women who are in their first trimester of pregnancy due to the risk of birth defects.
<b>ELISA</b>	See enzyme linked immunosorbent assay.
<b>Enzyme</b>	A protein that helps promote biochemical reactions.
<b>Enzyme linked immunosorbent assay</b>	A laboratory assay (test) to identify the presence of HIV antibodies in body fluids.
<b>Epidemic</b>	A disease affecting a large number of individuals within a population, community or region at the same time.
<b>Evaluation</b>	Assessing the change in indicator measurements resulting from an intervention or programme.
<b>Exclusive breastfeeding</b>	The infant is given only breast milk and no other liquids or foods, not even water. However, the infant may be given drops or syrups consisting of vitamins, mineral supplements or medicine as directed by a HCW. The exclusively breastfed child may receive expressed breast milk.
<b>Family planning</b>	Regulating the number and spacing of children in a family through the practice of contraception or other method of birth control.
<b>Female condom</b>	A strong, soft, transparent polyurethane sheath inserted in the vagina before sexual intercourse that provides protection against both pregnancy and STIs.
<b>Germ</b>	Organisms, including bacteria, viruses and fungi, that can cause infection.
<b>HAART</b>	See highly active antiretroviral therapy.
<b>Haemoglobin</b>	A protein found in red blood cells that uses iron to carry oxygen from the lungs to other cells in the body. Also, a laboratory measurement of anaemia.
<b>HCW</b>	See healthcare worker.
<b>Healthcare worker</b>	A doctor, nurse, midwife, programme manager, social worker or

	others whose activities include working with patients or clients in a healthcare setting.
<b>Hepatitis</b>	Inflammation of the liver that may be caused by bacterial or viral infection, parasitic infestation, alcohol, drugs, including ARV drugs, toxins or transfusion of incompatible blood.
<b>Hepatomegaly</b>	Swollen or enlarged liver.
<b>Highly active antiretroviral therapy</b>	Using at least three ARV drugs in combination to suppress viral replication and progression of HIV disease by reducing the viral load to undetectable levels which can prevent the progression to advanced HIV. Also known as combination ARV therapy.
<b>HIV</b>	See human immunodeficiency virus.
<b>HIV rapid test</b>	A test for detecting HIV antibodies in blood or other body fluids that gives accurate results within 20-40 minutes.
<b>Home-based care</b>	The provision of treatment and care in the home.
<b>Home-prepared formula</b>	Fresh or processed animal milk that is modified by adding water, sugar and micronutrient supplements.
<b>Human immunodeficiency virus</b>	The virus that causes AIDS.
<b>IMAI</b>	See Integrated Management of Adolescent and Adult Illness.
<b>IMCI</b>	See Integrated Management of Childhood Illness.
<b>Immune system</b>	A collection of cells and proteins that work to protect the body from invasion by foreign bacteria, viruses and fungi.
<b>Immunization</b>	The process by which a person becomes protected against a disease. This term is often used interchangeably with vaccination or inoculation. Currently there are no immunizations to protect against HIV.
<b>Immuno-compromised</b>	Having a weak or damaged immune system as measured by a low CD4 count. Also, see immunosuppressed.
<b>Immuno-suppressed</b>	When the body's immune function is damaged and incapable of performing its normal functions.
<b>In utero</b>	Events that occur in the uterus (womb) during pregnancy.
<b>Indicators</b>	Measures used to track changes in a programme over time. They provide information on the status of programme activities and targets. Indicators signal the current situation or status of an intervention.
<b>Infant who is HIV-exposed</b>	Infant born to a mother infected with HIV, and exposed to HIV through pregnancy, in childbirth or during breastfeeding.

<b>Infection</b>	Invasion and growth of germs in the body.
<b>INH</b>	See isoniazid.
<b>Integrated Management of Adolescent and Adult Illness</b>	A health care strategy, developed by the World Health Organization, which addresses the overall health of the adolescent or adult patient by supporting a shift from an exclusively acute care model to a chronic care model that includes ARV therapy and prevention. IMAI aims to strengthen healthcare systems by providing tools for patient monitoring, referral to district hospitals, clinical team building, clinical mentoring and district planning.
<b>Integrated Management of Childhood Illness</b>	An integrated approach to child health, developed by the World Health Organization, focusing on the well-being of the whole child. IMCI aims to reduce death, illness and disability, and to promote improved growth and development among children under 5 years of age. IMCI includes both prevention and treatment implemented by families and communities as well as by health facilities.
<b>Insecticide-treated bednet</b>	A bednet that has been treated with insecticide to protect against mosquitoes and malaria. Insecticide-treated bednets have been shown to reduce morbidity and mortality from malaria.
<b>Intervention</b>	An action or strategy to address a particular problem or issue that aims to accomplish a specific result.
<b>IPT</b>	See intermittent preventive treatment.
<b>Intermittent preventive treatment</b>	Refers to the use of at least 3 doses of the antimalarial medication, sulfadoxine-pyrimethamine, during pregnancy to reduce the risk of contracting malaria and to reduce the morbidity associated with malarial infection during pregnancy.
<b>Intrapartum</b>	Occurring during labour and delivery (childbirth).
<b>Isoniazid</b>	A medication used to prevent and treat tuberculosis. When used for prevention it is usually given every day for 6 months in conjunction with pyridoxine (vitamin B6) to prevent a common side effect of isoniazid; peripheral neuropathy. When used for treatment, it is used in combination with other anti-tuberculosis medications.
<b>Low birth weight</b>	A newborn is considered to be of a low birth weight if the infant weighs less than 2500 grams.
<b>Lymphadenopathy</b>	A swelling of the lymph glands in the body. The most common areas of swelling with HIV infection are the neck, under the arms and in the groin.
<b>Lymphocyte</b>	A type of white blood cell responsible for immune responses.

<b>Malaria</b>	An infectious disease characterized by cycles of chills, fever and sweating. Malaria is caused by a parasite transmitted by a mosquito.
<b>Male condom</b>	A sheath that is worn over the penis during sexual activity to prevent pregnancy or spread of sexually transmitted disease. See also condom.
<b>Mastitis</b>	An inflammation of the breast resulting from inadequate or poor drainage of breast milk. Mastitis can be infective or non-infective in origin.
<b>Medication adherence</b>	Taking medicine exactly as recommended by a healthcare worker at the correct time, correct dosage and according to possible food restrictions.
<b>Mixed feeding</b>	When an infant is fed breast milk along with other liquids and/or solid foods during the first six months of life. Giving commercial infant formula, animal milk, water, rice or porridge to an infant who is breastfed are examples of mixed feeding.
<b>Monitoring</b>	Routine tracking of key parts of a programme using recordkeeping and regular reporting.
<b>Mother-to-Child transmission of HIV</b>	Transmission of HIV from a woman infected with HIV to her child during pregnancy, childbirth and breastfeeding. Also referred to as vertical transmission or perinatal transmission.
<b>MTCT</b>	See mother-to-child transmission.
<b>Nevirapine</b>	A non-nucleoside reverse transcriptase inhibitor (NNRTI) used for treatment of HIV infection in adults. The drug is also effective in preventing HIV transmission from mothers to infants.
<b>NRTI</b>	See nucleotide/side reverse transcriptase inhibitors.
<b>NNRTI</b>	See non-nucleoside reverse transcriptase inhibitors.
<b>Non-nucleoside reverse transcriptase inhibitors</b>	A type of ARV drug used to treat HIV infection and prevent mother-to-child transmission of the virus. The most commonly known NNRTI is nevirapine (NVP). The class of medications works by blocking the ability of HIV to infect new cells by attaching to an enzyme that the HIV virus uses to replicate. Once the enzyme and medication are bound, the virus can no longer reproduce.
<b>Nucleotide/side reverse transcriptase inhibitors</b>	A type of ARV drug used to treat HIV infection and prevent mother-to-child transmission of the virus. The most common NRTI is zidovudine (AZT). Like NNRTIs, the drug works by blocking the ability of HIV to infect new cells.
<b>OI</b>	See opportunistic infection.
<b>Opportunistic infection</b>	A disease caused by a microorganism that does not normally cause illness in a person with a healthy immune system, but

	may cause serious disease when the immune system is weakened.
<b>OPV</b>	See oral polio vaccine.
<b>Oral polio vaccine</b>	A live attenuated vaccine that protects against polio. It is given as a liquid to be swallowed.
<b>Oral thrush</b>	A fungal infection of the mouth, usually caused by <i>Candida</i> , presents as white patches in the oral cavity.
<b>Pandemic</b>	A disease occurring over a wide geographic area and affecting an exceptionally high proportion of the population, e.g., malaria or HIV.
<b>PCP</b>	See pneumocystis pneumonia.
<b>PCR</b>	See polymerase chain reaction.
<b>PEP</b>	See post-exposure prophylaxis.
<b>Perinatal transmission</b>	See mother-to-child transmission of HIV.
<b><i>Pneumocystis</i> Pneumonia</b>	A severe, life-threatening lung infection caused by <i>Pneumocystis jiroveci</i> that presents as fever, dry cough and difficulty breathing. The disease, formerly known as <i>Pneumocystis carinii</i> pneumonia (PCP) is a major cause of illness and death in HIV-infected persons. The acronym PCP is still in use.
<b>Polymerase chain reaction</b>	A viral assay or test that detects the presence or amount of a virus in the blood. For HIV, the DNA-PCR test indicates the presence of the virus. The HIV RNA-PCR measures the amount of virus, often referred to as the viral load.
<b>Post-exposure prophylaxis</b>	Short-term use of specific ARV drugs to reduce the likelihood of HIV infection after potential exposure, either occupationally or through sexual intercourse. Within the health sector, PEP should be provided as part of a comprehensive universal precautions package that reduces staff exposure to infectious hazards at work. The availability of PEP may reduce the occurrence of occupationally acquired HIV infection in health care workers.
<b>Postpartum care</b>	Care for a mother and infant following birth.
<b>Premature delivery</b>	A delivery that occurs after 28 weeks but before 37 weeks gestation.
<b>Prenatal care</b>	See antenatal care.
<b>Prevalence</b>	Percentage of a population that is affected with a particular disease at a given time.
<b>Programme cycle</b>	Process of assessing a situation and then planning,

implementing, monitoring, and evaluating a responsive public health programme.

<b>Prophylaxis</b>	A measure taken for the prevention of a disease or condition.
<b>Replacement feeding</b>	The process of feeding the infant who is receiving no breast milk is given a diet that provides all the nutrients the infant needs until the age at which he/she can be fully fed with family foods. During the first 6 months of life, replacement feeding should be with a suitable breast-milk substitute such as commercial infant formula. After 6 months, the suitable breast-milk substitute should be complemented with other foods.
<b>Replicate</b>	To duplicate or make more copies of something. Once the HIV virus has entered the host cell, it will replicate to produce a greater viral load.
<b>Safe Motherhood Initiative</b>	A worldwide effort launched in 1987 that aims to reduce the number of deaths and illnesses associated with pregnancy and childbirth.
<b>Safer sex</b>	Sexual activity conducted in such a way that transmission of HIV infection and other STIs is minimized by reducing the exchange of body fluids (e.g., consistent use of male or female condoms, avoiding unprotected vaginal and anal intercourse).
<b>sdNVP</b>	See single dose nevirapine.
<b>Seropositive</b>	A person whose blood test result confirm the presence of HIV, is said to be seropositive or HIV-positive. A test can indicate the presence of antibodies to an organism (antibody positive) or the presence of the organism and its proteins (antigen positive).
<b>Sexually transmitted infection</b>	Infections that result an exchange of body fluids resulting from sexual contact (oral, vaginal or anal intercourse) with someone who is infected. STIs may be bacterial, fungal or viral in origin.
<b>Side effect</b>	Unintended action or effect of a medication or treatment.
<b>Single dose nevirapine</b>	Refers to the use of a single dose of nevirapine, an antiretroviral medication, to prevent mother-to-child transmission of HIV. A single dose for mother consists of 200 mg of nevirapine given at the onset of labour. A single dose for the infant consists of 2 mg/kg given as soon as possible after delivery but within 72 hours. Single dose nevirapine should be administered in combination with other ARV medications. A single dose of nevirapine used alone, is the minimum regimen to prevent mother-to-child transmission of HIV.
<b>SP</b>	See sulfadoxine-pyrimethamine.
<b>Splenomegaly</b>	Inflamed or enlarged spleen that is assessed by physical exam. HIV-infected infants can present with an enlarged spleen.
<b>Standard</b>	Designed to reduce the risk of transmission of microorganisms

<b>Precautions</b>	from both recognized and unrecognized sources of infection in medical settings.
<b>Sterilization</b>	Completely eliminating or killing all microorganisms by application of steam under pressure, dry heat or ethylene oxide and other gases, or by soaking in other liquid chemicals for prolonged periods.
<b>STI</b>	See sexually transmitted infection.
<b>Stigma</b>	Unfavourable attitudes and beliefs directed toward someone or something.
<b>Sulfadoxine-pyrimethamine</b>	Sulfadoxine and pyrimethamine are antimalarial medications typically used to prevent and treat malaria. Each tablet typically contains 500 mg of sulfadoxine and 25 mg of pyrimethamine. This combination medication is used for the intermittent preventive treatment of malaria in pregnant women in areas stable and high malaria transmission areas.
<b>Symptomatic</b>	Showing signs of illness or disease.
<b>TB</b>	See tuberculosis.
<b>Thrush</b>	See oral thrush.
<b>TLC</b>	See total lymphocyte count
<b>Total lymphocyte count</b>	A laboratory measurement of a type of white blood cells that, in the absence of CD4 cell count, can be substituted to guide the initiation of ARV therapy. It is a measure of the degree of immuno-compromise in an HIV-infected patient.
<b>Tuberculosis</b>	A contagious bacterial infection caused by <i>Mycobacterium tuberculosis</i> that damages the lungs and other parts of the body. Tuberculosis is usually a respiratory illness spread mainly by coughing which can produce tiny infectious particles of respiratory secretions. Tuberculosis can also be spread into the air by talking, sneezing, spitting or singing. It is a common co-infection with HIV.
<b>Unprotected sex</b>	Oral, vaginal or anal intercourse sexual intercourse without the use of a protective barrier to avoid exchange of body fluids (specifically blood, semen and/or vaginal fluids).
<b>Vertical transmission</b>	See mother-to-child transmission of HIV.
<b>Viral load</b>	The amount of virus in the blood as measured by HIV RNA PCR.
<b>Viral resistance</b>	Changes in the genetic makeup of a virus that decreases the effectiveness of antiretroviral drugs.
<b>Virus</b>	An organism that infects and replicates inside of cells.
<b>Western blot</b>	A laboratory test for specific antibodies to confirm reactive

results on the HIV ELISA test. Western blot is used to confirm other test results.

**Wet-nursing** When a woman other than the infant's mother, breastfeeds the infant.

**Window period** The period of time between the infection with HIV and the appearance of detectable antibodies to the virus. The window period usually lasts 4 to 6 weeks but occasionally up to 3 months after HIV exposure.

**Zidovudine** See azidothymidine.





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## Resources

### Module 1: Introduction to HIV

#### Key Related Resources:

National Center for HIV, STD and TB Prevention Divisions of HIV/AIDS Prevention. 2005. *Frequently Asked Questions on HIV and AIDS*. CDC. Available at: <http://www.cdc.gov/hiv/pubs/faqs.htm>

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[http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list\\_uids=8093551](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=8093551)

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## Module 2: Overview of HIV Prevention in Mothers, Infants and Young Children

### Key Related Resources:

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UNICEF. December 2005. *PMTCT Report Card 2005, Monitoring Progress on the Implementation of Programs to Prevent Mother to Child Transmission of HIV*. Available at:  
[http://www.unicef.org/ufc\\_PMTCTreportcard.pdf](http://www.unicef.org/ufc_PMTCTreportcard.pdf)

Women, Children, and HIV (<http://womenchildrenhiv.org>)

An online library of resources on the prevention and treatment of HIV infection in women and children targeted at health workers, program managers, and policy makers in resource-poor settings.

WHO. 2006. *Decision-Making Tool for Family Planning Patients and Providers*. Available at:  
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### **Module 3: Specific Interventions for the Prevention of Mother-to-Child Transmission of HIV (PMTCT)**

#### **Key Related Resources:**

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Hesperian Foundation: Berkeley, CA. Available at:  
[http://www.hesperian.org/publications\\_download.php#midwives](http://www.hesperian.org/publications_download.php#midwives)

Women, Children, and HIV (<http://womenchildrenhiv.org>)

An online library of resources on the prevention and treatment of HIV infection in women and children targeted at health workers, program managers, and policy makers in resource-poor settings.

WHO. 2007. Integrated Management of Pregnancy and Childbirth. WHO Recommended Interventions for Improving Maternal and Newborn Health. WHO: Geneva, Switzerland. Available at:  
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#### Module 4: Stigma and Discrimination Related to MTCT

##### Key Related Resources:

EngenderHealth. 2004. *Reducing Stigma and Discrimination Related to HIV and AIDS: Training for Health Care Workers—Trainer's Manual*. EngenderHealth: New York. Available at: <http://www.go2itech.org/pdf/p06-db/db-50688-02.pdf>

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## Module 5: HIV Testing and Counselling for PMTCT

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CDC Global AIDS Program, WHO, et al. 2006. *HIV Rapid Test Training Package*. CDC: Atlanta, Georgia. Available at: <http://www.phppo.cdc.gov/dls/ila/hivtraining/default.aspx>

CDC Global AIDS Program, WHO, et al. 2005. *Testing and Counselling for Prevention of Mother-to-Child Transmission of HIV (TC for PMTCT): Support Tools*. CDC: Atlanta, Georgia. Available at: <http://www.womenchildrenhiv.org/wchiv?page=vc-10-00>

WHO. *Online Toolkit for HIV Testing and Counselling* (<http://who.arvkit.net/tc/en/index.jsp>) This Web site provides guidance on planning, implementing, and evaluating HIV testing and counselling services in resource-limited settings for an audience of program managers and their partners in the public and private sectors. It includes resources on stakeholder and community mobilization, management of commodities, capacity building, and good practices in voluntary counselling and testing.

WHO, UNAIDS. *2007 Guidance on Provider-Initiated HIV Testing and Counselling in Health Facilities*. WHO: Geneva, Switzerland. Available at: [http://www.who.int/hiv/who\\_pitc\\_guidelines.pdf](http://www.who.int/hiv/who_pitc_guidelines.pdf)



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## Module 6: Infant Feeding in the Context of HIV Infection

### Key Related Resources:

- La Leche League International (<http://www.lalecheleague.org>) The La Leche League is a voluntary organisation, dedicated to providing education, information, support, and encouragement to women who want to breastfeed. The Web site contains a rich collection of resources for health care providers and lactating women.
- WHO, Food and Agriculture Organization of the United Nations. 2007. *Safe preparation, storage and handling of powdered infant formula, Guidelines*. WHO: Geneva. Available at: [http://www.who.int/foodsafety/publications/micro/pif\\_guidelines.pdf](http://www.who.int/foodsafety/publications/micro/pif_guidelines.pdf)
- WHO Child and Adolescent Health and Development. ([http://www.who.int/child-adolescent-health/NUTRITION/HIV\\_infant.htm](http://www.who.int/child-adolescent-health/NUTRITION/HIV_infant.htm)) This web site provides information about infant and young child nutrition as well as listing key resources in this field.
- WHO and UNICEF. 2006. *Infant and Young Child Feeding Counselling: An integrated course*.

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WHO, UNAIDS, et al. 2003. *HIV and Infant Feeding: Framework for priority action*. WHO: Geneva. Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/HIV\\_IF\\_Framework.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/HIV_IF_Framework.pdf)

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Fowler, MG and ML Newell. 2002. Breast-feeding and HIV-1 transmission in resource-limited settings. *J Acquir Immune Defic Syndr* 30(2): 230-9. Available at: [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list\\_uids=12045686](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=12045686)

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John G, Nduati R et al. Correlates of mother-to-child human immunodeficiency virus type 1 (HIV-1) transmission: association with maternal plasma HIV-1 RNA load, genital HIV-1 DNA shedding, and breast infections. *J Infect Dis* 2001; 183 (2):206-12. Available at: [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list\\_uids=11120927&dopt=Abstract](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11120927&dopt=Abstract)

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- WHO and UNICEF. 2002. *Breastfeeding Counselling: A Training Course. Participant's Manual and Trainer's Guide*. WHO-CDD Programme, UNICEF. Available at: <http://www.who.int/child-adolescent-health/publications/NUTRITION/BFC.htm>
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- WHO. 2001. *The Optimal Duration of Exclusive Breastfeeding. Report of an Expert Consultation, 28-30 March 2001*. WHO Department of Nutrition for Health Development/Department of Child and Adolescent Health and Development: Geneva Available at: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/WHO\\_CAH\\_01\\_24.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/WHO_CAH_01_24.pdf)
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## **Module 7: Comprehensive Care and Support for Pregnant Women, Mothers, HIV-exposed Infants and Families with HIV Infection**

### **Key Related Resources:**

- Aidsmap. *HIV & AIDS Treatment in Practice* (<http://www.aidsmap.com/cms1037059.asp>) A bi-monthly email newsletter for doctors, nurses, health care workers and community treatment advocates working in limited-resource settings.
- AIDS Education and Training Centers National Resource Center. 2006. *Clinical Manual for Management of the HIV-Infected Adult*. François-Xavier Bagnoud Center, University of Medicine and Dentistry of New Jersey: New Jersey. Available at: <http://www.aidsetc.org/aetc/aetc?page=cm-00-00>
- Anderson, J, Ed. 2005. *A Guide to Clinical Care for Women with HIV/AIDS 2005 edition*. Health Services Research Administration: Rockville, Maryland. Available at: <http://hab.hrsa.gov/publications/womencare05/index.htm>
- Bartlett, J, J Cheever, L, et al. 2004. *A Guide to Primary Care of People with HIV/AIDS*. Johns Hopkins University School of Medicine: Baltimore, MD. Available at: <http://www.aidsetc.org/aidsetc?page=et-30-25-01>

HIV InSite (<http://hivinsite.ucsf.edu/>) Comprehensive information about HIV treatment, prevention and policy from the University of California, San Francisco.

Family Health International. 2005. *Tools for establishing referral networks for comprehensive HIV care in low-resource settings*. Family Health International. Arlington, VA. Available at: <http://www.fhi.org/NR/rdonlyres/eczzmrvu3xwh7yaroyt3vbfyjadjhsmhvmjffx4s65nfcwwcd35in4vsxm57mtav2gcdjwriisxpsorefnettoolfinal2redux.doc>

Regional Centre for Quality of Health Care. 2005. *Counseling Materials for Nutritional Care and Support of People Living with HIV/AIDS*. Makerere University Medical School: Kampala, Uganda. Available at: [http://www.fantaproject.org/publications/uganda\\_counseling2005.shtml](http://www.fantaproject.org/publications/uganda_counseling2005.shtml)

WHO. 2005. *Pocket Book of Hospital Care for Children: Guidelines for the Management of Common Illnesses with Limited Resources*. WHO: Geneva. Available at: [http://www.who.int/child-adolescent-health/publications/CHILD\\_HEALTH/PB.htm](http://www.who.int/child-adolescent-health/publications/CHILD_HEALTH/PB.htm)

WHO, UNICEF. 2006. *Integrated Management of Childhood Illness Complementary Course on HIV/AIDS*. WHO: Geneva. Available at: [http://www.who.int/child-adolescent-health/publications/IMCI/ISBN\\_92\\_4\\_159437\\_3.htm](http://www.who.int/child-adolescent-health/publications/IMCI/ISBN_92_4_159437_3.htm)

WHO Child and Adolescent Health and Development. [http://www.who.int/child-adolescent-health/NUTRITION/HIV\\_infant](http://www.who.int/child-adolescent-health/NUTRITION/HIV_infant). This web site provides information about infant and young child nutrition as well as listing key resources in this field.

WHO. 2006. *Antiretroviral Therapy for HIV Infection in Adults and Adolescents: Recommendations for a public health approach*. WHO: Geneva. Available at: <http://www.who.int/hiv/pub/guidelines/artadultguidelines.pdf>

Abrams E et al. 2004. *The Pediatric Clinical Manual*. The International Center for AIDS Programs, Columbia University: New York. Available at: <http://www.womenchildrenhiv.org/wchiv?page=wx-resource&rid=003-0000>

African Network for the Care of Children Affected by HIV/AIDS. 2004. *Handbook on Paediatric AIDS in Africa*. Available at: <http://www.fhi.org/NR/rdonlyres/eyvks26jqr4nk3tk6gru6b66hsuguqk2ljicmwig5xrq6d5mfsez327ag4mkb5aeidqqpkfokzt6a/ANECCA013105.pdf>

AIDS Education and Training Centers National Resource Center. 2004. *Treating Opportunistic Infections Among HIV-Infected Adults and Adolescents: Slide Set*. Available at: <http://www.aids-etc.org/aidsetc?page=et-01-00#S4X>

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Division of Reproductive Health, Kenyan Ministry of Health, National AIDS & STD Control Programme (NASCO). 2005. *Kenya PMTCT National Training Curriculum*. Available at: <http://www.womenchildrenhiv.org/wchiv?page=gtp-02-01>

FAO and WHO. 2002. *Living well with HIV/AIDS: A manual on nutritional care and support for people living with HIV/AIDS*. FAO, WHO: Rome, Italy. Available at: <ftp://ftp.fao.org/docrep/fao/005/y4168E/y4168E00.pdf>

Horizons. 2002. *Prevention of Mother-to-Child Transmission (PMTCT) Training Curriculum*. Population Council: Nairobi. Available at: <http://www.popcouncil.com/horizons/pmcttc.html>

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Walter J, Mwiya M et al., Reduction in Preterm Delivery and Neonatal Mortality after the Introduction of Antenatal Cotrimoxazole Prophylaxis among HIV-Infected Women with Low CD4 Cell Counts *J Infect Dis*. 2006 Dec 1;194(11):1510-8.

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WHO. 2006. *Chronic HIV care with ARV therapy and Prevention. Interim Guidelines for Health Workers at Health Centre or District Hospital Outpatient Clinic*. WHO. Geneva. Available at: <http://www.who.int/3by5/publications/documents/imai/en/>

WHO. 2006. *Antiretroviral Therapy of HIV Infection in Infants and Children: Towards Universal Access, Recommendations for a public health approach*. WHO: Geneva. Available at: <http://www.who.int/hiv/pub/guidelines/paediatric020907.pdf>

WHO. 2006. *WHO Case Definitions of HIV for Surveillance and Revised Clinical Staging and Immunological Classification of HIV-Related Disease in Adults and Children*. WHO: Geneva. Available at: <http://www.who.int/hiv/pub/guidelines/HIVstaging150307.pdf>

WHO. 2006. *Guidelines on Co-trimoxazole Prophylaxis for HIV-Related Infections among Children, Adolescents and Adults: Recommendations for a public health approach*. WHO: Geneva. Available at: <http://www.who.int/hiv/pub/guidelines/ctxguidelines.pdf>

WHO. 2006. *Guidelines for the Treatment of Malaria* WHO: Geneva. Available at: <http://www.who.int/malaria/docs/TreatmentGuidelines2006.pdf>

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WHO. 2004. *HIV/TB: A Clinical Manual*. WHO: Geneva. Available at: <http://whqlibdoc.who.int/publications/2004/9241546344.pdf>

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WHO. 2003. *Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice* WHO:Geneva. Available at: <http://www.who.int/reproductive-health/publications/pcpnc/pcpnc.pdf>

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## Module 8: Safety and Supportive Care in the Work Environment

### Key Related Resources:

EngenderHealth. 2004. *Infection Prevention Online Course*. EngenderHealth: New York. Available at: <http://www.engenderhealth.org/IP/index.html>

Tietjen, L, D Bossemeyer, et al. 2003. *Infection Prevention Guidelines for Healthcare Facilities with Limited Resources*. JHPIEGO Baltimore, MD. Available at:  
[http://www.reproline.jhu.edu/english/4morerh/4ip/IP\\_manual/ipmanual.htm](http://www.reproline.jhu.edu/english/4morerh/4ip/IP_manual/ipmanual.htm)

WHO, 2006 *Guidelines on Hand Hygiene in Health Care (Advanced Draft)*. Available at  
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<http://www.cdc.gov/hiv/pubs/brochure/careathome.htm>

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[http://library.unesco-iicba.org/English/HIV\\_AIDS/cdrom%20materials/WHO/WHOhtml%2011.htm](http://library.unesco-iicba.org/English/HIV_AIDS/cdrom%20materials/WHO/WHOhtml%2011.htm)

EngenderHealth. 2003. *Infection Prevention Practices in Emergency Obstetric Care, A Supplement to Infection Prevention: A Reference Booklet for Health Care Providers*. New York. Available at:  
<http://www.engenderhealth.org/res/offc/safety/ip-emoc/pdf/ip-emoc-eng.pdf>

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## Module 9: PMTCT Programme Monitoring

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