Module 1: Overview of HIV Infection

Purpose

To provide the participants with the basic terms and concepts related to HIV infection.

Pre-requisite Modules

None

Module Time

30 minutes

Learning Objectives

At the end of this module, participants will be able to:

- Describe the difference between HIV infection and AIDS
- Discuss the HIV epidemics globally, regionally, and locally in terms of number of people affected
- Define the terms: antibody and antigen
- Explain how "window period" may affect HIV testing results
- Describe the progression of HIV infection

Module Overview

Step	Time	Activity/ Method	Content	Resources Needed
1	2 min	Presentation	Module introduction	Slides 1-3
2	25 min	Presentation	HIV/AIDS overview	Slide 4-19
3	3 min	Q&A	Summary	Slide 20

Material/Equipment Checklists

- PowerPoint slides or transparencies
- Overhead projector or computer w/LCD projector
- Prepared Flipchart – content outline
- Handout – WHO Staging System for HIV Infection and Disease in Adults and Adolescents

Teaching Guide

Slide Number	Teaching Points
 *TIPS*	For participants <u>without</u> medical or laboratory background, keep the presentation simple and avoid using technical jargons without explaining them first. For participants <u>with</u> medical or technical background, you may need to provide more in-depth information.
1	**<u>Module 1: Overview of HIV Infection</u>** DISPLAY this slide before you begin the module.
2	**<u>Learning Objectives</u>** STATE the objectives on the slide.
3	**<u>Content Overview</u>** EXPLAIN the topics that will be covered in this module.
Flipchart 	WRITE the content outline on a flipchart prior to training. REFER to it frequently to orient participants to where they are in the module.
4	**<u>What is HIV?</u>** STATE Many people see HIV and AIDS as being the same thing, and therefore make the assumption that someone who is HIV-positive could die tomorrow. This is not true. It is important to distinguish between HIV and AIDS. STATE the points on the slide. • HIV stands for Human Immunodeficiency Virus. • It is the virus that causes AIDS.
5	**<u>Types of HIV Virus</u>** EXPLAIN the two types of HIV virus. ADD the following points: • Both produce the same patterns of illness. HIV 2 causes a slower progression of disease than HIV 1. • It is important for tests to detect the HIV subtypes that are present in the region. Otherwise, testing may lead to false negative results.

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6	**<u>Structure of HIV</u>** EXPLAIN the structure of the HIV virus. • Like all viruses, it is made up of 2 main elements: the external envelope, and the internal core. • HIV is a retrovirus. HIGHLIGHT specific test methods are used to detect and measure certain parts of the virus. For example, a test to detect the core of the virus called p24 is used to detect early or pediatric infections.
7	**<u>What is AIDS?</u>** STATE points on the slide. ADD the following points: • HIV infection leads to a weakened immune system. This makes a person with HIV vulnerable to infections. • AIDS results when HIV infection progresses to an advanced stage, damaging the immune system to a point at which the body can no longer fight illness. • Drugs are available which can treat HIV and AIDS. • These drugs are called antiretrovirals (ARVs). They prevent the virus from replicating and slow the progress of the disease. • Currently, there is still no cure for AIDS or a vaccine that will prevent HIV infection. SUMMARIZE by stating AIDS is the final stage of the disease caused by infection with a type of virus called HIV.
8	**<u>HIV vs. AIDS</u>** DESCRIBE the difference between HIV and AIDS with the points on the slide.

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 *TIPS*	Lay counselors may need more information about the immune system. Consider providing additional content to lay counselors. **How HIV weakens the immune system** Our blood contains white and red blood cells. Normally the white cells fight off and kill any germs which enter our bodies. They do this by eating up the germs and by producing chemicals called antibodies which kill them. In this way our bodies fight off many different germs and we stay healthy. Sometimes we have symptoms of illness when our white cells are fighting the germs, but usually the white cells win and we get better. HIV weakens the immune system by entering and destroying our white cells. As more and more white cells are killed, the body becomes less and less able to fight off the many different germs which live around and in our bodies all the time. After many years the white cells are so damaged that these germs, which normally do not cause problems, can cause deadly diseases.
9	**How is HIV Transmitted?** EXPLAIN the points on the slide.
10	**HIV: A Global Pandemic** STATE the following: • This slide provides estimates for the numbers of persons living with HIV in different continents in 2003. Between 34 and 46 million persons live with HIV; most of these in Africa. • HIV infection is a worldwide epidemic – a pandemic – affecting people everywhere.
 *Customization Notes* **11-12**	Customize these two slides with regional and local data about HIV epidemic and impact.
11	**HIV Epidemic in Sub-Saharan Africa** POINT OUT the following on the slide: • The growing number of people living with HIV and AIDS • The growing trend of HIV prevalence
12	**HIV Epidemic: Local Facts & Impact** EXPLAIN the local HIV infection rate and its impact on local community.

Slide Number	Teaching Points
13	**<u>Basic Terms</u>** STATE the definition of antigen and antibody on the slide.
14	**<u>Testing for Viral Infection and Immune Response</u>** EXPLAIN HIV infection can be measured in terms of: ▪ The amount of virus circulating in the body –called the viral load ▪ The amount of antigen – p24 antigen – circulating in the body ▪ Proteins or cells that protect the body against infection – IgG and IgM antibodies, and CD4 cells
 *TIPS*	Consider providing additional information about measuring human response to HIV infection by discussing B and T cells when teaching people with a laboratory or medical background. T and B cells are types of white blood cells called lymphocytes that provide protection against infection. B cells are responsible for producing antibodies. There are three types of T cells. ▪ **Helper T-Cells** (also called CD4+ cells) help other cells destroy infective organisms. ▪ **Suppressor T-Cells** (also called CD8+ cells) suppress the activity of other lymphocytes so they don't destroy normal tissue. ▪ **Killer T-Cells** (also called cytotoxic T lymphocytes, or CTLs, and are another kind of or CD8+ cell) recognize and destroy abnormal or infected cells. Over a period of time, HIV infects and kills white blood cells called CD4 lymphocytes or (T cells), leaving the body unable to fight off certain kinds of infections.
15	**<u>Evolution of Antibodies</u>** DESCRIBE the timeframe by which antibodies are produced. STATE Specific antibodies are detected at certain times over the course of infection POINT to the area of the slide labeled Window Period. TRANSITION to providing additional explanation on the meaning of “window period”

Slide Number	Teaching Points
16	**<u>Window Period</u>** EXPLAIN window period as the phase when you have been infected with HIV, but antibody levels are not detectable. ADD THE FOLLOWING POINTS: • Seroconversion occurs during the window period. • "Seroconversion" is a term used to describe the change from non-detectable to detectable antibody levels. Specimen may test initially non-reactive, but change to testing reactive after a certain time period. • Seroconversion occurs generally 3-8 weeks after the initial infection.
17	**<u>Disease Progression</u>** STATE the points on the slide. DEFINE viral load as the amount of HIV virus circulating in the bloodstream.
18	**<u>WHO HIV/AIDS Classification System</u>** STATE WHO (World Health Organization) marks the progression of HIV infection with four stages. RELATE the clinical course of HIV infection with WHO's classification system. REFER participants to the handout in their manual for details of WHO's classification system. POINT OUT that testing at any stage allows for triage towards treatment.
19	**<u>Can Disease Progression Be Delayed?</u>** STATE the points on the slide.
20	**<u>Summary</u>** ASK participants to answer the questions on the slide. ANSWER any questions participants may have.