



Module 7 Safety and Supportive Care in the Work Environment

SECTION 1 Universal Precautions and Creating a Safe Work Environment

SECTION 2 Handling and Decontamination of Equipment and Materials

SECTION 3 Managing Occupational Exposure to HIV Infection

SECTION 4 Supportive Care for the Caregiver



Total Time: 215 minutes

SECTION 1 Universal Precautions and Creating a Safe Work Environment

Activity/Method	Resources Needed	Time
Lecture and slide presentation	None, other than those noted below	30 minutes
Exercise 7.1 Reducing HIV transmission risk in MCH settings: case study	None, other than those noted below	30 minutes

SECTION 2 Handling and Decontamination of Equipment and Materials

Activity/Method	Resources Needed	Time
Lecture and slide presentation	None, other than those noted below	15 minutes
Exercise 7.2 Promoting a safe work environment resource list: group discussion	None, other than those noted below	30 minutes

SECTION 3 Managing Occupational Exposure to HIV Infection

Activity/Method	Resources Needed	Time
Lecture and slide presentation	None, other than those noted below	20 minutes
Exercise 7.3 PEP case study: small-group discussion	None, other than those noted below	45 minutes

SECTION 4 Supportive Care for the Caregiver

Activity/Method	Resources Needed	Time
Lecture and slide presentation	None, other than those noted below	15 minutes
Exercise 7.4 Compassion fatigue/burnout in PMTCT programmes: large group discussion	None, other than those noted below	45 minutes

For all sections, also have available the following:

- Overheads or PowerPoint slides for this Module (in Presentation Booklet)
- Overhead or LCD projector, extra extension cord/lead
- Flipchart or whiteboard and markers or blackboard and chalk
- Pencil or pen for each participant

Note: This module is not intended to be a comprehensive course in infection control in healthcare settings but rather it complements existing protocols and reinforces safety principles in PMTCT settings.

SECTION 1 Universal Precautions and Creating a Safe Work Environment



Advance Preparation

Review the case study in Exercise 7.1 to be sure it reflects local customs, issues, policies, and names. Ask local healthcare workers to help you adapt the case studies, if necessary.



Total Section Time: 30 minutes



Trainer Instructions

Slides 1, 2 and 3

Begin by reviewing the module objectives listed below.

After completing the module, participants will be able to:

- Describe strategies for preventing HIV transmission in the healthcare setting.
- Define universal precautions in the context of the prevention of mother-to-child transmission (PMTCT) of HIV.
- Identify key steps and principles involved in the decontamination of equipment and materials.
- Assess occupational risk and identify risk-reduction strategies in maternal and child health (MCH) settings.
- Describe the management of occupational exposure to HIV.
- Identify measures to minimise stress and support healthcare workers and caregivers.



Trainer Instructions

Slides 4, 5, 6, 7 and 8

Introduce elements for infection prevention in the workplace and the basic concepts of HIV transmission and prevention of transmission.



Make These Points

- Less than 1% of needle-stick injuries involving known HIV-infected blood are linked to actual HIV transmission.
- Disinfection or sterilisation of equipment used in invasive procedures prevents patient-to-patient transmission of HIV.

Introduction

The healthcare setting is a high-risk environment for the transmission of blood-borne pathogens. To minimise this hazard, healthcare facilities are required to take specific infection prevention measures in order that the health of patients and staff are not put in jeopardy. These steps include:

- Developing an infection prevention policy
- Ensuring that all staff receive orientation on the protocols in the policy
- Providing necessary medications for post exposure prophylaxis
- Ensuring that all staff are immunised against common infectious blood-borne pathogens. (e.g. Hepatitis B Virus)
- Providing on-going infection prevention education for employees

Basic concepts of HIV infection prevention

HIV infection can be transmitted through contact with blood or body fluids, either by direct contact with an open wound or by needle-stick injury.

Blood is the primary fluid known to be associated with HIV transmission in the healthcare setting; small quantities of blood may be present in other body fluids.

HIV transmission to healthcare workers is almost always associated with needle-stick injuries during the care of a patient who is HIV-infected. In practice, transmission occurs when administering

- Intravenous injections
- Venipunctures
- Blood donations
- Dialysis
- Transfusions

Patient-to-patient transmission of HIV infection can be prevented by disinfecting or sterilising equipment and devices used in percutaneous procedures.

Transmission of infectious agents in the healthcare setting can be prevented by using infection control measures, including adherence to universal precautions, safe environmental practices, and ongoing education of employees in infection prevention.

Blood-borne pathogens are viruses, bacteria, or other disease-causing microorganisms carried in blood. There are many different bloodborne pathogens such as the hepatitis B virus, hepatitis C virus, syphilis spirochete, brucellosis bacteria and the human immunodeficiency virus (HIV). This training module will focus on HIV.



Trainer Instructions

Slides 9, 10 and 11

Discuss the concepts of universal precautions and creating a safe work environment, using the information presented below.



Make These Points

- Hand washing remains one of the most important strategies for limiting the spread of infection
- The level of precautions used depends on the procedure involved—not on the patient's diagnosis.

Universal precautions

Universal precautions are practices designed to protect healthcare workers and patients from exposure to bloodborne pathogens. See Appendix 7-A.

It is not feasible or cost-effective to test *all* patients for *all* pathogens before providing care. Therefore, the level of precautions employed should be based on the nature of the procedure involved, not on the patient's actual or assumed HIV status.

Definition

Universal precautions: A simple set of effective practices designed to protect health workers and patients from infection with a range of pathogens including blood-borne viruses. These practices are used when caring for all patients regardless of diagnosis.

Creating a safe work environment

Creating a safe work environment involves practising universal precautions, managing the work environment, and providing ongoing infection prevention education for employees.

In practice, actions to implement universal precautions include the following:

- Washing hands before and after direct contact with patients
- Disinfecting or sterilising all devices and equipment used during invasive procedures
- Avoiding needle recapping; especially two-handed needle recapping
- Using needles or scalpel blades on one patient only
- Safely disposing of needles (hypodermic and suture) and sharps (scalpel blades, lancets, razors, and scissors) in puncture- and leak-proof safety boxes
- Using gloves when in contact with body fluids, non-intact skin, or mucous membranes
- Using masks, eye protection, and gowns (or plastic aprons) when blood or other body fluids could splash
- Applying waterproof dressing to cover all cuts and abrasions
- Promptly and carefully cleaning spills involving blood or other body fluids
- Using systems for safe waste collection and disposal



Trainer Instructions

Slides 12 and 13

Discuss the management of a safe work environment and the importance of ongoing education to reinforce infection control policies.



Make These Points

- Working with a mother who is HIV-infected can create additional emotional stress and requires special precautions in the obstetric setting.
- Sharps containers must be readily accessible.
- Training in the safe and efficient use of new equipment can minimise risk of occupational injury.

Managing the work environment

Ensure that universal precautions are implemented, monitored, and evaluated periodically.

- Establish and implement policies and procedures for reporting and treating occupational exposure to HIV infection.
- Attain and maintain appropriate staffing levels.
- Implement supportive measures that reduce staff stress, isolation and burnout
- Acknowledge and address the multifaceted needs of healthcare workers who are HIV-infected.
- Provide protective clothing and equipment, including gloves, plastic aprons, gowns, goggles, and other protective devices.
- Provide and use appropriate disinfectants to clean up spills involving blood or other body fluids.
- Increase availability of and staff access to puncture-resistant sharps containers.

Ongoing education for employees in infection prevention

- Orient all staff, including peer and lay counsellors, to the site's infection control policies.
- Ensure that all workers who are routinely exposed to blood and body fluids (e.g. physicians, midwives, nurses, and housekeeping personnel) receive preliminary and ongoing training on safe handling of equipment and materials.
- Require that supervisors regularly observe and assess safety practices and remedy deficiencies as needed.



Trainer Instructions

Use the case study below to review and apply principles of universal precautions in MCH high-risk settings.

Exercise 7.1 Reducing HIV transmission risk in MCH settings: case study	
Purpose	To review the application of universal precautions as described in this section, focusing on high-risk settings.
Duration	30 minutes
Introduction	Briefly summarise national universal precautions policies as seen in Appendix 7-A, and use this exercise as an opportunity to discuss how policies are implemented in participants' work settings.
Activity	<ul style="list-style-type: none">▪ Ask participants to refer to the case study below, which is in the Participant Manual.▪ Ask for volunteers to read each paragraph. Pause after each paragraph to allow the group to respond to questions and participate in the discussion.▪ Determine which universal precaution principle applies in each paragraph, and record on flipchart.
Debriefing	Review risk reduction in MCH settings.

Case study

Alache arrives at the labour and delivery unit of your local hospital. She hands you a small card that identifies her as someone who has received care at the neighbouring ANC clinic. This card is coded to let you know that she is HIV-infected. She explains that her contractions are steady now and about four minutes apart. You perform a vaginal examination and estimate that Alache has at least 2 more hours until delivery. You give her nevirapine prophylaxis at this time.

Does your clinical protocol require healthcare workers to use gloves when caring for patients who are HIV-infected? According to universal precautions, would the same gloving requirements apply for all labour and delivery patients, regardless of HIV status?

In your facility, are gloves in good supply and available in a variety of sizes?

What do we know about the relationship between MTCT and vaginal examinations for pregnant women who are HIV-infected?

It has now been several hours since Alache's waters broke (rupture of membranes). She is exhausted. After checking her partogram a decision is made to use oxytocin to shorten her labour.

Why is it important to shorten the time between the rupture of membranes and delivery by a woman who is HIV-infected?

Alache is now fully dilated and ready to deliver. As the head is delivered, you use gauze to carefully free the infant's 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.

Itemise the protective clothing that would be appropriate in a labour and delivery setting.

Consider the need for proper disposal of sharps used in labour and delivery. Does your facility have conveniently located containers for the disposal of sharps?

At your facility, what are the policies for disposing of waste materials? What should be done with the placenta and other contaminated materials?

Alache was your 12th 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?

SECTION 2 Handling and Decontamination of Equipment and Materials



Advance Preparation

Review Exercise 7.2: Promoting a safe work environment resource list: group discussion.



Total Section Time: 45 minutes



Trainer Instructions

Slides 14, 15 and 16

Provide an overview of this section by explaining that activities for reducing the risk of HIV transmission in the MCH setting include:

- Handling and disposing of sharps safely
- Using personal protective equipment such as gloves, aprons, eyewear, and footwear; assessing protective equipment for tears, size requirements, condition
- Sterilising equipment used for invasive procedures
- Reducing risk in the labour and delivery setting



Trainer Instructions

Slides 17 and 18

Present information on the handling and disposal of sharps. As you proceed, ask participants for their input about procedures for proper handling and disposal of sharps.



Make These Points

- Sharps containers need to be readily accessible in key areas.
- Never overfill or re-use sharps containers.

Handling and disposal of sharps

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

Recommendations for use of sterile injection equipment

- Use a sterile syringe and needle for each injection and to reconstitute each unit of medication. If single-use syringes and needles are unavailable, use equipment designed for steam sterilisation.
- Use new, quality-controlled disposable syringes and needles.
- Avoid recapping and other manipulations of needles by hand. If recapping is necessary, use a single-handed scoop technique.
- Collect used syringes and needles at the point of use in a sharps container that is puncture- and leak-proof and that can be sealed before completely full.
- Completely destroy or bury needles and syringes so that people cannot access them and so that groundwater contamination is prevented.

When it is necessary to recap, use the single-handed scooping method:

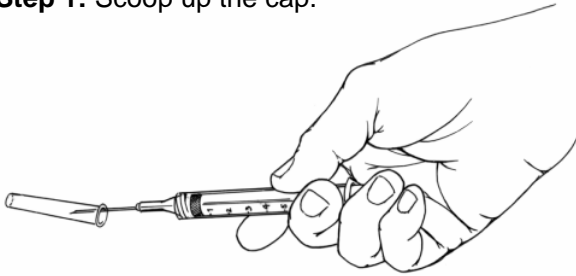
- Place the needle cap on a firm, flat surface.
- With one hand holding the syringe, use the needle to “scoop” up the cap, as shown in Step 1, Figure 7.1.
- With the cap now covering the needle tip, turn the syringe upright (vertical) so the needle and syringe are pointing toward the ceiling.
- Use the 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 7.1).

Tips for careful handling of sharps

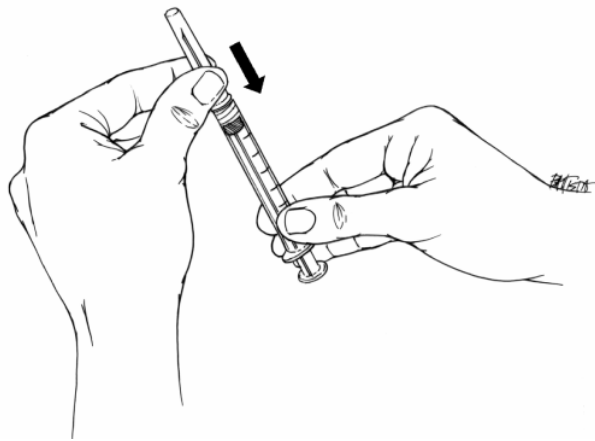
- Always point the sharp end away from yourself and others.
- Pass scalpels and other sharps with the sharp end pointing away from staff; or place the sharp on a table or other flat surface (a receiver) where it can then be picked up by the receiving person.
- Pick up sharps one at a time and do not pass handfuls of sharp instruments or needles.

Figure 7.1 One-handed recap method:

Step 1: Scoop up the cap.



Step 2: Push cap firmly down.



Sharps containers

Using sharps disposal containers helps prevent injuries from disposable sharps. Sharps containers should be fitted with a cover, and should be puncture-proof, leak-proof, and tamper-proof (i.e. difficult to open or break). If plastic or metal containers are unavailable or too costly, use containers made of dense cardboard (cardboard safety boxes) that meet WHO specifications. *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 unobtrusive. Do not place containers near light switches, overhead fans, or thermostat controls where people might accidentally put one of their hands into them.

- Attach containers to walls or other surfaces if possible. Position the containers at a convenient height so staff can use and replace them easily.
- Never reuse or recycle sharps containers.
- Mark the containers clearly so that people will not unknowingly use them as garbage receptacles.
- Seal and close containers when $\frac{3}{4}$ full. Do not fill safety box beyond $\frac{3}{4}$ full.
- Avoid shaking a container to settle its contents to make room for more sharps.



Trainer Instructions

Slide 19

Discuss procedures for effective hand washing, using the content below.



Make These Points

- Reinforce the importance of hand washing and the central role it plays in infection control.

Hand washing

The following strategies are strongly recommended for reducing transmission of blood borne pathogens and other infectious agents to patients and personnel in healthcare settings:

- Soap and water hand washing, using friction, under running water for at least 15 seconds.
- Use of alcohol-based hand rubs (or antimicrobial soap) and water for routine decontamination or hand antisepsis.

Hand washing

Hand washing with soap and water is one of the most effective methods for preventing transmission of blood-borne pathogens and limiting the spread of infection.

Hand hygiene recommendations	
Wash before:	<ul style="list-style-type: none"> ▪ Putting on gloves ▪ Examining a patient ▪ Performing any procedure that involves contact with blood or body fluids ▪ Handling contaminated items such as dressings and used instruments ▪ Eating
Wash after:	<ul style="list-style-type: none"> ▪ Removing gloves ▪ Examining a patient ▪ Performing any procedure that involves contact with blood or body fluids ▪ Handling contaminated items such as dressings and used instruments ▪ Making contact with body fluids, mucous membranes, non-intact skin, or wound dressings ▪ Handling soiled instruments and other items ▪ Using a toilet



Trainer Instructions

Slide 20

Discuss the range and importance of personal protective equipment.



Make These Points

- If personal protective equipment is in short supply, prioritise use according to level of risk.
- Reducing occupational exposure to HIV infection is achieved by avoiding direct contact with blood or fluids containing blood.

Personal protective equipment

Personal protective equipment safeguards patients and staff. Use the following equipment when possible:

- Gloves
- Aprons
- Eyewear
- Footwear

When resources for purchasing protective equipment are limited, purchasing gloves should receive priority over other protective equipment.

Gloves

The use of a separate pair of gloves for each patient helps prevent the transmission of infection from person to person. Protection with gloves is recommended when:

- There is reasonable chance of hand contact with blood, other body fluids, mucous membranes, or broken or cut skin
- An invasive procedure is performed
- Contaminated items are handled

Tips for effective glove use

- Wear gloves that are the correct size.
- Use water-soluble hand lotions and moisturisers often to prevent hands from drying, cracking, and chapping. Avoid oil-based hand lotions or creams because they will damage latex rubber surgical and examination gloves.
- Do not wear rings because they may serve as a breeding ground for bacteria, yeast, and other disease-causing microorganisms.
- Keep fingernails short (less than 3 mm (1/8 inch) beyond the fingertip). Long nails may 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.

Aprons

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

Eyewear

Eyewear, such as plastic goggles, safety glasses, face shields, or visors, protect the eyes 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. When possible, avoid wearing sandals, thongs, or shoes made of soft materials.

Strategies for resource-constrained settings

Universal precaution measures are difficult to practise when supplies are low and protective equipment is not available. *Use resources cost-effectively* by prioritising the purchase and use of supplies, e.g. if gloves are in short supply, use them for childbirth and suturing instead of routine injections and bed-making.

The most important way to *reduce occupational exposure to HIV* is to decrease contact with blood. Facilities should develop and use safety procedures that allow them to deliver effective patient care without compromising personal safety.



Trainer Instructions

Discuss decontamination, cleaning, disinfection, and sterilisation of equipment.



Make These Points

- All contaminated equipment used in invasive procedures should be decontaminated, disinfected, and/or sterilised to avoid patient-to-patient transmission of infection.

Decontamination of equipment

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

Definitions

Decontamination: The first step in making equipment safe to handle. This requires a 10 minute soak in a 0.5% chlorine solution.¹ This important step kills both hepatitis B and HIV.

Cleaning: Efficient cleaning with soap and hot water is essential prior to disinfection or sterilisation to:

- Remove a high proportion of microorganisms
- Remove contaminants such as dust, soil, salts, and the organic matter that protects them

Disinfection: A chemical procedure that eliminates most recognised pathogenic microorganisms. Does not destroy all microbial forms (e.g. bacterial spores).

Sterilisation: Destroys all microorganisms

Disinfection and sterilisation

Detailed information to assist with procedures for decontaminating infectious waste materials and equipment is found in Appendix 7-A. 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 sterilisation.
- Wear additional protective clothing such as aprons, gowns, goggles, and masks when at risk for splashing with body fluid.
- Rinse equipment thoroughly after chemical disinfection.



Trainer Instructions

Slides 21 and 22

Discuss safe work practices. Seek input from participants.

¹ If making a 0.5% chlorine solution from liquid household bleach which is 3.5% chlorine concentrate, mix 1:7 dilution of household bleach to water. A 1:7 dilution is the same as 1 part bleach to 6 parts water. A "part" can be used for any unit of measure (eg, ounce, gram, cup, litre or even a bottle). For more information, refer to <http://www.engenderhealth.org/ip/instrum/inm7.html>.



Make These Points

- Adherence to safe work practices can reduce worker stress and fear of nosocomial infections, including HIV.

Safe work practices

Proper planning and management of supplies and other resources are essential in reducing the occupational risks of HIV infection. To reduce occupational risks:

- Assess risks in the work setting.
- Explore different strategies for meeting resource needs.
- Develop standards and protocols that address safety, risk reduction, post-exposure prophylaxis (PEP) follow-up, and first aid.
- Maintain an optimal workload.
- Institute measures to prevent or reduce healthcare worker stress.
- Orient new staff to infection control procedures.
- Provide ongoing staff education and supervision.

Risk reduction in the obstetric setting

The potential for exposure to HIV-contaminated blood and body fluids is greatest during labour and delivery. *Module 4, Specific Interventions to Prevent MTCT*, includes recommendations for safer obstetric practices designed to minimise this risk.

In labour and delivery settings, healthcare workers 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 and their colleagues.

Tips for reducing the risk of occupational exposure in the obstetric setting

- Cover broken skin or open wounds with watertight dressings.
- Wear suitable gloves when exposure to blood or body fluids is likely.
- Wear an impermeable plastic apron during the delivery.
- Pass all sharp instruments on to a receiver, rather than hand-to-hand.
- Use elbow length gloves during manual removal of a placenta.
- Modify surgical practice to use needle holders to avoid using fingers for needle placement.
- Workers with dermatitis should not work in obstetrics.
- When episiotomy is necessary, use an appropriate-size needle (21 gauge, 4 cm, curved) and needle holder during the repair.
- Wear gloves for all operations.
- 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.



Trainer Instructions

Use the group discussion below to assess and compare resources available for promoting a safe work environment.

Exercise 7.2 Promoting a safe work environment: group discussion	
Purpose	To compare and contrast the availability of safety resources, practices and materials in our programmes.
Duration	30 minutes
Introduction	<p>Ensure all participants have copies of Promoting a Safe Work Environment: Resource List (on the next page and in the Participant Manual).</p> <p>This exercise provides an opportunity to share experiences with safety supply shortages or resource limitations in the workplace and to develop strategies to deal with these limitations.</p>
Activity	<ul style="list-style-type: none">▪ Discuss each category as a group.▪ Using the headings summarise the group discussion on the flipchart (e.g. different sterilisation methods used, examples of innovative strategies when supplies are short).
Debriefing	<p>Discuss the importance of flexibility and adaptability in meeting safety needs and requirements.</p> <p>Encourage the group to share ideas on creative strategies used to overcome resource limitations in their own workplace.</p>

Exercise 7.2 “Promoting a safe work environment”: Resource list

Personal protective equipment

- Gloves—various sizes
- Aprons
- Eyewear
- Footwear
- Waterproof dressings

Materials

- Cleaning and disinfecting agents
- Equipment for sterilisation
- Sharps disposal containers
- Waterproof waste containers for contaminated items
- Alcohol-based hand rubs or anti-microbial soap

Safety standards

- Policies on use of universal precautions
- Procedures for disposal of infectious or toxic waste
- Procedures for sterilisation of equipment
- Policies on handling and disposal of sharps
- Protocols for management of post-exposure prophylaxis (PEP), including ARVs and hepatitis B immunisation
- Procedures for minimising exposure to infection in high-risk settings, such as labour and delivery

Education

- New employee orientation to infection control procedures
- Ongoing training to build skills in safe handling of equipment
- Monitoring and evaluation of safety practices to assess implementation and remedy deficiencies

SECTION 3 Managing Occupational Exposure to HIV Infection



Advance Preparation

Review Exercise 7.3 PEP case study to be sure it reflects local customs, issues, policies, and names. Ask local healthcare workers to help you adapt the case study, if necessary.



Total Section Time: 45 minutes



Trainer Instructions

Slides 23, 24, 25 and 26

Introduce the concept and discuss implementation of post-exposure prophylaxis.

Post-exposure prophylaxis

Either of the following exposures could put a healthcare worker at risk of HIV infection if the exposure involves blood, tissue, or other body fluids containing visible blood:

- Percutaneous injury (e.g. a needlestick or cut with a sharp object)
- Contact with mucous membrane or non-intact skin (e.g. exposed skin that is chapped, abraded, or affected by dermatitis)

After occupational HIV exposure, a short-term course of ARV drugs (e.g. one month) may be used to reduce the likelihood of infection. This is referred to as post-exposure prophylaxis (PEP), and is a key part of a comprehensive universal precautions strategy for reducing staff exposure to infectious agents in the workplace.

In healthcare settings the occupational risk of becoming HIV-infected due to a needlestick is low (less than 1%). Most cases involve injuries from needles or sharps that have been used on an HIV-infected patient. The risk of HIV transmission from exposure to infected fluids or tissues is believed to be lower than from exposure to infected blood.

Risk of exposure from needlesticks and contact with blood and body fluids exists in settings where:

- Safe needle procedures and universal precautions are not followed
- Waste management protocols are inadequate or not consistently implemented
- Protective gear is in short supply
- Rates of HIV infection in the patient population are high

To minimise the need for PEP, national strategies for education and training of key partners in healthcare waste management is necessary.

Benefits of making PEP available for healthcare workers:

- Promotes retention of staff who are concerned about the risk of exposure to HIV in the workplace
- Increases staff willingness and motivation to work with people who are HIV- infected
- Reduces the occurrence of occupationally-acquired HIV infection in healthcare workers

A comprehensive PEP protocol outlines the methods for preventing occupational exposure to HIV and other bloodborne pathogens including:

- Summary of the system for supervising and monitoring the implementation of universal precautions
- Discussion of safe practices for the disposal of infectious waste
- Outline of strategies for ensuring that protective materials are in sufficient supply (with examples of potential substitutes for these materials if necessary)

A sample PEP protocol is found in Appendix 7-B.

The PEP protocol should:

- Establish guidelines for PEP for the healthcare setting.
- Be used to educate staff and managers at designated intervals.
- Ensure that HIV counselling, testing, and ARV drugs are available for PEP.
- Ensure an HIV test when starting and after completing PEP.
- Ensure HIV antibody testing if illness compatible with an acute retroviral syndrome occurs.
- As part of counselling, encourage exposed persons to use precautions to prevent secondary transmission during the follow-up period.
- Evaluate exposed persons taking PEP within 72 hours after exposure and monitor for drug toxicity for at least 2 weeks.
- Maintain a facility register of occupational exposures.
- Educate healthcare workers to report all occupational accidents so that they are recorded on the facility register of occupational incidents.



Make These Points

- Since PEP needs to be administered soon after exposure (within 2 hours), 2 dosages of the recommended PEP regimen should be accessible at the clinical facility at all times.

Guidelines for providing PEP

Healthcare workers should report occupational exposure to HIV immediately after it occurs. Early rapid testing of the source patient (the patient involved in the incident) can help determine the need for PEP—and may avert the unnecessary use of ARV drugs, which may have adverse side effects. If necessary, PEP should begin as soon as possible after exposure, ideally within 2 hours.

Staff who are at risk for occupational exposure to bloodborne pathogens need to be educated about the principles of PEP management during job orientation and on an ongoing basis. Currently there is no single approved PEP regimen; however, dual or triple drug therapy is recommended and believed to be more effective than a single agent.

Drug selection for PEP depends on the following factors:

- Type of injury and transmission device
- Source patient's HIV viral load and treatment history
- ARV drugs available at the facility

ARV treatment for post-exposure prophylaxis on-site

Due to the need to start PEP as soon as possible after exposure (ideally, within 2 hours), a minimum of two doses of ARV treatment should be available and accessible at the facility at all times.

For superficial percutaneous injury with a solid needle from a low-risk source, 2-drug combinations should be considered.

For severe (deep) percutaneous injury with a large bore needle irrespective of perceived risk of the source, any exposure from a high-risk source or with history of treatment with nucleoside analogues in source, 3-drug combinations should be used. You should avoid the use of the same drug type and combination as the source.

The duration of treatment in each case should be 28 days or until the results of HIV tests for the patient and exposed healthcare worker are known to be negative.

Recommended 2-Drug Combinations	Recommended 3-Drug Combinations
ZDV (300 mg twice daily) + 3TC (150 mg twice daily)	Any of the 2-drug combinations + EFV or a Protease Inhibitor (EFV) should be avoided if pregnancy is suspected Preferred combination is: + EFV (600 mg once daily) or NFV (1250 mg twice daily) or LPV/RTV (400 mg/100 mg twice daily).
D4T (40 mg twice daily) + 3TC (150 mg twice daily)	
D4T (40 mg twice daily) + ddl (400 mg once daily)	

ARV treatment should be provided in accordance with national or institutional protocol. A minimum treatment of 2 weeks and maximum of 4 weeks is recommended. If possible, consulting with a HIV specialist is recommended, particularly when exposure to drug-resistant HIV may have occurred.

It is important that healthcare workers have ready access to a full month's supply of ARV treatment once PEP is initiated.

Some healthcare workers taking PEP experience adverse symptoms including nausea, malaise, headache, and anorexia. Pregnant workers or women of childbearing age who may be pregnant may receive PEP, but must avoid efavirenz, which has harmful effects on the foetus. PMTCT programmes should support workers while they are taking PEP and help manage any side effects.



Trainer Instructions

Introduce the case study and lead small group discussion on PEP.

Exercise 7.3 PEP case study: small-group discussion	
Purpose	To review implementation of PEP protocols.
Duration	45 minutes
Introduction	This exercise will review the implementation of PEP protocols.
Activity	<ul style="list-style-type: none"> ▪ Divide participants into three groups ▪ Distribute copies of PEP Case Study: Nurse Andrews, if not already in the Participant Manuals ▪ Instruct each group to read the case study and record on paper the stepwise process needed to implement a PEP protocol. ▪ Allow 20 minutes for this task. ▪ Once completed, ask each group to read out the first step they recorded. ▪ Assuming that this step is correct, record on flipchart. ▪ Discuss any inaccuracies or variations. ▪ Repeat above procedure for all steps in the PEP protocol.
Debriefing	<p>It is important to understand the processes involved in PEP implementation.</p> <p>Access to ARV treatment is critical. Therefore, a minimum of two doses (per your facility standard protocol) should be available and accessible at all times.</p>

Case Study

Nurse Andrews is working late in 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.

After this occupational exposure, what is the very first thing Nurse Andrews should do?

List each subsequent step according to protocol.

Case study answers:

1. If bleeding occurs following percutaneous injury, allow a few seconds to bleed prior to washing with soap and water. (In other words, do not “milk.”)
2. Inform supervisor, if applicable, of type of exposure and action taken.
3. Explain to patient what has occurred and obtain patient’s consent for HIV rapid testing.
4. Obtain consent for rapid testing for Nurse Andrews.
5. Assure both patient and Nurse Andrews that confidentiality will be strictly maintained.
6. Provide support to Nurse Andrews.
7. If the result is positive on the initial HIV test for either the patient or for Nurse Andrews, counsel and refer for treatment.
8. If the patient is HIV positive and Nurse Andrews is HIV-negative, with her consent, start Nurse Andrews on PEP regimen within 2 hours, even if HIV status of the patient is unknown. If patient’s HIV test is negative, discontinue prophylaxis.
9. If Nurse Andrews’ initial HIV test is negative (and the patient’s HIV test positive), re-test Nurse Andrews’ for HIV at 6 weeks, 3 months, and 6 months post exposure.

SECTION 4 Supportive Care for the Caregiver



Advance Preparation

In preparation for Exercise 7.4, discuss the prevalence of compassion fatigue with participants who are local PMTCT workers. If they don't recognise the syndrome, enquire if they have ever seen the signs and symptoms of compassion fatigue/burnout in their staff/colleagues. Ask what can be done on the personal and organisational levels to prevent and/or manage compassion fatigue/burnout.

Review the question guide for Exercise 7.4 and adapt it to the expectations of the trainees, their situations, and interests.



Total Section Time: 60 minutes



Trainer Instructions

Slides 27 and 28

Introduce the topic of compassion fatigue, also known as “burnout”, using the information below.



Make These Points

- Compassion fatigue/burnout is common amongst healthcare workers in the HIV or other caring fields, who are working under stressful conditions for extended periods of time.
- Burnout can be dealt with constructively; it is also preventable.
- A combination of individual and organisational supports can prevent and manage burnout.

Compassion fatigue

Healthcare workers who provide ongoing care of pregnant women who are HIV-infected (or whose HIV status is unknown) and their infants are vulnerable to compassion fatigue or “burnout.”

Burnout syndrome stems from extended exposure to intense job-related stress and strain. Burnout syndrome is characterised by:

- Emotional exhaustion: feelings of helplessness, depression, anger, and impatience
- Depersonalisation: detachment from the job and an increasingly cynical view of patients and co-workers
- Decreased productivity: due to a real or perceived sense that their efforts are not worthwhile and do not seem to have an impact.

Signs & symptoms of burnout	
Behavioural <ul style="list-style-type: none">▪ Frequent changes in mood▪ Eating too much or too little▪ Drinking alcohol and/or smoking too much▪ Becoming “accident prone” Cognitive <ul style="list-style-type: none">▪ Unable to make decisions▪ Forgetful, poor concentration▪ Sensitive to criticism	Physical <ul style="list-style-type: none">▪ High blood pressure▪ Palpitations, trembling▪ Dry mouth, sweating▪ Stomach upset Occupational <ul style="list-style-type: none">▪ Taking more days off▪ Fighting with co-workers▪ Working more hours but getting less done▪ Low energy, less motivated

Institutional or job-related risk factors for burnout

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

Personal risk factors for burnout include:

- Unrealistic goals and job expectations
- Low self-esteem
- Anxiety
- Caring for patients with a fatal disease



Trainer Instructions

Slide 29

Review the personal strategies for preventing or minimising compassion fatigue/burnout.

Personal strategies for minimising or preventing burnout syndrome

Seeking support from others, taking care of yourself, and engaging in restorative activities, such as reading and exercising may reduce or minimise burnout syndrome.

Tips for managing burnout

- 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 tapes 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).
- Take structured breaks during work hours.
- Make time for yourself and your family.
- Exercise, eat properly, and get enough rest.



Trainer Instructions

Use the exercise below to explore with the group factors that contribute to caregiver compassion fatigue/burnout in PMTCT programmes.

Exercise 7.4 Compassion fatigue/burnout in PMTCT programmes: large group discussion	
Purpose	To examine the factors that contribute to burnout and develop creative prevention strategies.
Duration	45 minutes
Introduction	We will identify factors that contribute to compassion fatigue/burnout in the PMTCT setting. We will also be looking for creative strategies for preventing or minimising compassion fatigue/burnout.
Activity	<ul style="list-style-type: none">▪ Ask participants to answer the questions that follow this exercise.▪ Summarise answers on the flipchart.▪ Ask participants to share stories and personal experiences or observations about compassion fatigue/burnout in their own clinical settings.▪ Encourage the group to work together to consider ways to address compassion fatigue/burnout.▪ Record on flipchart.
Debriefing	PMTCT programmes present unique challenges for healthcare professionals. Within each clinical setting, tools can be developed to help prevent compassion fatigue/burnout.

Exercise 7.4 Questions for discussion

- What is the greatest daily challenge in your clinical setting?
- Comment on staffing for testing and counselling at your facility. Are there enough counsellors? What are the training requirements?
- Does your facility orient staff to the workplace?
- Does your facility meet staffing requirements?
- Does your agency provide ongoing education to ensure adequate, updated skills?
- Does your organisation ensure that staff has all the necessary supplies and materials?
- Does your facility support and assist staff?
 - Is there someone you can turn to help you with your workplace concerns?
 - Are you connected to community services that make your job easier?
 - Do you have your own source of peer support? Who are your supporters?
 - Do you use your own stress-reduction techniques that work well for you?
 - What are three things that would make your job easier?
- Share your personal experiences about burnout in your clinical setting with the larger group.



Trainer Instructions

Slides 30, 31 and 32

Summarise the module by reviewing key points, as described below.

Module 7: Key Points

- Universal precautions apply to all patients, regardless of diagnosis.
- Key components of universal precautions include:
 - Hand washing
 - Safe handling and disposal of sharps
 - Use of personal protective equipment
 - Decontamination of equipment
 - Safe disposal of infectious waste materials
 - Safe environmental practices
- Needle-stick injuries from patients who are HIV-infected are the most common source of HIV transmission in the workplace.
- Cleaning, disinfection, and sterilisation of all instruments used in invasive procedures reduce risk of patient-to-patient transmission of infection.
- During labour and childbirth, safe care reduces the risk of occupational exposure.
- Short-term ARV treatment reduces the risk of HIV infection after occupational exposure.
- Burnout syndrome is related to intense, prolonged job stress but can be managed and the effects minimised by individual and organisational supports.

Appendix 7-A Guidelines for cleaning, sterilisation, and disposal of infectious waste materials

Level of Risk	Items	Decontamination Method
High risk or critical	Equipment and instruments that penetrate the skin or body	<p>Sterilisation is a process that destroys all microorganisms, including HIV. Use the following methods:</p> <ul style="list-style-type: none"> ▪ Use of steam under pressure is the preferred method. ▪ Use ethylene oxide gas or other low-temperature process for heat-sensitive equipment. ▪ Use chemical sterilants with adequate pre-cleaning and follow proper protocols.
Moderate risk or semi-critical	Equipment and instruments that touch non-intact skin or mucous membranes	<p>Sterilise with heat or steam.</p> <p>Use high-level disinfection. This method destroys all microorganisms with the exception of high numbers of bacterial spores. Use the following methods:</p> <ul style="list-style-type: none"> ▪ Boil for 20 minutes, or longer if above sea level. ▪ Perform chemical disinfection with glutaraldehyde, stabilised hydrogen peroxide, chlorine, or peracetic acid, followed by a sterile water rinse or a tap water and alcohol rinse; dry with forced air, when possible. <p>Note: Intermediate-level disinfectants for certain semi critical items do not kill all viruses, fungi, or bacterial spores.</p>
Low risk or non-critical	Equipment and instruments that touch intact skin	<p>Perform low-level disinfection with diluted germicidal detergent solution, isopropyl alcohol, or 1:500 dilution of household bleach.</p>

When possible, 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, walls, and rubber draw sheets.

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 7-A Guidelines for cleaning, sterilisation, and disposal of infectious waste materials *(continued)*

Note the following when handling soiled linen:

- Use 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 healthcare workers 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 in a pit 2.5 meters (about 8 feet) deep, at least 30 meters (about 98 feet) from a water source.

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 healthcare workers. If these items are disposed of in the municipal 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 destroys waste and kills microorganisms. This method reduces the bulk volume of waste and ensures that the items are not scavenged 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 7-A Guidelines for cleaning, sterilisation, and disposal of infectious waste materials *(continued)*

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 98 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.
- The bottom of the burial pit should be at least 1.5 meters above the groundwater level during the wet season.

This appendix includes original material and material adapted from the following:

- Tietjen, Bossemeyer, McIntosh. *Prevention: Guidelines for Healthcare Facilities with Limited Resources*. JHPIEGO Corporation, Baltimore, March 2003.
http://www.reproline.jhu.edu/english/4moreh/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)*, http://www.who.int/health-services-delivery/hiv_aids/English/fact-sheet-11/index.html
- World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS). 1999. *HIV in Pregnancy: A Review*. Pp 39–42. Retrieved 3 June 2004, from http://www.who.int/reproductive-health/publications/rhr_99_15/rhr99-15.pdf

Appendix 7-B Managing occupational exposure to HIV: a sample protocol

Immediate steps

Any healthcare worker accidentally exposed to blood or body fluids must take the following steps:

- Wash the wound and skin sites exposed to blood and body fluids with soap and water.
- For percutaneous injuries (those that break the skin) where bleeding occurs, allow bleeding for a few seconds before washing with soap and water.
- Flush mucous membranes exposed to blood and body fluids with water.
- Topical use of antiseptics is optional.
- Do not apply caustic agents, such as bleach, onto the wound or inject antiseptics or disinfectants into the wound.
- Immediately inform the supervisor, or person in charge, of the exposure type and the action taken.

Once informed, the supervisor should take the following actions:

- Assess the exposure to determine the risk of transmission.
- Inform the patient about the exposure and request permission for HIV testing.
- Inform the healthcare worker about the exposure and request permission for HIV testing.
- Perform rapid testing on both specimens following testing procedures. If rapid testing is not available, send both samples to the closest designated laboratory for HIV testing.
- Immediately arrange for the healthcare worker to visit the nearest physician who manages this type of injury.
- Provide immediate support and information on post-exposure prophylaxis (PEP) to the healthcare worker.
- Record the exposure in the facility register or the appropriate form and forward the information to the individual or department assigned to manage such exposures.
- Maintain the confidentiality of all related records.

PEP

- In all cases of accidental exposure, start PEP within 2 hours of the exposure, whether or not patient's HIV status is known.
- Discontinue PEP after you have confirmed that the patient's HIV test is negative.
- If the patient is HIV-infected (with a positive test result), continue PEP.
- ARV therapy should be provided according to national or facility protocol. A minimum of two weeks and a maximum of four weeks treatment are recommended. When possible, consultation with a HIV specialist, particularly when exposure to drug resistant HIV may have occurred, is recommended.
- If the healthcare worker's initial HIV test is positive, counsel the person on the test result and refer to a HIV/AIDS programme for care and treatment.

APPENDIX 7-B Managing occupational exposure to HIV: a sample protocol *(continued)*

- Always have a minimum of two doses of the approved PEP ARV regimen available and accessible at your facility at all times.
- If the healthcare worker's initial HIV test is negative, repeat the HIV test at the following post-exposure intervals: 6 weeks, 3 months, and 6 months.
- Healthcare worker should receive follow-up care for 6 months.
- If the healthcare worker converts from a negative to a positive test result, which is rare, refer the worker to an HIV/AIDS programme for treatment, care, and support.

Post-exposure counselling for the healthcare worker

- Healthcare worker must be counselled to either abstain from sexual intercourse or use condoms for 6 months after the exposure or until receiving the third negative test result.
- Healthcare worker should not donate blood, plasma, organs, tissues, or semen for 6 months after the exposure or until receiving the third negative test result.
- Breastfeeding should be discouraged during this period.
- Offer counselling support to the healthcare worker and, if requested, to the healthcare worker's spouse or sexual partner, to help them manage the implications of and stress related to the exposure.

Source: Adapted from CDC. 2001. Updated US public health service guidelines for the management of occupational exposure to HBV, HCV and HIV and recommendations for post-exposure prophylaxis. *MMWR* 50(No. RR-11): 1–42. Retrieved 30 July 2004, from <http://www.cdc.gov/mmwr/PDF/rr/rr5011.pdf>

Source: Adapted World Health Organization Post-exposure prophylaxis Retrieved 30 July 2004, from <http://www.who.int/hiv/topics/prophylaxis/en/index.html>