




## Module 6

# Safety At the HIV Rapid Testing Site

---

<b>Purpose</b>	To provide you with necessary attitudes, knowledge, and skills about lab safety so you will take precautions to prevent infections at the HIV rapid testing site.
<b>Pre-requisite Modules</b>	Module 5: Assuring the Quality of HIV Rapid Testing
<b>Learning Objectives</b>	<p>At the end of this module, you will be able to:</p> <ul style="list-style-type: none"><li>▪ Adhere to personal health and safety practices</li><li>▪ Maintain a clean and organized workspace</li><li>▪ Disinfect and dispose of infectious materials</li><li>▪ Take appropriate actions following accidental exposure to potentially infectious specimen</li><li>▪ Follow written safety procedures and keep proper safety records</li></ul>
<b>Content Outline</b>	<p>General safety practices</p> <ul style="list-style-type: none"><li>• Work habits (personal, work space, material)</li><li>• Proper disposal of sharps and waste</li><li>• Disinfection of work areas</li><li>• Safety documentation</li></ul>
<b>Handouts</b>	<p>Guidelines for Post Exposure Prophylaxis (PEP) Example: Emergency Contact List Log of Work Related Injuries and Illnesses</p>
 <b>Notes on Customization</b>	<ul style="list-style-type: none"><li>▪ Provide national policy on handling bio-hazard waste and local procedures for disposing of contaminated waste, if available</li><li>▪ If local bleach lists the concentration of sodium hypochlorite in parts per million (ppm), explain how to make a 10% or 1% solution.</li></ul>

---

**Why Is Safety Important?**

Performing HIV tests poses a potential health hazard to the tester. Coming in contact with human blood or blood products is potentially hazardous. Safety involves taking precautions to protect you and the client against infection. All specimens should be treated as though potentially hazardous).

**What Else Needs Protection?**

Besides tester and client, we need to protect other people from infection.

- Never leave blood spills that could infect others.
- Never leave used lancets lying around for anyone else to pick up – they could prick themselves with HIV contaminated lancets.
- Always seal contaminated waste – you don't want to risk infecting the person who removes contaminated waste from the rapid testing site.

In addition, it is important to protect the integrity of test products. Shield unused tests from any contamination. If a new or unused test is contaminated by a drop of blood from a previous client, the test may not yield accurate result when used on the next client.

It is also important to protect the environment from hazardous material. Avoid transferring contaminated materials into areas outside of the testing area.

**Universal or Standard Precautions**

Every specimen should be treated as though it is infectious. Why? Because harmful agents/organisms may be present in a client's blood. If a person comes into direct contact with the blood, that person could be infected. We must follow safety practices in every step of the testing process.

**Apply Safety Practices Throughout the Testing Process**

Before testing, specimens shall be transported in a manner to prevent contamination of workers, patients, and environment. This includes using appropriate packing containers, and following national and international postal and transport regulations.

During testing, follow the safety rules when performing finger-prick and actual testing of the client's blood.

After testing, remember to clean up working area and properly dispose of contaminated waste.

## Develop Personal Safe Work Habits

It is important that you:

- Wash hands before and after testing each patient
- Wear a fresh pair of gloves with each patient
- Wear lab coat or apron
- Dispose of contaminated sharps and waste immediately after testing
- Never pipette by mouth
- Never eat, drink or smoke at the test site
- Keep food out of the laboratory/testing site refrigerator

Remember, never let your mouth touch anything from work, such as pens, pencils, etc.



### Information Box

#### Why is it important to develop these personal safety work habits?

**Wash hands between testing each client** – To wash away any germs that might be present on the tester’s hands – this will ensure that no infections are passed from the tester or previous client onto the next new client.

**Wear fresh gloves for each new client** – To protect the client and tester from cross-infection (that is, the transfer of infection from one person to another).

**Wear lab coat or apron** – To protect the tester from reagent spills, client’s blood.

**Get rid of used sharp objects** such as needles or lancets – Sharp objects can cut human skin. Any germs or pathogens present on the lancet can be passed from the lancet into that person’s blood through the cut.

**Never pipette by mouth** – You run the risk of accidentally swallowing or coming into direct contact with harmful materials.

**Never eat, drink, or smoke in the test area** – Harmful germs or pathogens can be an entry point to the mouth from touching contaminated objects followed by contact with your mouth.

**Keep food away from the testing area or a refrigerator that contains blood samples** – Infectious agents/pathogens can be carried in food and transmitted to people.

## Maintain Clean & Orderly Work Space

It is important to:

- Keep work areas uncluttered and clean
- Disinfect work surfaces daily (“disinfect” means kill any harmful germs/pathogens)
- Restrict or limit access when working
- Keep supplies locked in a safe and secure area
- Keep emergency eye wash units in working order and within expiry date

The eye wash unit is used to clean one’s eyes when they are accidentally splashed with any type of specimen (for example, from patients, controls, reagents, etc.). If an eye wash unit is not available, please consult your local infection control personnel for alternate procedures to follow in the event of an accidental splash.



### Information Box

#### Why is it important to maintain clean and orderly work space?

**Keeping work areas uncluttered** – So there is less chance for accidents.

**Disinfecting daily** – Just because a work area was disinfected yesterday, it does not mean it is still free of germs today.

**Limiting access to the lab** – It is important to prevent other people from risk of infection, as well as to protect the client’s confidentiality. Limiting access also prevents distractions.

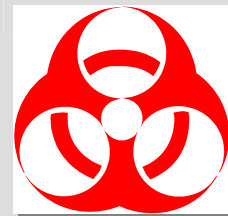
**Keeping supplies locked** – To prevent unauthorized persons having access to potentially dangerous objects such as lancets.



### Information Box

#### What is “bio-hazard?”

“Bio” means life and “hazard” means danger. “Bio-hazard” means something is dangerous to life. Examples of bio-hazard materials include: client’s blood, used test kits, anything that comes into contact with client’s blood, etc. It is a good practice to put a bio-hazard sign on any containers holding the waste from your tests.



### Take Precautions to Avoid Needle Stick Injury

Needle-stick injury can be dangerous because infected blood containing pathogens can be transferred to the person and cause infection.

Needle stick injury may occur due to lack of concentration, inexperience, lack of concern for others, or improper disposal of sharps. To prevent needle stick injury, you should focus on where the needle is, as well as where your hand and your client's hand are. Don't let yourself be distracted. Only people who have received appropriate training should perform the finger-stick procedure.

Always follow proper procedures to dispose of used needles and sharps. For example,

- Place used lancets in the sharps disposal container.
- Do not leave used needles or lancets lying around.
- Clean up after each client.

### Drop Used Sharps in Special Containers



There are many makes, shapes and sizes of sharp bins. However, all sharp containers should have:

- A lid
- Puncture-proof or thick walls
- A large enough hole for lancets and needles
- Leakproof sides and bottom
- A label or color code indicating bio-hazard material
- Sufficient quantity available at each testing site



**Do's and Don'ts:  
Sharps and Waste  
Containers**

Not all sharps containers need be purchased commercially. An empty bleach container will suffice such as seen on the right. This type container meets all previously mentioned specification. Additionally, the opening is small so that you cannot insert your hand.

Do not break, bend, re-sheath or reuse lancets, syringes or needles. You could injure yourself if you try to bend needles or lancets.

Never shake sharps containers to create space because this leads to formation of aerosols. Aerosols are tiny invisible droplets in the air that can also carry infectious agents/pathogens.

In the picture below, you see two different types of containers.

- The left one is a plastic bag for contaminated waste. It should not be used for sharp objects as they can pierce the bag and injure someone.
- The red plastic container on the right is suitable for sharp objects as the plastic is thick enough so that sharp objects cannot puncture the container. It also has a lid.



What's wrong with the left picture below? Now, look at the picture on the right. What's right about it? Write your answers below:

---

---

---

---



## Answers:

What is wrong with the picture on the left?

- It is an open container with a mixture of blood, sharps, and other contaminated waste
- It has no lid
- It has no label to warn people of bio-hazard waste
- It is placed on the floor and prone to spill

What is right with the picture on the right?

- The Container is made of thick plastic. This is appropriate for disposing of sharps.
- The bottle has a lid and sealed

Plastic bag must be securely tied once filled. This is appropriate for disposing of contaminated waste such as used gauze. This type of container is NOT appropriate for disposal of sharps.

### Never Place Needles or Sharps in Office Waste Containers



Contaminated waste should be kept separate for office waste. It is the tester's responsibility not to put any other persons at risk of infection.

The image of the right illustrates improper disposal of objects. Sharps are mixed with non-sharp items and opening exposed posing a potential hazard.

### Sharps Containers Must Be...



Sharps containers must be:

- Placed near workspace
- Closed when not in use
- Sealed when  $\frac{3}{4}$  full

**Policy for Handling Sharps**

Important rules about handling sharps:

- User responsible for disposal of sharps
- Must dispose of sharps after each test
- Must place sharps in sharps boxes
- Do not drop sharps on the floor or in the office waste bin
- Place sharps container near your workspace
- Seal and remove when box is  $\frac{3}{4}$  full
- Incinerate all waste

**Incineration of Waste**

Incineration is the burning of contaminated waste to destroy and kill micro-organisms. Contaminated waste should be burned to completion (that is, beyond re-use). It protects environment and must be supervised. Care should be taken in transporting waste from one site to another for incineration.

**Disinfect Work Areas with Bleach**

In order to keep a clean and orderly work area, disinfect your work surface on a daily basis. It is part of the general safe practice that you need to follow. Remember, disinfection:

- Kills germs and pathogens
- Keeps work surface clean
- Prevents cross-contamination
- Reduces risks of infection

**Different Cleaning Jobs Require Different Bleach Solutions**

WHO Laboratory Biosafety Manual recommends that:

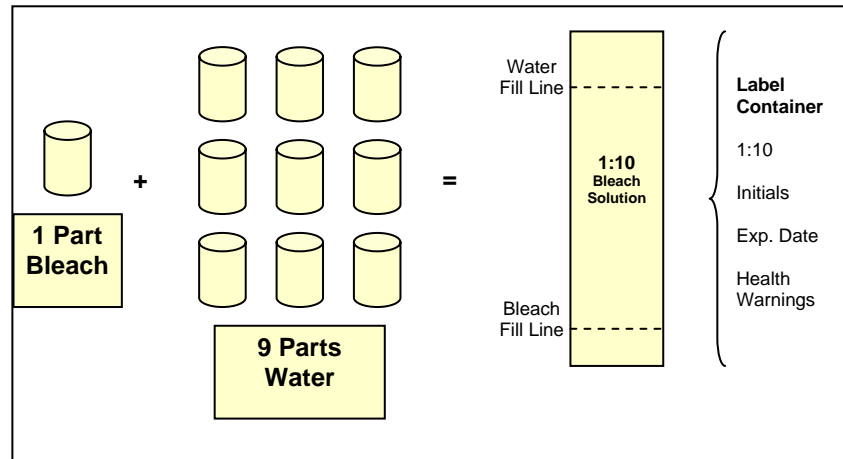
- For spills, you should use a 10% bleach solution (1 part bleach + 9 parts water). The larger the spill, the longer the contact with the 10% bleach solution.
- For general disinfection purposes such as wiping down all surfaces at the end of the day, use a 1% solution (1 part bleach + 99 parts water).

You should have 10% bleach readily available at your test site. Make bleach solutions at the beginning of each week. Disinfect work surfaces, at a minimum, at the end of each day.



## Making a 10% Bleach Solution

A 10% bleach solution is referred to as a 1/10, 1:10, or 5,000 ppm bleach solution. To prepare a 10% (vol / vol) bleach, take a 1 litre empty bottle that has been marked with 100 mls (= 1 part). Pour in bleach to reach this level; then fill up to the next mark with water (900mls = 9 parts).



## In Case of A Spill or Splash

Follow these steps in case of a spill or splash:

- Wear clean disposable gloves
- Immediately and thoroughly wash any skin splashed with blood
- Large spills- Cover with paper towels and soak with 10% household bleach and allow to stand for at least 5 minutes
- Small spill - Wipe with paper towel soaked in 10% bleach
- Discard contaminated towels in infectious waste containers

You should never leave any spills unattended.

**In Case of an Accident**

There are three types of accidents that may happen:

- Potential Injury, i.e., needlepricks, falls
- Environmental, i.e., splashes or spills
- Equipment damage

In case of an accident, you should report to your supervisor immediately. Assess the situation and take action accordingly. Record the accident using appropriate forms, and continue to monitor the situation.

For more detail, refer to the handout Guidelines for Post Exposure Prophylaxis at the end of the module.

**Action Plan for Implementing Safety Practices**

An action plan must address the following items:

- Identifying hazards
- Establishing and implementing safety polices and procedures
- Conducting safety specific training. Training must be a priority and communication is key.
- Performing regular audits or assessments

Everyone is responsible for implementing safety practices.

**Consult In-Country Safety Manuals for Policy and Guidelines**

It is important to follow Standard Operating Procedures (SOP). If an SOP is available, get a copy and review the sections related to the safety procedures in a test site. Does it cover the following safety procedures?

- Housekeeping
- Personal protection
- Personnel responsibilities
- Decontamination & Waste Disposal
- Emergency procedures
  - In-lab first aid
  - Accidental injury
  - Post exposure prophylaxis
  - Contacts

**Reflect and Respond**

*Write your response to the following questions in the space provided.*

**Which of the lab safety practices do you think will NOT be easy for you to do and why not?**

---

---

---

---

**What are some possible challenges that will prevent you from adhering to the safety guidelines?**

---

---

---

---

**Can you think of ways to overcome that challenge?**

---

---

---

---



**Key message**

- Always apply safety work practices throughout the testing process.
- Do not break, bend, re-sheath or reuse lancets, syringes or needles.
- Dispose of contaminated waste in the appropriate container.
- Disinfect your work surface on a daily basis.
- Report any accidents immediately take appropriate actions.



## Module Review

Find out how much you have learned by answering these questions.

**What is safety? Why is it important?**

---

---

---

**What does bio-hazard mean?**

---

---

---

**What is the universal precaution you must take when dealing with specimens?**

---

---

---

**What are some examples of safety practices related to personal habits? Work space?**

---

---

---



## Module Review

Find out how much you have learned by answering these questions.

**What are the rules related to handling sharps and waste?**

---

---

---

**How do you prepare a 10% bleach solution?**

---

---

---

**What do you do if there is a spill?**

---

---

---

**What do you do when an accident occurs?**

---

---

---



## **Guidelines for Providing Post Exposure Prophylaxis (PEP)**

Healthcare workers should report occupational exposure to HIV immediately after it occurs. Either of the following exposures could put a healthcare worker at risk of HIV infection (1) Puncture of the skin with a needle or lancet or other sharp object that is contaminated with blood or other bloody body fluids (2) Contact of mucous membrane or non-intact skin with blood or other bloody body fluids.

Early rapid testing of the source client (the client involved in the incident) can help determine the need for PEP and may avert the need for anti-retroviral (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 blood borne 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 ARV drug therapy is recommended and believed to be more effective than a single agent.

### **Managing occupational exposure to HIV: a Sample Protocol**

#### **Immediate steps taken by the exposed healthcare worker:**

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. Wash for at least 5 minutes using ample soap.
- For injuries that break the skin and where bleeding occurs, allow bleeding for a few seconds before washing with soap and water.
- Flush mucous membranes, such as eyes, exposed to blood and body fluids with water only.
- 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.

#### **The supervisor should take the following actions:**

- Assess the exposure to determine the risk of transmission.
- Perform HIV rapid testing on specimens from both the client and the healthcare worker who was exposed. 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.

### **A National Post Prophylaxis 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 is done 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.

*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 postexposure prophylaxis. MMWR Morb Mortal Wkly Rep 50(No. RR-11): 1-42. Retrieved 30 July 2004, from <http://www.cdc.gov/mmwr/PDF/rr/rr5011.pdf> and World Health Organization. Post-exposure prophylaxis Retrieved 30 July 2004, from <http://www.who.int/hiv/topics/prophylaxis/en/index.html>



## EXAMPLE: EMERGENCY CONTACT LIST

(This list should be posted in SEVERAL highly visible places at the test site.)

Type of Emergency	Contact person/place	Contact Number(s)
<b>Life-threatening (fire, explosion, attack)</b>	<b>Police, fire department, ambulance, rescue</b>	
<b>Laboratory Accident/Injury</b>	<b>Test Site Supervisor / Manager</b>	
<b>Client discomfort or accident</b>	<b>Test Site Manager</b>	
<b>Equipment or Facility Malfunction</b>	<b>Test Site Supervisor</b>	

## Log of Work Related Injuries and Illnesses

Record information about every work-related injury or illness that involves medical treatment, including first aid

*Attention: This form will contain information related to employee health and must be used in a manner that protects the confidentiality of employees.*

Employee's Name	Date of Injury	Describe the injury or illness, parts of body affected, object/substance that injured or made person ill.	First Aid Given? Yes/No	Referred to Medical Attention? Yes/No	Outcome or Follow up Action (e.g., job transfer or restriction, work absence, additional training provided, etc.)