INTRODUCTION

Health care providers are prone to accidental exposure to blood and other body fluids or tissues while performing their work duties. Several factors contribute to the increased risk of occupational HIV exposure. First, with the scale-up of HIV testing and ART services more and more people with HIV are coming in contact with health care personnel (HCP). Second, as people living with HIV (PLHIV) receiving antiretroviral therapy benefit from living longer, they are more likely to survive and their chances of coming in contact with the HCP are increasing, thus the increased chances of accidental exposure to HIV infected blood and other body fluids.

Avoiding occupational exposure to blood and other body fluids is the primary way to prevent transmission of HIV, hepatitis B, hepatitis C and other blood borne pathogens in health care settings. Post exposure management protocols form an important element of workplace safety. These guidelines describe the risks of infection, the preventive measures and the steps to be followed after accidental occupational exposure.

The term "Health Care Personnel (HCP)" is defined as any persons, paid or unpaid; working in healthcare settings who are potentially exposed to infectious materials (e.g. blood, tissue, and specific body fluids and medical supplies, equipment, or environmental surfaces contaminated with these substances). HCP include: emergency care providers, laboratory personnel, autopsy personnel, hospital employees, medical and nursing students and health care professionals at all levels. If required, PEP can also be given to public safety workers, including law enforcement personnel, sanitary workers, prison staff, fire-fighters, workers involved in needle exchange programmes, health care providers in private setting and even to attendants of patients after proper evaluation of exposure.

"Exposure" which may place an HCP at risk of blood-borne infection is defined as:

- A percutaneous injury (e.g. needle-stick or cut with a sharp instrument)
- Contact with the mucous membranes of the eye or mouth
- Contact with non-intact skin (when the exposed skin is chapped skin or afflicted with dermatitis)
- Contact with intact skin when the duration of contact is prolonged with blood or other potentially infectious body fluids

**Occupational exposure** refers to exposure to potential blood-borne infections (HIV, HBV and HCV) that occurs during performance of job duties.

**Non-occupational exposure** refers to exposure to potential blood-borne infections (HIV, HBV, HCV) outside of the work place setting like unsafe sex, sexual assault.

**Post exposure prophylaxis** (PEP) refers to the comprehensive management instituted to minimize the risk of infection following potential exposure to blood-borne pathogens (HIV, HBV, HCV).
This includes first aid, counselling, risk assessment, relevant laboratory investigations based on informed consent of the source and exposed person, depending on the risk assessment, the provision of short term (4 weeks) of antiretroviral drugs, with follow up and support including maintaining confidentially.

The term "Needle Stick Injury" is a broad term that includes injuries caused by needles or other sharp objects (e.g. glass vials, surgical blades, forceps) that accidentally puncture the skin.

The "Exposed Person" is the person who is potentially at risk of acquiring HIV infection due to exposure to blood or potentially infectious body fluids in his or her occupation.

The "Source Person" is the person who is (either identified or not identified as) the possible source of contamination through blood or potentially infectious body fluids. If the sero-status of the source person is unknown, he or she may be counselled to provide informed consent for HIV testing. The source person may be a patient if a health care provider is exposed or the perpetrator in the case of sexual assault.

The decision regarding whether to provide PEP should be based on the clinical consideration of risk only. Providers should give information, services and education without discrimination. The provision of information regarding PEP should be confidential including information about HIV testing, PEP provision and the reasons for seeking PEP.

**Written Informed** consent needs to be obtained as for any other surgical/medical procedure. Consent for HIV testing of source/exposed person in the context of HIV exposure and/or taking PEP, needs to be done in accordance with national HIV counselling and testing guidelines.

In special situations, where the individual has limited or no capacity to consent (e.g. children, or unconscious or mentally ill adults), a legally acceptable representative may be able to provide consent (e.g. parent / guardian / care taker).

NACP PEP guidelines provide PEP services for all occupational exposures and victims of sexual assault but not for those following unsafe sexual behaviour or having other high-risk exposure

**WHO IS AT RISK**

**Professions with higher chances of blood exposure:**

- Nursing staff and students
- Emergency care providers
- Labour and delivery room personnel
- Surgeons and operation theatre staff
- Laboratory technicians
- Physicians
- Interns and medical students
- Dentists
- Health facility cleaning staff, mortuary staff and clinical waste handlers
Table 1: Risk of Exposure from different body fluids

<table>
<thead>
<tr>
<th>Exposure to body fluids considered 'at risk'</th>
<th>Exposure to body fluids considered 'not at risk,' unless these fluids contain visible blood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td>Tears</td>
</tr>
<tr>
<td>Semen</td>
<td>Sweat</td>
</tr>
<tr>
<td>Vaginal secretions</td>
<td>Urine &amp; faeces</td>
</tr>
<tr>
<td>Cerebrospinal fluid</td>
<td>Saliva</td>
</tr>
<tr>
<td>Synovial, pleural, peritoneal, pericardial fluid</td>
<td>Sputum</td>
</tr>
<tr>
<td>Amniotic fluid</td>
<td>Vomitus</td>
</tr>
<tr>
<td>Other body fluids contaminated with visible blood</td>
<td>Unless these secretions contain visible blood</td>
</tr>
</tbody>
</table>

Any direct contact (i.e. contact without barrier protection) to concentrated virus in a research laboratory requires clinical evaluation. For human bites, clinical evaluation must include the possibility that both the person bitten and the person who inflicted the bite were exposed to blood-borne pathogens. Transmission of HIV infection after human bites has been rarely reported.

Average Risk of Acquiring HIV, Hepatitis B, Hepatitis C after Occupational Exposure

The average risk of acquiring HIV infection following different types of occupational exposure is low compared to the risk of acquiring infection with HBV or HCV. In terms of occupational exposure, the important routes are needle stick exposure (0.3 % risk for HIV, 9-30 % for HBV and 1- 1.8% for HCV) and mucous membrane exposure (0. 09% for HIV).

Table 2: HIV transmission risk by different routes

<table>
<thead>
<tr>
<th>Exposure route</th>
<th>HIV transmission rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood transfusion</td>
<td>90- 95 %</td>
</tr>
<tr>
<td>Perinatal (without any intervention)</td>
<td>15- 40%</td>
</tr>
<tr>
<td>Sexual intercourse</td>
<td>0.1 to 10 %</td>
</tr>
<tr>
<td>Vaginal</td>
<td>0.05- 0.1 %</td>
</tr>
<tr>
<td>Anal</td>
<td>0.065- 0.5 %</td>
</tr>
<tr>
<td>Oral</td>
<td>0.005- 0.01 %</td>
</tr>
<tr>
<td>Injecting drugs use</td>
<td>0.67 %</td>
</tr>
<tr>
<td>Needle stick exposure</td>
<td>0.3 %</td>
</tr>
<tr>
<td>Mucous membrane splash to eye, oro-nasal</td>
<td>0.09 %</td>
</tr>
</tbody>
</table>

Comparative risk after needle-stick injury for HBV is 9-30 % and for HCV is 1- 1.8 %
Figures 1 and 2 below demonstrate common type of needle stick injuries and the activities associated with them.

**Fig 1: How needle stick injuries occur**

- Wing shed needle
- Hypodermic needle
- Other Sharps
- Glass
- Suture needle
- Other hollow bore needle
- Phlebotomy needle
- IV styles

**Figure 1. Hollow-bore needles and other devices associated with percutaneous injuries in CDC surveillance hospitals, by % total percutaneous injuries (n=4,951), June 1995-July 1999.**

**Fig 2: Activities associated with needle stick injuries**

- Handling transferring specimens
- Improperly disposed sharps
- Disposal related causes
- Collision with healthcare worker or Sharp
- Clean up
- Recapping
- Handling passing device during or after use
- IV line related causes
- Manipulating needle in patient
- Others

**Figure 2. Causes of percutaneous injuries with hollow-bore needles in CDC surveillance hospitals, by % total percutaneous injuries (n=3,057), June 1995-July 1999 (NIOSH, 1999).**

**PRACTICES THAT INFLUENCE RISK AND HOW TO REDUCE RISK TO OCCUPATIONAL EXPOSURE**

Certain work practices increase the risk of needle stick injury such as:

- Recapping needles (most important)
- Transferring a body fluid between containers
- Handling and passing needles or sharps after use
- Failing to dispose of used needles properly in puncture-resistant sharps containers
- Poor healthcare waste management practices

How to protect oneself from needle stick/sharps injuries:
• Strict compliance to universal work precautions
• Avoid the use of injections where safe and effective alternatives are available e.g. oral, drugs
• Avoid recapping needles
• Plan for safe handling and disposal of needles after use
• Promptly dispose of used needles in appropriate sharps disposal containers
• Report all needle stick and sharps-related injuries promptly to ensure that you
  o Receive appropriate follow-up care
  o Participate in training related to infection prevention
  o Use devices with safety features provided by the institute (wherever possible)
  o Record and monitor injuries with an injury register in each location of healthcare setting

Figure 3: “Do Not Recap Needle”

Performing activities involving needles and sharps, in a rush increases the likelihood of an accidental exposure

PREVENTING EXPOSURE TO AND TRANSMISSION OF HIV AND OTHER VIRUSES

Staff Information: All categories of HCP within the hospital should be trained on how to protect themselves against HIV and other pathogens transmitted by blood or body fluids. The information must be reinforced on a regular basis. All the staff members share an individual and collective responsibility in this regard. The Medical Superintendent (MS)/ Dean/ Principal/ In-charge of the hospital must constitute a hospital infection control committee which should conduct regular trainings and monitor hospital infection control including universal precaution and post-exposure prophylaxis implementation and quality control. The MS must ensure that the hospital has a written protocol and Standard Operational Procedures (SOP) to handle occupational exposure and that those are disseminated to all relevant personnel/departments.

The Medical Superintendent / Medical officer i/c of the hospital has the responsibility of informing the staff about:

• Universal precautions to be followed in health services (see table 3)
• Use of personal protective equipment (PPE)
• SOPs to be followed in case of accidental exposure to blood and body fluids
• Round the clock availability of PEP drugs –Drugs must be kept in atleast three locations—Emergency room / casualty, labour room and ICU / OT complex
All hospital staff members must know whom to report for PEP and where PEP drugs are available in case of occupational exposure

Minimize the use of sharps/ injections: All the medical staff should try to minimize the use of invasive interventions, for example — oral drugs must be used in place of injections, wherever possible. Whenever the use of sharps is indicated, try to use safer alternatives that are practical and possible, within the limitations of the system.

Protection against hepatitis B: All Health Care Providers (HCP) should be vaccinated against the hepatitis B virus. The vaccination for hepatitis B consists of 3 doses: baseline, 1 month, and 6 months. Most of the recipients (99%) seroconvert after completing the full course. There is no vaccine or prophylaxis against hepatitis C.

Table 3: Universal Precautions

Universal precautions are intended to prevent the exposure of health-care workers and patients to blood borne pathogens. These must be practised in regard to the blood and body fluids of all patients, regardless of their infection status.

Universal precautions include:

- Hand-washing before and after all medical procedures
- Safe handling and immediate safe disposal of sharps: not recapping needles; using special containers for sharp disposals; using needle cutter/destroyers; using forceps instead of fingers for guiding sutures; using vacutainers where possible
- Safe decontamination of instruments
- Use of protective barriers whenever indicated to prevent direct contact with blood and body fluid such as gloves, masks, goggles, aprons, and boots. A HCP who has a cut or abrasion should cover the wound before providing care
- Safe disposal of contaminated waste

Fig 4: Universal Work Precaution

Always use protective gear/Consider all blood samples as
Follow universal precautions practice—Practise safe handling of sharp instrument—Use needle destroyers

MANAGEMENT OF THE EXPOSED PERSON

Step 1: Management of Exposure Site—First Aid

For skin—if the skin is pierced by a needle-stick or sharp instrument:

- Immediately wash the wound and surrounding skin with water and soap and rinse
- Do not scrub
- Do not use antiseptics or skin washes
  - Don’t use bleach, chlorine, alcohol, betadine
- After a splash of blood or body fluids:
  - To unbroken skin:
    - Wash the area immediately
    - Do not use antiseptics
  - For the eye:
    - Irrigate exposed eye immediately with water or normal saline
    - Sit in a chair, tilt the head back and ask a colleague to gently pour water or normal saline over the eye
    - If wearing contact lens, leave them in place while irrigating, as they form a barrier over the eye and will help protect it. Once the eye is cleaned, remove the contact lens and clean them in the normal manner. This will make them safe to wear again
    - Do not use soap or disinfectant on the eye
  - For Mouth:
    - Spit fluid out immediately
    - Rinse the mouth thoroughly, using water or saline and spit again. Repeat this process several times
    - Do not use soap or disinfectant in the mouth
    - Consult the designated physician of the institution for management of the exposure immediately

Step 2: Establish eligibility for PEP

The average rate of HIV sero-conversion after an Accidental Exposure to Blood (AEB) (for per-cutaneous exposure) is 0.3%. The real risk of transmission depends on the amount of HIV transmitted (= amount of contaminated fluid and the viral load).

A designated person/trained doctor must assess the risk of HIV and HBV transmission following an AEB. This evaluation must be made rapidly, so as to start any treatment as soon as possible after the accident. This assessment must be made thoroughly (because not every AEB requires prophylactic treatment).

The first dose of PEP should be administered ideally within 2 hours (but certainly within the first 72 hours) of exposure and the risk evaluated as soon as possible. If the risk is insignificant,
PEP could be discontinued, if already commenced. PEP needs to be started as soon as possible after the exposure and within 72 hours. In animal studies, initiating PEP within 12, 24 or 36 hours of exposure was more effective than initiating PEP 48 hours or 72 hours following exposure. PEP is not effective when given more than 72 hours after exposure.

**PEP must be initiated as soon as possible, preferably within 2 hours**

Two main factors determine the risk of infection: the nature of exposure and the status of the source patient.

**Assessing the nature of exposure and risk of transmission**

Three categories of occupational exposure for HCW can be described based on the amount of blood/ fluid involved and the entry port. These categories are intended to help in assessing the severity of the exposure but may not cover all possibilities.

**Table 4: Categories of Exposures 4: C**

<table>
<thead>
<tr>
<th>Category of Exposure</th>
<th>Definition and example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild exposure</td>
<td>Exposure to mucous membrane/non-intact skin with small volumes E.g. a superficial wound (erosion of the epidermis) with a plain or low calibre needle, or contact with the eyes or mucous membranes, subcutaneous injections following small-bore needles.</td>
</tr>
<tr>
<td>Moderate exposure</td>
<td>Exposure to mucous membrane/ non-intact skin with large volumes OR percutaneous superficial exposure with solid needle. E.g. a cut or needle stick injury penetrating gloves.</td>
</tr>
<tr>
<td>Severe exposure</td>
<td>Percutaneous exposure with large volume E.g. - an accident with a high calibre needle (&gt; 18 G) visibly contaminated with blood - a deep wound (haemorrhagic wound and/or very painful); transmission of a significant volume of blood - an accident with material that has previously been used intravenously or intra-arterially</td>
</tr>
</tbody>
</table>

The wearing of gloves during any of these accidents constitutes a protective factor.

Note: In case of an AEB with material such as discarded sharps/ needles, contaminated for over 48 hours, the risk of infection becomes negligible for HIV, but still remains significant for HBV. HBV survives longer than HIV outside the body.

**Assessing the HIV status of the source of exposure**

A baseline rapid HIV testing of the source of the exposed should be done before starting PEP. Initiation of PEP where indicated should not be delayed while waiting for the results of HIV testing of the source of the exposure. Informed consent should be obtained before testing of the source as per national HIV testing guidelines.
Table 5: Categories of situations depending on results of the source

<table>
<thead>
<tr>
<th>Source HIV Status</th>
<th>Definition of risk in source</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV negative</td>
<td>Source is not HIV infected but consider HBV and HCV</td>
</tr>
<tr>
<td>Low risk</td>
<td>HIV positive and clinically asymptomatic</td>
</tr>
<tr>
<td>High risk</td>
<td>HIV positive and clinically symptomatic</td>
</tr>
</tbody>
</table>

Refer Annexure 13: Risk Assessment of the source person

Routinely used HIV test, do not detect HIV during the "window period ", as the antibody level is still too low for detection - but the person can still have a high viral load. This implies that a positive HIV test result (of source) can help in taking the decision to start PEP, but **a negative test result does not exclude HIV infection**. In districts or some population groups with a high HIV prevalence, a higher proportion of HIV-infected individuals are found in the window period. In these situations, a negative result has even less value for decision-making on PEP.

**Assessment of the exposed individual**

The exposed individual should have confidential counselling and assessment by an experienced physician. The exposed individual should be assessed **for pre-existing HIV infection** (see Step 5) intended for people who are HIV negative at the time of their potential exposure to HIV. Exposed individuals who are known or discovered to be HIV positive should not receive PEP. They should be offered counselling and information on the prevention of transmission and referred for clinical and laboratory assessment for subsequent linkage to comprehensive HIV services. Besides the medical assessment, **counselling** (see Step 3) of exposed HCP is essential to allay fear and start PEP (if required) at the earliest.

**Step 3: Counselling for PEP**

For an informed consent, exposed persons (clients) should receive appropriate information about what PEP is and the risk and benefits of PEP. It should be clear that PEP is not mandatory. The client should understand details of window period, baseline test, drugs that are used, their safety and efficacy and issues related to these drugs during pregnancy and breast-feeding. He/ she should be counselled on safe sexual practices till both baseline and 3 months HIV test are found to be negative.

**Psychological support:** Many people will feel anxious after exposure. Every exposed person needs to be informed about the risks and the measures that can be taken. This will help to relieve part of the anxiety, but some may require further specialized psychological support.

**Documentation on record is essential.** Special leave from work, if required, should be considered for a period of time e.g. 2 weeks (initially), then as required based on assessment of the exposed person’s mental state, side effects and requirements. For recording and reporting framework please refer to operational guidelines for ART services.

**Step 4: Assessing Need for PEP and Prescribing PEP**

**Deciding on PEP regimen:**

The decision on the need for PEP for HIV (following an occupational exposure in health care worker) will depend on the exposure as well as source person’s HIV status and the extent of disease, if the source has been confirmed positive. It is decided based on exposure code and source code.
Depending on the exposure and source code, the decision to offer PEP or defer it should be considered as provided in table 6.
Table 6: NACO Recommendations of PEP for HCP based on Exposure and HIV Source codes

<table>
<thead>
<tr>
<th>Exposure Code</th>
<th>Source Code</th>
<th>Recommendation for PEP</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Not warranted</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>Recommended PEP</td>
<td>PEP is recommended for 28 Days</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1 or 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Unknown</td>
<td>Consider PEP if HIV prevalence is high in given population and risk categorization</td>
<td>28 days</td>
</tr>
</tbody>
</table>

In cases of sexual assault, PEP should be given to the exposed person as a part of the overall package of post sexual assault care.

- HIV testing of the source patient should not delay the decision about whether or not to start PEP. Start PEP first if required, then send for consultation or refer.
- In the case of a high-risk exposure from a source patient who has been exposed to or is taking antiretroviral medications, consult an expert to choose the PEP regimen, as the risk of drug resistance is high and a change of regimen may be required.

Expert opinion may be obtained for the following situations

- Delay in reporting exposure (> 72 hours)
- Unknown source: use of PEP to be decided on case-to-case basis after considering the severity of exposure and the epidemiologic likelihood of HIV transmission. Do not delay PEP initiation if indicated
- Known or suspected pregnancy: do not delay PEP initiation
- Breastfeeding issues in the exposed person: do not delay PEP initiation
- Source patient is on ART or possibly has HIV drug resistance: refer/consult as soon as possible
- Major toxicity of PEP regimen: minor side effects may be managed symptomatically. Refer to expert if non-tolerance or non-adherence
- Refer/consult if in doubt or complicated cases (e.g. major psychological problem)

PEP must be initiated as soon as possible, preferably within 2 hours

What Regimen to Give for PEP

As post-exposure prophylaxis (PEP) for HIV has its greatest effect if begun within 2 hours of exposure, it is essential to act immediately. There is little benefit if > 72 hours have lapsed but PEP can still be used if the health care worker presents after 72 hours of exposure. The prophylaxis needs to be continued for 4 weeks.

- Report exposure immediately to appropriate authority
- Never delay the start of therapy due to debate over regimen. In cases with exposure from patient on ART, start available three drug regimens and seek opinion after that.
- PEP is indicated for health care providers based on exposure and HIV source codes NACO’s recommended PEP regimens are tabulated below.
Table 6: Recommended PEP regimens

<table>
<thead>
<tr>
<th>Dosages of the drugs for PEP for adults</th>
<th>Recommendation for PEP</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenofovir (TDF) 300 mg + Lamivudine (3TC) 300 mg One Tab (FDC) once daily (1-OD)</td>
<td>One tab Immediately within 2 hours of accidental exposure, either at day time or at night time</td>
<td>Next day one tab once OD, continue for 4 weeks</td>
</tr>
<tr>
<td>Lopinavir (200 mg) + Ritonavir (50 mg) Two Tab (FDC) twice daily (2-BD)</td>
<td>Two Tab Immediately within 2 hours of accidental exposure, either at day time or at night time</td>
<td>Next day two-tab BD, continue for 4 weeks</td>
</tr>
<tr>
<td>If LPV/r is not available / can not be used, Tenofovir (300 mg) + Lamivudine (300 mg) + Efavirenz (600 mg), One Tab OD may be given for 4 weeks.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In case of highly treatment experienced source, initiate first dose as per above guidelines and expert opinion should be sought urgently by phone/e-mail from CoE/ART Plus centre.

In cases of sexual assault, the same principles need to be followed in adults and adolescents. For children who have suffered assault and have to be administered PEP, the dosage should be as per age and weight bands and haemoglobin levels.

Table 7: PEP Drugs for paediatric age group

<table>
<thead>
<tr>
<th>3-Drug Regimen (as per weight band)</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication</td>
<td></td>
</tr>
<tr>
<td>Zidovudine (AZT)</td>
<td>Preferred choice. As per weight band</td>
</tr>
<tr>
<td>Abacavir (ABC)</td>
<td>If AZT contradicted. As per weight band</td>
</tr>
<tr>
<td>Lamivudine (3TC)</td>
<td>As per weight band</td>
</tr>
<tr>
<td>LPV/r</td>
<td>As per weight band</td>
</tr>
<tr>
<td>EFV (if LPV/r is not available or can not be used)</td>
<td>As per weight band below, in children with age &gt; 3years and weight &gt;10 Kg only.</td>
</tr>
</tbody>
</table>

* Refer to Annexure 2 for Pediatric Dosing schedule

In all cases, appropriate and adequate counselling must be provided regarding possible side-effects, adherence and follow-up protocol.

In practice and from HCP studies, it has been observed that many HCP do not complete the full course of PEP because of side-effects. Side-effects can be reduced by prescribing regimens that do not include a protease inhibitor (PI), by giving medications to reduce nausea and gastritis and by educating clients about how to reduce side effects e.g. taking PEP medications with food. It is important that side effects should be explained before initiating PEP so that the symptoms are not confused with symptoms of seroconversion to HIV.

Adherence information is essential with psychological support. More than 95% adherence is important in order to maximise the efficacy of the medication in PEP. Table 9 below gives guidance on management of common side effects of PEP drugs.
Table 9: Management of Minor ARV drug side effects

<table>
<thead>
<tr>
<th>Sign or Symptom</th>
<th>Management at health facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>Take with food; reassure that this is usually self-limited. Treat symptomatically.</td>
</tr>
<tr>
<td>Headache</td>
<td>Give paracetamol. If on EFV, reassure that this is common and usually self-limited. If persists more than 2 weeks, call for advice or refer.</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>Hydrate. Follow diarrhoea guidelines. Reassure patient that if it is due to ARV, it will improve in a few weeks. Follow up in 2 weeks. If it does not improve, call for advice or refer.</td>
</tr>
<tr>
<td>Fatigue</td>
<td>This commonly lasts 4 to 6 weeks. Take 'sick leave' from work. If severe or longer than this, call for advice or refer.</td>
</tr>
<tr>
<td>CNS side effects: Anxiety, nightmares, psychosis, depression</td>
<td>This may be due to EFV. Take EFV at night before sleeping; Counsel and support (usually lasts &lt; 3 weeks). The initial difficult time can be managed with amitriptyline at bedtime. Call for advice or refer if severe depression or suicidal tendencies or psychosis (stop EFV).</td>
</tr>
<tr>
<td>Rash</td>
<td>If on EFV, assess carefully. Is it a dry or wet lesion? Call for advice. If generalised or peeling, stop drugs and refer for expert opinion.</td>
</tr>
<tr>
<td>Fever</td>
<td>Assess clinically for Hepatitis, see if this could be primary (acute) HIV infection or other non-HIV related infections e.g. concurrent common cold. Call for advice or refer.</td>
</tr>
<tr>
<td>Jaundice or abdominal or flank pain</td>
<td>Stop drugs; Call for advice or refer. If jaundice or liver tenderness is present, send for ALT test and stop ARVs. Call for advice or refer.</td>
</tr>
</tbody>
</table>

Availability and Prescription for PEP

All clients starting on PEP must take 4 weeks (28 days) of medication. In all cases, the first dose of PEP should be offered as soon as possible, once the decision to give PEP is made. HIV testing of the client or results of the source HIV test can come later. As usage of PEP drugs is not frequent and the shelf life is 1 to 1.5 years, drugs for PEP should be made available in the emergency department, labour room and intensive care unit (ICU). Instructions must be given to the patient/client to go to the designated clinic/officer at the earliest for a complete risk assessment, HIV counselling and testing and receipt of the remaining medications and further management. It is important to monitor and regularly follow-up the patient/client once PEP is started (see step 6).

Hepatitis B

All health staff should be vaccinated against Hepatitis B. The vaccination for Hepatitis B consists of 3 doses- initial (zero) dose, 2nd at 1 month and 3rd dose at 6 months. Sero-conversion after completing the full course is 99%.

If the exposed person is unvaccinated or unclear vaccination status, give complete Hepatitis B vaccine series.
Table 10: HBV vaccination after an AEB

<table>
<thead>
<tr>
<th>HBV vaccination status of exposes persons</th>
<th>Action after AEB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never vaccinated</td>
<td>Give complete Hepatitis B vaccine series</td>
</tr>
<tr>
<td>Vaccinated, anti-HbS not known</td>
<td>Give Hepatitis B vaccine booster</td>
</tr>
<tr>
<td>Vaccinated more than 5 years ago</td>
<td>Give Hepatitis B vaccine booster</td>
</tr>
</tbody>
</table>

Note: If available, testing for the antibody level (anti-HbS) is not necessary.

Hepatitis B vaccine should be given as soon as possible after the exposure. Do not wait for anti-HbS results, if the test is done.

Adequate levels of serum Ab to HbSAg (i.e. anti-HbS) is >10 IU/L

Vaccination for Hep B:

- All HCW must be immunized for Hepatitis-B
- ART staff can be immunized using contingency fund

7.4.10 Hepatitis C: Presently no prophylaxis is available against Hepatitis C. There is no evidence that interferon, pegalated or not, with or without Ribavirin is more effective when given during this time than when given at the time of disease. Post-exposure management for HCV is based on the early identification of chronic HCV disease and referral to a specialist for management.

Step 5: Laboratory Evaluation

The reason for HIV testing soon after an occupational exposure is to establish a "baseline" against which future test results can be compared. If the HCP is HIV-negative in the baseline test, it is, in principle, possible to prove that the subsequent infection identified by follow-up testing is related to the occupational exposure (depending on the timing of infection and consideration of other risks or exposure). When offered HIV testing, the exposed person should receive standard pre-test counselling according to the national HIV testing and counselling guidelines, and should give informed consent for testing. Confidentiality of the test result must be ensured.

There are possibly different reasons for delaying HIV testing: the HCP may be unable to give informed consent immediately after the exposure due to anxiety or the exposure occurs outside working hours or in settings where HIV testing is not readily available. The HIV test may be done up to several days after the exposure, depending upon the informed consent and with pre- and post-test counselling, ensuring confidentiality.

Do not delay PEP if HIV testing is not available.

Table 11: Recommended baseline laboratory investigations

<table>
<thead>
<tr>
<th>Baseline laboratory investigations</th>
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<tr>
<td>Timing</td>
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<tr>
<td>Baseline</td>
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</tbody>
</table>

* HIV, HBV and HCV testing of exposed staff within 6 days of an AEB is recommended (baseline sero-status). Offer an HIV test in case of an AEB, as a positive HIV status may indicate the need to discontinue PEP. The decision whether to test for HIV or not should be based on the informed consent of the exposed person.
HIV RNA testing by polymerase chain reaction (PCR) during PEP has a very poor positive predictive value and should be strongly discouraged. Pregnancy testing should also be available, but its unavailability should not prevent the provision of PEP. Other laboratory testing such as haemoglobin estimation should be available, especially when AZT is used for PEP in areas where anaemia is common. Testing for other blood-borne diseases such as syphilis, malaria and kala-azar may also be useful, depending on the nature of risk, symptoms of the source patient, local prevalence and laboratory capacity.

**Step 6: Follow-up of an Exposed Person:**

Whether or not PEP prophylaxis has been started, follow-up is indicated to monitor possible infections and to provide psychological support.

**Clinical follow-up:** In addition, in the weeks following an AEB, the exposed person must be monitored for the eventual appearance of signs indicating an HIV seroconversion: acute fever, generalised lymphadenopathy, cutaneous eruption, pharyngitis, non-specific flu symptoms and ulcers of the mouth or genital area. These symptoms appear in 50-70% of individuals with a primary (acute) HIV infection, almost always within 3 to 6 weeks after exposure. When a primary (acute) infection is suspected, referral to an ART centre for an expert opinion should be arranged immediately.

An exposed person should be advised to use precautions (e.g., avoid blood or tissue donations, breastfeeding, unprotected sexual relations or pregnancy) in order to prevent secondary transmission, especially during the first 3 months following exposure. Condom use is essential.

Counseling regarding adherence and side-effects should be provided and reinforced at every follow-up visit. If PEP is prescribed, the exposed health care provider should be followed up every week with laboratory tests recommended below; psychological support and mental health counselling is often required.

**CLINICAL MONITORING IN PEP**

- **Monitor for acute sero-conversion illness**
  - Within 3-6 weeks after exposure
  - If suspected, refer to ART centre

- **Avoid:**
  - Blood donation
  - Breast feeding
  - Pregnancy

- **Person should use precautions:**
  - Sexual relationship (CONDOM protection)

- **Adherence & Adverse Drug Reaction counselling**

Laboratory follow-up: The exposed person should have follow-up HIV tests post-PEP. Testing at the completion of PEP may give an initial indication of seroconversion outcome, if the available antibody test is very sensitive. However, testing at 4-6 weeks may not be enough as the use of PEP may prolong the time required for seroconversion and there is not enough time to diagnose all
<table>
<thead>
<tr>
<th>No.</th>
<th>Name of ART Centre</th>
<th>Address</th>
<th>Contact number</th>
<th>Email</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>First Floor, New OPD, Medicine Department, MY Hospital, Indore (MP)</td>
<td>0731-4256586</td>
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<td>2</td>
<td>ART Centre, Jabalpur</td>
<td>ART Centre, NSCB Medical College, Nagpur Road, Jabalpur (MP)</td>
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<td>3</td>
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<td>ART Centre, Medical OPD, Hamildia Hospital, Bhopal (MP)</td>
<td>0755-4064403</td>
<td><a href="mailto:artcenterbhopal@rediffmail.com">artcenterbhopal@rediffmail.com</a></td>
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<td>FIART Centre, Khargone</td>
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