

Policy / SOPs for the prevention and management of occupational exposure to infectious materials in health care settings



**KHYBER GIRLS MEDICAL COLLEGE /
HAYATABAD MEDICAL COMPLEX / MTI,
PESHAWAR, PAKISTAN**

INTRODUCTION

Khyber Girls Medical College / Hayatabad Medical Complex are committed to ensure safety and welfare of health care professional in all their allied institutions. We aim to ensure that all healthcare professional are protected, as much as reasonably possible, from the risks arising from contact with needles, sharps and body fluids. This can be achieved by ensuring that certain standard operating procedures are in place for prevention and management of occupational exposure to infectious materials.

PURPOSE

The purpose of these SOPs is to set out the protocols and procedures to be followed by healthcare professional to protect them from the transmission of blood borne pathogens, and to outline the steps to be taken when workers are exposed to the risk of infection through a needle Stick or other exposure at workplace.

In the event of a Needle Stick Injury or other similar injury occurring, it is important for all staff to know:

1. What actions to take
2. Where to go for assessment and treatment of the injury / exposure, and follow-up.
3. How to report the incident so that future injuries are reduced or avoided by reviewing the current protocols

SCOPE

These SOPs apply to all healthcare professional working in HMC/MTI and other allied institutions of KGMC.

HEALTH CARE WORKERS AT RISK

Physicians, surgeons, nursing staff, emergency care providers, dentists, interns and medical students, labor room staff, laboratory technicians, hospital cleaning staff and waste handlers.

POTENTIALLY INFECTIOUS BODY FLUIDS:

Blood, other body fluids like semen, vaginal secretion, cerebrospinal fluid, synovial, peritoneal, pleural, pericardial, amniotic, and any other fluid visibly contaminated with blood can potentially transmit infections like HBV, HCV, HIV and others.

DEFINITIONS

Sharps Injury: Caused by needle, scalpel blade, bone or tooth fragments and other sharp objects contaminated with body fluids.

Splashes: Splashes of blood, body fluids into the eye or mouth, open cuts or lesions on the skin.

Bites/Scratches: Human bites or scratches

SECTION 1

PREVENTION OF OCCUPATIONAL EXPOSURE TO INFECTED BLOOD AND BODY FLUIDS

PRECAUTIONS FOR HEALTHCARE PROFESSIONALS WHOSE WORK BRINGS THEM INTO CONTACT WITH HUMAN BLOOD OR BODY FLUIDS

1. GENERAL PRECAUTIONS

- a. Latex disposable gloves should always be worn whenever there is known or anticipated contact with blood, saliva or other body fluids.
- b. Hand washing after contact with a person's blood or body secretions is always recommended.

2. AVOIDING SHARPS INJURY

- a. All clinical staff must undertake sharps prevention training.
- b. Avoid the use of needles when other safe and effective alternatives are available e.g. use of vacutainer to collect blood.
- c. When using sharp instruments / needles at bed side, always have a suitable sharp box to dispose of the sharp immediately after use.
- d. During clinical procedures, the operator in charge has a responsibility to ensure the safe keeping, use, storage and safe disposal of all sharp instruments and associated equipment.
- e. When using any sharp equipment, always concentrate on the task in hand and do not allow yourself to be distracted. Maintain visual contact with sharps in use at all times.
- f. Never leave a used sharp unattended, always dispose of the equipment immediately and safely before undertaking another task.
- g. **NEVER RE-SHEATH / RECAP NEEDLES.**
- h. Take care clearing up following a procedure, be aware of sharps hidden under gauze or equipment that could cause an injury.
- i. When passing canulla, take extra care to the safe removal & disposal of the canulla introducer.
- j. If handed a sharp instrument e.g. scissors, scalpel, never take the sharp end. Wherever possible always used a receiver to take & give sharp instruments and equipment.

- k. Staff should cover any cuts or abrasions they have with an occlusive dressing.
- l. Where splashing / spraying of blood or body fluids may occur, always wear suitable personal protective equipment e.g. full face visor, goggles and face mask, gloves, protective apron, fluid impermeable gown as required for each situation.

3. SAFE AND EFFECTIVE USE OF SHARPS BOXES

- a. All wards and departments must have adequate supplies of sharp boxes so that sharps can be disposed of at the point of use.
- b. Take care when disposing sharps into a sharps box, be aware of needle rebound and possible protruding sharps from around the box.
- c. Never shake the contents of the box down. Objects can fly out and cause injury.
- d. Patients who are self medicating insulin or checking their blood glucose level must be supplied with a separate sharp box so they can dispose of sharps directly after use. These patients should be educated and instructed regarding the importance of safe and correct disposal of sharps by the doctor responsible for that patient.
- e. Always place sharp boxes at a suitable height / work surface level, away from public access.
- f. Sharps disposal bins must not be overfilled above the level indicated. They must be carefully sealed prior to disposal so that those handling them will not be injured.

4. VACCINATION

It shall be mandatory for all health care professionals to have up to date evidence of effective vaccination against Hepatitis B (Anti-HBS titer > 10 IU/ml) before their induction in clinical work.

5. AVAILABILITY OF POST EXPOSURE PROPHYLAXIS (PEP) MEDICATIONS

Make sure medications for post exposure prophylaxis are readily available before starting any procedure on a patient suffering from Hepatitis B or HIV.

SECTION 2

MANAGEMENT OF OCCUPATIONAL EXPOSURE TO INFECTED BLOOD OR BODY FLUIDS

INTRODUCTION

This section relates to the management of occupational exposure to blood and body fluids. This will include immediate first aid measures, determining the significance of exposure, assessment of the exposed healthcare professional and the source patient in cases of significant exposure, and recommendations on post exposure prophylaxis after significant exposure to Hepatitis B, Hepatitis C and HIV.

1. IMMEDIATE FIRST AID MEASURES IN THE EVENT OF EXPOSURE

A. NEEDLE STICK INJURY

- a. **Do not** panic.
- b. **Do not** squeeze the pricked finger to bleed.
- c. **Do not** put the pricked finger in mouth.
- d. **Immediately wash** the wound & surrounding skin with water and soap.
- e. **Do not** scrub or use any antiseptic like iodine, bleach, alcohol, detergents or antibiotics on the wound.
- f. Consult the designated physician of the institution for the reporting & management of the exposure immediately.

B. SPLASHES OF BLOOD / SECRETIONS TO INTACT SKIN, EYES OR MOUTH

- a. **To intact skin, immediately wash** the splash with water and soap. Do not use antiseptics or antibiotics.
- b. **For eyes**, sit in a chair, tilt your head backwards and ask a colleague to pour water gently over the exposed eye and **thoroughly irrigate** it. Do not use soap or disinfectants on the eye.
- c. If wearing **contact lenses**, leave them in place while irrigating. Once the eye is clean, remove the contact lens and clean them in the normal manner.
- d. **For mouth, spit out** the blood or secretion and immediately **rinse** the mouth thoroughly with water or normal saline and spit again. Repeat this process several times. Do not use soap or disinfectants in the mouth.
- e. Consult the designated physician of the institution for the reporting & management of the exposure immediately.

2. EXPOSURE: SIGNIFICANT OR INSIGNIFICANT

If the answer to any one of the following is yes, the exposure is considered significant.

- Needle stick /sharps injury that drew blood when there was blood or body fluid on the sharp
- Body fluid splash into eye or mouth
- Bites with breach of skin
- Body fluid splash onto non-intact skin

Urine, vomit, saliva or faeces are low risk body fluids. Unless blood stained, they do not constitute significant exposure.

For **INSIGNIFICANT** exposure: **No actions or follow up except** the immediate first aid measures outlined above are required.

For **SIGNIFICANT** exposure, both the exposed healthcare professional and the source patient need assessment as outlined below.

3. ASSESSMENT OF THE EXPOSED HEALTHCARE PROFESSIONAL

After completing the first aid measures outlined above, the exposed health care professional shall contact the designated physician of institute and will undergo the following.

- a. Blood sample shall be taken to check his HBsAg, Anti-HIV antibodies and Anti-HIV antibodies.
- b. If the health care professional has received Hepatitis B vaccination in past, blood sample shall be sent for Anti-HBS titer in case Anti-HBS titer is not known.

4. ASSESSMENT OF THE SOURCE PATIENT

A. Source patient is known with documented status of HBV, HCV & HIV

The exposed healthcare professional shall be considered for appropriate post exposure prophylaxis as outlined below.

B. Source patient is known but his/her HBV, HCV & HIV status is not known

- a. Explain fully and in simple language to the source patient exactly what has happened.

- b. Explain to the source patient why the blood sample is required for testing indicating that it is needed to allay the fears and apprehensions of the member of staff following the exposure incident. One must indicate to the source patient what tests will be carried out on the blood (HBsAg, Anti – HCV antibodies & Anti – HIV antibodies) and the implications for him/her if the test should prove positive. The fact that these infections may be passed to others and how that may happen must also be fully explained. The consequences of a positive result must also be indicated as must the fact that he/she is free to decide that they do not wish the test to be undertaken.
- c. The confidential nature of the test must also be emphasized indicating that the result will be sent to the doctor responsible for his/her case. He/she should be informed that the injured party will also be made aware of the test result and that professional confidentiality will be maintained.
- d. Informed written and witnessed consent should be made part of the medical record of the source patient.
- e. If consent is not given, this should also be recorded in the medical record of the source patient.
- f. If the source patient refuses testing / is unable to give consent e.g. unconscious / mental illness, the severity of the risk of exposure should be considered. Testing against patient's wish shall not be performed unless there is good reason to believe that the source patient may have an infection (e.g. HBV, HIV), for which prophylactic treatment is available. In such circumstances, an existing sample taken for other reason may be tested. If you decide to test against consent, the source patient should be informed about this decision at the earliest convenience.
- g. If the source patient is deceased, sample for testing may be taken if there are good reasons to believe that the source patient may have been infected and a health care worker has had significant exposure to his/her blood or body fluids. Consent for this should be taken from next of kin.
- h. If the source patient is found to have any infection during testing, the results should be communicated to his/her primary physician who will inform the source patient.

C. Source Patient Not Known (e.g. waste disposal staff getting needle stick injury from sharps in the sharp box)

A decision to start the exposed person on PEP for HBV and HIV may be taken after assessment for the likelihood of the presence of Hepatitis B or HIV patient in the ward / department concerned. If there is a high likelihood, starting PEP for HBV and HIV may be justified after discussion with the exposed health care worker.

5. RECOMMENDATIONS ON POST EXPOSURE PROPHYLAXIS

A. HEPATITIS B POST EXPOSURE PROPHYLAXIS

Institutions should ensure that health care professional have timely access to post exposure management and prophylaxis i.e. Hepatitis B Immune-globulin (HBIG) and Hepatitis B vaccine are readily available in the institution. Any elective procedure / surgery on HBV patients should not be commenced unless it is made sure that HBIG & Hep B vaccine are readily available.

For exposed health care professional thought to be susceptible to HBV infection, HBIG and Hepatitis B vaccine should be administered as soon as possible after an exposure when indicated. The effectiveness of HBIG when administered more than **7 days** after percutaneous, mucosal, or non intact skin exposures is unknown. HBIG and Hep B vaccine can be administered simultaneously at separate injection sites.

No modifications to an exposed person's patient-care responsibilities are necessary to prevent transmission to patients based solely on exposure to HBV-positive blood.

Manage for Hepatitis B post exposure prophylaxis according to the table below.

SOURCE EXPOSED	HBsAg POSITIVE	HBsAg NEGATIVE	HBsAg Status UNKNOWN	A. Give HBIG. Initiate/complete Hep B vaccination series B. Give HBIG. Initiate 2nd three dose Hep B vaccination series C. Initiate/complete Hep B vaccination series D. Initiate Hepatitis B 2nd three dose vaccination series E. No treatment F. Decide on the result of Anti-HBS titer between options D & E
Unvaccinated or incomplete vaccination (1 or 2 doses of HBV vaccine in past)	A	C	A	
Fully vaccinated (3 doses) & Anti-HBS titer < 10 IU/ml	B	D	B	
Fully vaccinated (3 doses) & Anti-HBS titer unknown / awaited	B	F	B	
Fully vaccinated (3 doses or more) & Anti-HBS titer > 10 IU/ml	E	E	E	

To determine immunity, the healthcare professional should have anti-HBs titers checked one to two months after the last dose of HBV vaccine and at least 6 months after HBIG was administered.

If the source patient was HBsAg positive or the status could not be obtained, the healthcare professional should be tested for anti-HBc & HBsAg 6 months after the exposure to assess for HBV transmission in healthcare professional who were not HBV immune at the time of exposure.

B. HEPATITIS C POST EXPOSURE PROPHYLAXIS

There is no evidence that antiviral agents or immunoglobulin started after exposure to HCV infected blood or body fluids decrease the chances of transmission to the exposed health care provider. In the absence of effective PEP for HCV, recommendations for post exposure management are intended to achieve early identification of chronic disease and, if present, referral for evaluation for treatment options.

If baseline Anti-HCV antibodies are negative, the exposed person shall have Anti-HCV antibody tested at 6 months following the exposure. Alternatively, HCV RNA can be tested 4 – 6 weeks after exposure. Follow up screening can stop if the exposed person is Anti-HCV negative or HCV RNA negative 6 months after the exposure.

Positive Anti-HCV antibodies at baseline or any time after the exposure shall be followed by testing for HCV RNA.

No modifications to an exposed person's patient-care responsibilities are necessary to prevent transmission to patients based solely on exposure to HCV-positive blood.

C. HIV POST EXPOSURE PROPHYLAXIS

Institutions should ensure that starter packs of post exposure prophylaxis (PEP) medications against HIV is available round the clock in every unit /department, keeping in view the fact that effectiveness of HIV PEP decreases with each passing hour after the exposure. Any elective procedure / surgery on HIV patients should not be commenced unless it is made sure that PEP medications are readily available in case a healthcare professional has an exposure.

PEP should be started as soon as possible after significant exposure to HIV infected blood / body fluids, **preferably within 2 hours and certainly within 72 hours**. Its effectiveness beyond 72 hours post exposure is unknown. If the risk of transmission is believed to be insignificant later on, PEP can be discontinued, if already started.

If the answer to at least one question in both the source patient history and high risk needle stick injury in the following table is YES, immediately consult the designated physician of the institution or in-charge of nearby ART center for assessment for PEP.

SOURCE PATIENT HISTORY (At least one point)	AND	HIGH RISK NEEDLESTICK INJURY (At least one point)
<ul style="list-style-type: none"> A. Known to be a HIV positive B. IV drug user C. Ever on any anti-retroviral medication D. Sexual contact with a person from a group with high prevalence of HIV infection e.g IV drug users, sex workers. 		<ul style="list-style-type: none"> A. Deep Injury B. Device visibly contaminated with blood C. Needle was used directly in blood vessel of HIV patient D. Terminal HIV disease in source Patient E. High viral load in Source Patient

HIV-exposed healthcare professional should be advised to use the following measures to prevent secondary transmission during the follow-up period, especially the first 6--12 weeks after the exposure when most HIV-infected persons are expected to seroconvert: exercise sexual abstinence or use condoms to prevent sexual transmission and to avoid pregnancy; and refrain from donating blood, plasma or organs.

If an exposed woman is breast feeding, she should be counseled about the risk of HIV transmission through breast milk, and discontinuation of breast feeding should be considered, especially for high-risk exposures.

The patient-care responsibilities of an exposed person do not need to be modified, based solely on an HIV exposure, to prevent transmission to patients.

Exposed healthcare professional who are found to be HIV positive during baseline evaluation shall not be started on PEP, and should be counselled on prevention of transmission and should be linked to HIV care at Family Care Center, HMC or nearby ART center.

For exposures for which PEP is prescribed, healthcare professional should be informed about possible adverse effects and the need for monitoring, and possible drug interactions.

After completing 28 days course of HIV PEP, the exposed healthcare professional shall be screened for Anti-HIV antibodies, and if found negative, shall have repeat screening at 3 months and 6 months. Follow up screening can stop if Anti-HIV antibodies are negative 6 months after exposure.