

Health Care Waste Management Prophylaxis Guidance

Document Number: 302

Note: This guidance document is provided as a template and must be customized to accommodate facility specific procedures and terminology.

1. Purpose

This document provides guidance for directors and managers of health care facilities on (1) ensuring that workers and medical waste handlers avoid disease resulting from exposure to infectious medical waste and (2) performing appropriate postexposure management.

2. Scope

Maintaining a clean environment and proper disposal of medical waste are social obligations of any hospital or health facility. Exposure of patients, staff, waste handlers and the community to unnecessary health risks commonly occurs as a result of poor waste management practices. Some fatal blood-borne infectious diseases, such as hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV), have been reported in many countries to account for most cases of occupational infection.

3. Definitions

Waste means any useless, unwanted or discarded substance or material, whether or not such substance or material has any other or future use and includes any substance or material that is spilled, leaked, pumped, poured, emitted, emptied or dumped onto the land or into the water or ambient air.

Infectious waste is suspected to contain pathogenic organisms, i.e., bacteria, viruses, parasites of fungi in sufficient concentration of quantity to cause disease in susceptible hosts.

Sharps are items that could cause cuts or puncture wounds; sharps include needles, scalpel and other blades, knives, infusion sets, saws, broken glass and nails. Irrespective of the associated infection risk potential, such items are usually considered as highly hazardous healthcare waste.

A needlestick injury is a percutaneous piercing wound typically set by a needle point, but possibly also by other sharp instruments or objects. Commonly encountered by people handling needles in the medical setting, such injuries are an occupational hazard in the medical community.

Postexposure prophylaxis (PEP) is any prophylactic treatment started immediately after exposure to a pathogen (such as a disease-causing virus), in order to prevent infection by the pathogen and the development of disease.

Vaccination is the administration of antigenic material (a vaccine) to stimulate the immune system of an individual to develop adaptive immunity to a disease.

4. Responsibilities

4.1. It is the responsibility of every occupier of an institution managing or generating biological waste to take all necessary steps to handle such waste without any adverse effect on the environment and human health.

5. Materials and Equipment

Drugs, supplies and equipment required to administer appropriate PEP, as per relevant facility clinical SOPs.

6. Hazards and Safety Concerns

- 6.1. Sharps are items that could cause cuts or puncture wounds; they include needles, scalpel and other blades, knives, infusion sets, saws, broken glass and nails. Due to their high potential for injuries and contamination, needles are one of the most dangerous items that are handled in any health care facility.
- 6.2. Any waste that has potentially come in contact with a patient or bodily fluids should be assumed to be infectious and handled with proper PPE and procedures.
- 6.3. Disinfectants are toxic and undue exposure may result in respiratory distress, skin rashes or conjunctivitis. However, used normally and according to the manufacturers' instructions, and national chemical safety regulations, they are safe and effective.

7. Procedures

Following is basic guidance that should be respected to limit the risks of injury and contamination linked to the management of infectious health care waste. Most of these injuries are avoidable if safe practices are taken. PEP may never be considered 100% effective. It is therefore imperative that postexposure prophylaxis policies reinforce the importance of primary prevention and risk prevention counseling in all setting

7.1. Policies

Management of health care waste (HCW) is an integral part of hospital hygiene and infection control. Infectious HCW contributes to the risk of nosocomial infections, putting the health of medical staff and patients at risk. A range of policies and procedures should be developed and implemented to ensure proper and safe handling, treatment and disposal of HCW, and to promote personal hygiene and protective measures. These proper health care waste management (HCWM) practices should be strictly followed as part of a comprehensive and systematic approach to hospital hygiene and infection control.

7.2. Personal hygiene

Basic personal hygiene is important in reducing the risks that occur from handling HCW. Hospital administrators and planning officers should ensure that washing facilities are made available to people handling HCW. This is particularly important at storage and treatment facilities. As the hands are the most frequent vectors of nosocomial infections, hand hygiene is the primary preventive measure. Thorough hand washing with adequate quantities of water and soap removes more than 90% of micro-organisms encountered on the hands. However, the efficacy of the cleaning process depends completely on this mechanical action, since neither soap nor detergents possess any antimicrobial activity and can be counterproductive if washing is done too superficially. Cleaning has therefore to be carried out in a standardized manner.

7.3. Immunization

Staff handling HCW should be offered appropriate immunization, including hepatitis B and tetanus. As HCW is often found in municipal solid waste, municipal staff should also be offered this immunization.

7.4. Personal protection

Staff who are in contact with HCW should wear the following personal protective clothing:

- Suitable heavy-duty gloves when handling HCW containers
- Safety shoes or industrial boots to protect the feet against the risk of containers being accidentally dropped
- Industrial apron or leg protectors when container handling could cause wounds.

Refer to Doc 303: Health Care Waste Management Worker PPE — Guidance.

7.5. Training and information

To be effective, a HCWM policy has to be applied carefully, consistently and universally. Training is a crucial aspect to successfully upgrade HCWM practices. The overall aim of training is to develop awareness of the health, safety, and environmental issues relating to HCWM. It should highlight the roles and responsibilities of each actor involved in the management process of the HCW (duty of care).

Separate but equally important training programs should be designed for the following categories of personnel:

- Hospital managers and administrative staff responsible for implementing regulations on HCWM
- Medical doctors, nurses and assistant nurses
- Cleaners, porters, ancillary staff, and waste handlers
- Municipal solid waste laborers and waste pickers

See Doc 301: Health Care Waste Management Training Management — Guidance.

7.6. Procedures in case of accidents and spillages

In health care facilities, spills are probably the most common type of emergency involving infectious or other hazardous material or waste. Response procedures are essentially the same regardless of whether the spill involves waste or material in use, and should ensure that:

- Contaminated areas are cleaned and, if necessary, disinfected
- Exposure of workers is limited as much as possible during the cleaning up operation
- The impact on patients, facility staff and the environment is as limited as possible

One person should be designated as responsible for handling emergencies, including coordination of actions, and reporting to managers and regulators. Staff should be trained for emergency response, and the necessary equipment should be readily available at all times to ensure that all required measures can be implemented safely and rapidly. Written procedures for the different types of emergencies should be drawn up.

Spills usually require that only the contaminated area be cleaned up. For spills of infectious material, however, it is important to determine the type of infectious agent; in some cases, immediate evacuation of the area may be necessary. In general, the more hazardous spillages occur in laboratories rather than in HCF departments.

Refer to Doc 304: Biological Spill Clean Up — SOP.

7.7. Special provision for needle stick injuries

Due to their high potential to cause injuries and contamination, needles are one of the most dangerous items that are handled in any health care facility. Any accident should be reported to the infection control nurse and a reporting system should be established in each facility. This information should then be reported to the competent authorities at central level.

Cuts with sharps or needle stick injuries should always be immediately disinfected. It is highly recommended to perform blood tests after such an injury to ensure that the person has not been contaminated by any pathogen, in particular hepatitis B, hepatitis C or HIV.

7.7.1. The basics of safe practice when using sharps

- Where possible, replace the use of sharps with other instruments or procedures
- Used needles should never be bent or broken
- Sharps should not be passed from hand to hand
- All individuals have a personal responsibility to dispose of used sharps in a safe manner
- Used sharps should be discarded into a sharps container as soon as possible
- Sharps containers should be close to clinical areas but away from locations which may involve injury to patients, staff or visitors
- Sharps containers should be securely closed when three-quarter full

7.7.2. Suggested action following a needle-stick injury

- Encourage bleeding at the site of injury: if percutaneous exposure occurs, bleeding should be encouraged by pressing around the site of the injury (but taking care not to press immediately on the injury site). Should be done under running water.
- Wash the wound with antiseptic lotion/soap and hot water and dry the hands.
- Apply povidone-iodine to the wound.
- Cover the wound with an occlusive dressing.
- Identify the source of needle contamination if possible.
- Testing of needles or other sharp instruments causing an exposure, regardless of whether the source is known or unknown, is not recommended, since there is no reliability on such tests and testing might be hazardous to persons handling the sharp instrument.
- Systematic evaluation of exposure is mandatory. Record the nature of the procedure, the type of instrument involved, the depth of injury, the size of inoculum, and the time elapsed between the use of the instrument and the exposure.

- Most important is to know the immunization status of the health worker and to know the disease state of the source person.

7.8. Postexposure prophylaxis (PEP)

Postexposure prophylaxis (PEP) is generally understood to mean the medical response given to prevent the transmission of blood-borne pathogens following a potential exposure to HIV, HBV, HCV and other viruses. PEP should be initiated as soon as possible, within hours and no later than 72 hours following the potential exposure. PEP procedures should be conducted in accordance with facility policy.

7.8.1. PEP for HIV

PEP needs to be started as soon as possible after the exposure and within 72 hours. Because PEP has its greatest effect if begun within 2 hours of exposure, it is essential to act immediately. 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. Baseline rapid HIV testing should be done before starting PEP.

There are two regimens for HIV PEP: a basic, or 2-drug regimen and an expanded, or 3-drug regimen.

Preferred 2-drug regimen: zidovudine + lamivudine

Preferred 3-drug regimen: zidovudine + lamivudine plus lopinavir with a ritonavir boost

Alternative 2-drug regimens:

- tenofovir + lamivudine OR
- stavudine + lamivudine

Note: Emtricitabine is an acceptable alternative to lamivudine where it is available.

Alternative 3-drug regimens:

- zidovudine + lamivudine plus atazanavir with a ritonavir boost or saquinavir with a ritonavir boost or fosamprenavir with a ritonavir boost
- tenofovir + lamivudine plus atazanavir with a ritonavir boost or saquinavir with a ritonavir boost or fosamprenavir with a ritonavir boost
- (stavudine) + lamivudine plus atazanavir with a ritonavir boost or saquinavir with a ritonavir boost or fos-amprenavir with a ritonavir boost

Note: Emtricitabine is an acceptable alternative to lamivudine where it is available.

If the source person is reported to be positive, confidentiality should be maintained.

The prophylaxis needs to be continued for 4 weeks, and report exposure immediately to appropriate authority. Never delay start of therapy due to debate over regimen.

Begin with the basic 2-drug regimen, and once expert advice is obtained, change as required. The third drug can be added after consultation with an expert.

7.8.2.PEP for HBV

Blood contains the highest HBV titres of all body fluids and is the most important vehicle of transmission in the health care setting. Routine pre-exposure vaccination of health care personnel against hepatitis B virus and the use of standard precautions to prevent exposure to blood and other potentially infectious body fluids are recommended.

Regimens involving either multiple doses of hepatitis B immunoglobulin (HBIG) alone or the hepatitis B vaccine series alone are 70%-75% effective in preventing HBV infection. In the occupational setting, multiple doses of HBIG initiated within 1 week following percutaneous exposure to HBsAg-positive blood provides an estimated 75% protection from HBV infection.

For HCV post exposure management, the HCV status of the source and the exposed person should be determined, and for health care personnel exposed to an HCV positive source, follow-up HCV testing should be performed to determine if infection develops.

- If the exposed person is not vaccinated or antibody response is unknown, hepatitis B immunoglobulin (HBIG) should be given as soon as possible and hepatitis vaccine should be completed.
- If the exposed person was previously vaccinated and is a known responder to the vaccine, no treatment is necessary.
- If source person is HBV positive, then hepatitis B immunoglobulin should be administered.
- Immune globulin and antiviral agents (e.g., interferon with or without ribavirin) are not recommended for PEP of hepatitis C.

8. Reporting and Recordkeeping

- 8.1. Use a training log to keep track of trainings offered by the health facility as well as which staff attended each training.
- 8.2. Any spill or incident should be reported using the incident log (see Doc 309).
- 8.3. Any needlestick accident should be reported to the infection control nurse and a reporting system should be established in each facility. This information should then be reported to the competent authorities at central level.
- 8.4. Systematic evaluation of needlestick exposure is mandatory. Record the nature of the procedure, the type of instrument involved, the depth of injury, the size of inoculum, and the time elapsed between the use of the instrument and the exposure.
- 8.5. Report HIV exposure immediately to appropriate authority.

9. References

- 9.1. CDC Workplace Safety and Health Tips <http://www.cdc.gov/hiv/topics/treatment/post-exposure-prophylaxis.htm>
- 9.2. [Post-exposure prophylaxis to prevent HIV infection : joint WHO/ILO guidelines on post-exposure prophylaxis \(PEP\) 2007](#)
- 9.3. Rapiti E, Prüss-Üstün A, Hutin Y. Sharps injuries: assessing the burden of disease from sharps injuries to health-care workers at national and local levels. Geneva: World Health Organization; 2005.
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<http://www.basel.int/Portals/4/Basel%20Convention/docs/pub/techguid/tech-biomedical.pdf>
- 9.7. Prüss A, Giroult E, Rushbrook P, editors. Safe management of wastes from healthcare activities. Geneva: World Health Organization; 1999.
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10. Related Documents

- Doc 303: Health Care Waste Management Worker PPE — Guidance
- Doc 301: Health Care Waste Management Training Management — Guidance
- Doc 304: Biological Spill Clean Up — SOP
- Doc 309: Incident Log

11. Attachments

None