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Four steps for the sound management of health-care waste in emergencies

Poor management of health-care waste can cause serious disease to health-care personnel, to waste workers, patients, the general public, and may severely pollute the environment.

STEP 1 – Be aware of the public health risks from health-care waste

Exposure to hazardous health-care waste can result in disease or injury.
The hazardous nature of health-care waste may be due to one or more of the following characteristics:

- It contains infectious agents
- It contains toxic or hazardous chemicals or pharmaceuticals
- It is radioactive
- It contains sharps

All individuals exposed to hazardous health-care waste are potentially at risk, including those within health-care settings that generate hazardous waste and those outside the health care providing premises. **Vaccination should therefore be provided to waste handlers**, notably for Hepatitis B.

The main groups at risk are:

- Medical doctors, nurses, health-care auxiliaries and maintenance personnel
- Workers engaged in clean up operations and at waste disposal facilities
- Workers in support services such as laundry, waste handling and transportation
- Scavengers
- Patients in health-care settings
- Visitors to health-care settings

Infectious waste may contain a large variety of pathogenic micro-organisms. Pathogens in infectious waste may enter the human body through a number of routes.
These routes are:

- Through a puncture, abrasion or cut in the skin (e.g.: HIV, HBV, HCV, Haemorrhagic fever…).
- Through the mucous membranes (e.g.: Anthrax, skin infections…)
- By inhalation (e.g.: respiratory infections…)
- By ingestion (e.g.: Gastroenteric infections….)

<u>Protective clothing should therefore be worn by all waste handlers.</u>
<u>Hand-washing and disinfection are a must!</u>

In addition to health risks derived from direct contact, health-care waste can adversely impact human health by contaminating water bodies during waste treatment and by polluting the air through emissions of highly toxic gases, during incineration.

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Together with national counterparts, develop an emergency waste management plan, based on: volumes and type of waste generated, existing human resources, available functioning facilities, means of transportation, national medical and environmental regulations and community acceptance.

STEP 2 – Ensure that health-care wastes are safely managed all along the waste stream, from the point of generation to its final disposal.

Why?
Up to 20% of health-care wastes are infectious. An inadequate waste management along the waste stream, such as poor waste segregation, will result in the increase infectious waste to handle and by consequence will multiply the risk of contamination.

Where possible, coordinate all the emergency operations related to the management of health-care wastes with the national / regional responsible authorities. Link with members of existing health-care waste / infection control committees, to draft an emergency plan. If needed, see that such committees are set up in the concerned settings.

Address specific risk situations:

Segregation

Separate wastes into three main categories: **infectious sharps, non sharp infectious waste, and non-infectious wastes**. Segregation is done at point of generation using dedicated, coloured and/or marked containers. **Collect sharps in puncture proof containers** with a lid that can be closed. Mark with the biohazard symbol.

Storage
Storage of infectious waste should be organized in specific restricted areas. The maximum time of storing should not exceed 24h. Mark the storage areas with the biohazard symbol. Exclusively allocated closed carts should be used to transport wastes. Ensure that means used to transport wastes are regularly cleaned/ disinfected (Sodium hypochlorite at 5% concentration should be used).

Disposal
Immediate burial of **infectious sharps and infectious PVC plastics** should be considered as the first option. Burial can be done on site or at the closest landfill site. Burning of health-care wastes should be considered only if there are no other options available. (See next page).

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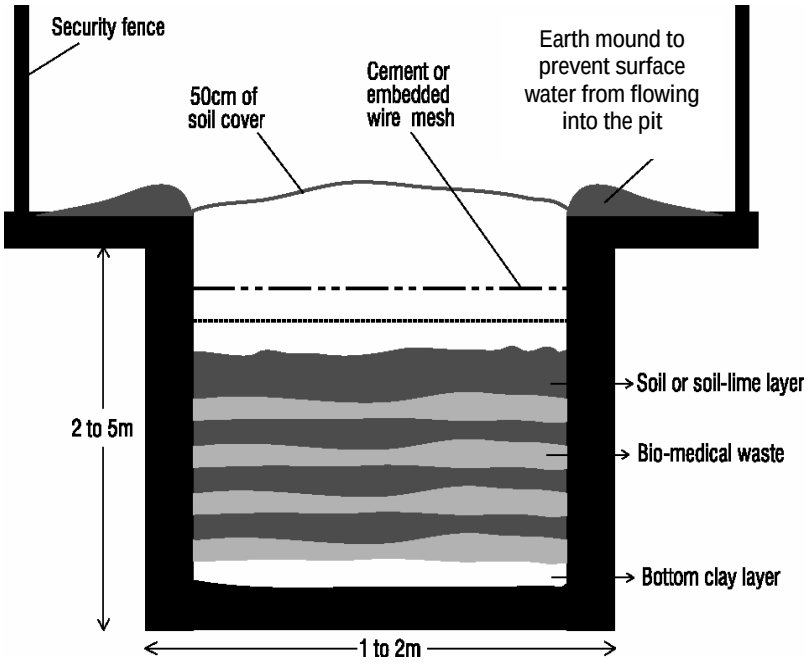
STEP 3: Choose disposal options carefully

In acute emergency cases, pit burial and incineration are often the sole available options. Whenever possible, non-incineration is the preferred techniques as it poses less environmental health hazards.

<u>Wastes to be buried and should not be incinerated</u>

- Used infectious plastic syringes and needles
- Other infectious PVC plastics such as tubing, catheters, IV sets.
- Anatomical wastes

All these should be buried in a sharps waste burial pit. Dig a pit 1 to 2 meters wide and 2 to 5 meters deep. Line the bottom of the pit with clay or low permeable material. Construct an earth mound round the mouth to prevent water from entering. Construct a fence around to prevent unauthorized entry. Alternatively place layers of waste inside and 10 cm of lime and soil. When the pit is within about 50 cm of the ground surface, cover the waste with soil and permanently seal it with cement or embedded wire mesh.



Another method involves placing the sharps waste in hard containers such as metal drums and adding an immobilizing material such as bituminous sand, clay or cement mortar. The container or drum can be sealed and buried in trench or transported to local landfill.

Non-infectious health care-wastes should be disposed of in the same manner as household wastes.

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Sound waste management is key to ensure a healthy sustainable environment

STEP 4: Think long term during the rehabilitation and reconstruction phase

Following the emergency phase:

- Temporary treatment options should rapidly be replaced by appropriate and environmentally friendly options. This is particularly relevant for settings where basic incinerators have been set up.

- All actions taken to address health-care waste management, even in emergencies, should respect the principles of national legislation, policies and fit into a comprehensive national plan for health-care waste.

- When planning for rehabilitation / reconstruction of health-care facilities, ensure sufficient financial resources to cover equipment requirements, spare parts and training of personnel, are allocated to the sound management of wastes.
- Ensure that trained human resources are appointed to be part of infection control committees, who will also address the sound management of wastes.

- Ensure all health staff are aware of/and respect good practices all along the waste stream

- Plan for training and re-training sessions for all staff involved

Why?
The above steps are the key component leading to a successful comprehensive health care waste management.