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Reducing UPOPs and Mercury Releases from  
The Health Sector in Africa



# Applied Healthcare Waste Management



## Recommendations for emergency procedures

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### Abbreviations

GEF	Global Environment Facility
HCW	Healthcare Waste
HCWH	Health Care Without Harm
HWM	Healthcare Waste Manager
HWO	Healthcare Waste Officer
HWT	Healthcare Waste Technician
IEC	Information, Education, Communication
MoH	Ministry of Health
WHO	World Health Organisation

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## 1 Blood and body fluid spill

If you are able to clean up the spill, follow proper cleanup procedures as described in the following and use proper personal protection. Manage the generated waste as appropriate. Consult the HWO if necessary. Recommended proceedings:

- 1) Cover the spill with paper towels and cordon off the area with “wet floor” signs.
- 2) Take the spillage kit. If not available, collect the following equipment:
  - Infectious waste plastic bag
  - None-sterile latex gloves, a mask and goggles
  - Hypochlorite detergent (10 000ppm or 1 % sodium hypochlorite).
  - Sufficient amount of paper towels
- 3) Put on PPE and carefully wipe up the spill, taking care not to slash any of the fluid on your body.
- 4) Cover the spill area with more paper towels.
- 5) Pour the hypochlorite / sodium hypochlorite solution onto the paper towels and leave to stand for 10 minutes.
- 6) Wipe up the area and discard paper towels and gloves into a infectious waste bag and dispose of as infectious waste.
- 7) Inform the HWO about the incident

## 2 Response on a needle stick or sharps injuries

After a needle stick injury, a medical doctor has to be consulted immediately. He shall take care for the first measurements. Needle stick injuries are to be reported to the occupational health and safety officer and the HWO who are required to keep records in a book. The first measurements are described like the following:

- Let the injury bleed freely, do not press, squeeze or suck the injured part
- Wash the wound with soap and water.
- Alert the supervisor and bring the injured person to a physician for further treatment
- Start the injury reporting system (Accident report)
- Identify the source patient. Ensure that both the patients' blood (with consent) and the injured person's blood are tested on:
  1. HIV
  2. HBV / HCV
- Hepatitis B: If vaccinated no treatment, but if unvaccinated or uncertain get HBIG and initiate HB vaccine series.
- Tetanus: If the patient is uncertain of when he or she was last vaccinated, or if he or she has had fewer than 3 lifetime doses of the vaccine give a booster.
- In case of high risk accidents, HIV Tests are to be taken again:
  3. after three months and
  4. one year after the injury.
- HIV: Start prophylaxis only consultation with the responsible physician
- Counselling and guidance is given if the person tests HIV positive.
- Inform the HWO

### 3 Broken mercury thermometer

Mercury may enter the body as a vapour and through the skin. The earliest signs of mercury intoxication include a fine tremor of the fingers and mental changes, a combination of anxiety and aggression known as mercurial erethism. One of the earliest signs is deterioration of handwriting. There is evidence that exposure to low levels of mercury can damage the kidneys. In case of a spillage following proceedings are recommended:

- 1) If you are able to clean up the spill, follow proper cleanup procedures and use proper personal protection. Manage the generated waste as appropriate. Consult the HWO if necessary.
- 2) Put on PPE: Gloves, goggles, etc.
- 3) Take the spillage kit. If not available, collect the following equipment:
  - i. brush
  - ii. plastic shovel
  - iii. wooden spatula and pipette
  - iv. mercury spill collector which incorporates a foam pad and zinc powder
  - v. large syringe or hand operated vacuum pump device
- 4) Scoop the glass up using a piece of cardboard
- 5) Discard glass in a sharps container or specican.
- 6) Soak up the mercury using a syringe and place it in a glass bottle.
- 7) Sprinkling the area with zinc powder to amalgamate and thus 'neutralise' the mercury
- 8) Put the used materials into the bottle and close it properly
- 9) Label the glass bottle appropriate
  - Inform the HWO about the accident, fill up report form

*Note: Mercury is hazardous waste and should be collected and sent for "special disposal".*

## 4 Spillage of Gluteraldehyde or Formaldehyde

Information about the substances can be found in Material Safety Data Sheets (MSDS), which are available at the producer of the substances, e.g. Formaldehyde:

- Systematic name of Formaldehyde: methanal
- Other names: formalin, formol, methyl aldehyde, methylene oxide

In the body, formaldehyde can cause proteins to irreversibly bind to DNA. Laboratory animals exposed to large doses of inhaled formaldehyde over their lifetimes have developed more cancers of the nose and throat than are usual. Formaldehyde is classified as a probable human carcinogen.

Immediate response: Open windows and ventilate the area as much as is practical. If you are able to clean up the spill, follow proper cleanup procedures and use proper personal protection. Manage the generated waste as appropriate. Consult the HWO if necessary.

1. Cordon off area with a wet floor sign
2. Put on PPE: Mask, gloves, goggles, etc.
3. Take the spillage kit. If not available, collect the following equipment:
  - a. Dry lime or soda ash
  - b. sufficient amount of paper towels
  - c. Bucket, bowl or plastic bag.
4. Cover the spillage with dry lime or soda ash
5. Clean up the area using paper towels
6. Work as quickly and safely as possible
7. Scoop up any broken glass using a piece of cardboard
8. Discard glass in a sharps container or specican
9. Place paper towels into the bucket, bowl or plastic bag and discard in the sluice into normal sewerage
10. Wash the area with water and follow up with routine cleaning methods
11. Inform the HWO about the accident, fill up report form

## 5 Spillage with Cytotoxic Waste

Cytotoxic are drugs used to block the growth of cancer cells. Since cancer cells hardly differ from healthy cells, cytotoxic drugs do not specifically affects cancer cells, but also all dividing cells. Therefore, substantial side effects may occur such as nausea, hair loss, and immunosuppression. Beside the oral and inhaling way, cytotoxic substances can enter the body over the skin!

Specific procedures which may be used if getting during a spillage in direct contact with Cytotoxic materials:

Drug	Comment	Action on Contamination
Amsacrine	-	Wash well with soap and water Inactivate large spills with sodium hypochlorite
Bleomycin	-	Rinse with water
Carboplatin	-	Wash thoroughly with water
Carmustine	-	Local irritation may be helped by sodium bicarbonate solution
Mitomycin	Irritant	Wash immediately with 8,4 % sodium bicarbonate followed by soap and water. Do NOT use hand cream – this may enhance adsorption. Irrigate eyes with 2,74 % sodium bicarbonate solution

1. Keep calm, do not panic
2. Isolate the affected area, cordon off area with e.g. a wet floor sign
3. Put on PPE:
  - a. Two pairs of protective gloves,
  - b. Liquid proof gown
  - c. Safety goggles
  - d. Respirator mask
  - e. Overshoes
4. Take the spillage kit. If not available, collect the following equipment:
  - a. Sufficient quantity of absorbents
  - b. Specific cleaning agent (70% Alcohol)
  - c. Small plastic scoop and tongs to collect glass
  - d. Disposal bags
  - e. Cellulose and soap.
5. Collect glass fragments
6. Wipe up spilled liquids with dry cellulose (Avoid splashes). Use damp cellulose for spilled powder
7. Clean with adequate agent (see list before) and afterwards with cellulose soaked in a soap solution. If agent is not available, clean with cellulose soaked in 70% Alcohol and afterwards with cellulose soaked in a soap solution.
8. Wash the area with water and follow up with routine cleaning methods
  - Inform the HWO about the accident, fill up report form

## 6 Spillage of infectious waste during transportation

1. Isolate the affected area, cordon off area with e.g. a wet floor sign
2. Put on PPE: Gloves, gown, Safety goggles
3. Take the spillage kit. If not available, collect the following equipment:
  - a. Sufficient quantity of absorbents
  - b. Specific cleaning agent (70% Alcohol)
  - c. Small plastic scoop and tongs to collect glass
  - d. Disposal bags
  - e. Cellulose and soap.
4. If solid infectious waste is spilled during transport inside a hospital, the waste should immediately be shovelled into a new infectious waste plastic bag.
5. If solid infectious waste is spilled during external transportation, the waste should immediately be shovelled into a container, regardless of whether packed in a yellow plastic bag or not.
6. If liquid hazardous healthcare waste is spilled during transportation inside a hospital, the manager of the central storage room should be contacted for immediate action. The collector makes the contact!
7. If liquid hazardous Healthcare waste is spilled during external transport, the spillage should be remedied by shovelling sand and/or dirt on to of the spilled liquids, where after the soaked sand/dirt should be shovelled into a hazardous Healthcare waste container
8. Inform the HWO