

13

Emergency response

13.1 Principles

One person should be designated as responsible for the handling of emergencies, including coordination of actions, reporting to managers and regulators, and liaising with emergency services, and a deputy should be appointed to act in case of absence.

In health-care establishments, spillage is 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 spillage involves waste or material in use, and should ensure that:

- the waste management plan is respected;
- contaminated areas are cleaned and, if necessary, disinfected;
- exposure of workers is limited as much as possible during the clearing-up operation;
- the impact on patients, medical and other personnel, and the environment is as limited as possible.

Health-care personnel should be trained for emergency response, and the necessary equipment should be to hand and 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. For dangerous spills, the clean-up operation should be carried out by designated personnel specially trained for the purpose.

The response in the event of injury is outlined in section 12.2.

13.2 Dealing with spillages

Spillages usually require clean-up only of the contaminated area. For spillages 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 health-care departments.

Procedures for dealing with spillages should specify safe handling operations and appropriate protective clothing. An example of such a procedure is provided in Box 13.1. Appropriate equipment for collecting the waste and new containers should be available as should means for disinfection; Table 13.1 provides a typical list of required items.

In case of skin and eye contact with hazardous substances, there should be immediate decontamination. The exposed person should be removed from the area of the incident for decontamination, generally with copious amounts of water. Special attention should be paid to the eyes and any

Box 13.1 Example of general procedure for dealing with spillages^a

1. **Evacuate** the contaminated area.
2. **Decontaminate** the eyes and skin of exposed personnel immediately.
3. **Inform** the designated person (usually the Waste Management Officer), who should coordinate the necessary actions.
4. Determine the **nature** of the spill.
5. **Evacuate** all the people not involved in cleaning up if the spillage involves a particularly hazardous substance.
6. Provide **first aid** and medical care to injured individuals.
7. **Secure** the area to prevent exposure of additional individuals.
8. Provide adequate **protective clothing** to personnel involved in cleaning-up.
9. **Limit** the spread of the spill.
10. **Neutralize or disinfect** the spilled or contaminated material if indicated.
11. **Collect** all spilled and contaminated material. [**Sharps should never be picked up by hand**; brushes and pans or other suitable tools should be used.] Spilled material and disposable contaminated items used for cleaning should be placed in the appropriate waste bags or containers.
12. **Decontaminate or disinfect** the area, wiping up with absorbent cloth. The cloth (or other absorbent material) should never be turned during this process, because this will spread the contamination. The decontamination should be carried out by working from the least to the most contaminated part, with a change of cloth at each stage. Dry cloths should be used in the case of liquid spillage; for spillages of solids, cloth impregnated with water (acidic, basic, or neutral as appropriate) should be used.
13. **Rinse** the area, and wipe dry with absorbent cloth.
14. Decontaminate or disinfect any tools that were used.
15. Remove protective clothing and decontaminate or disinfect it if necessary.
16. **Seek medical attention** if exposure to hazardous material has occurred during the operation.

^a Adapted from: Reinhardt & Gordon (1991). *Infectious and medical waste*. Chelsea, MI, Lewis.

open wounds. In case of eye contact with corrosive chemicals, the eyes should be irrigated continuously with clean water for 10–30 minutes; the entire face should be washed in a basin, with the eyes being continuously opened and closed.

Table 13.1 *Example of a list of items for spillage cleaning^a*

Action	Tools or items
Approaching the spillage	Protective equipment (see section 12.2)
Containing the spillage	Absorbent material (e.g. absorbent paper, towels, gauze pads)
Neutralizing or disinfecting the spillage (if necessary)	For infectious material: disinfectant ^b For acids: sodium carbonate, calcium carbonate, or other base For bases: citric acid powder or other acid For cytotoxic material: special chemical degradation substances
Collecting the spillage	For liquids: absorbent paper, gauze pads, wood shavings, calcium bentonite, diatomaceous earth For solids: forceps, broom, dust pan or shovel Mercury: mercury sponge or vacuum pump
Containment for disposal	Plastic bag (red, yellow, or brown, as appropriate), sharps container
Decontamination or disinfection of the area	For infectious material: disinfectants ^b For hazardous chemicals: suitable solvent or water

^aAdapted from: Reinhardt & Gordon (1991). *Infectious and medical waste*. Chelsea, MI, Lewis.

^bSuch as bleaching powder, which is a mixture of calcium hydroxide, calcium chloride, and sodium hypochlorite, used in the powder form or in solution of varying dilution (1:1 to 1:100) depending on the nature of the spilled material.

Section 8.2 provides further details on dealing with spillages of strong disinfectants. Specific procedures for spills of, or contamination by, mutagenic and carcinogenic products are proposed in Annex 4.

13.3 Reporting accidents and incidents

All waste management staff should be trained in emergency response and made aware of the correct procedure for prompt reporting. Accidents or incidents, including near-misses, spillages, damaged containers, inappropriate segregation, and any incidents involving sharps should be reported to the Waste Management Officer (if waste is involved) or to another designated person. The report should include details of:

- the nature of the accident or incident;
- the place and time of the accident or incident;
- the staff who were directly involved;
- any other relevant circumstances.

The cause of the accident or incident should be investigated by the Waste Management Officer (in case of waste) or other responsible officer, who should also take all possible action to prevent recurrence. The records of the investigation and subsequent remedial measures should be kept.