



National Department of Health

Title: Waste decontamination and management

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1. Purpose & Scope

The purpose of this document is to establish the procedures for handling and disposing of waste generated in hospital laboratories to ensure proper collection, identification, segregation, packaging, labelling, decontamination, storage, transportation and final disposition for the protection of personnel, environment and community from potential contamination and/or exposure to hazardous materials.

2. Principle & Clinical application (Annex 1)

Methods of decontamination include:

- Chemical disinfection – used for infectious biological liquids, contaminated surfaces
- Autoclaving – used for solid and infectious biological liquids (by preference, separate autoclave dedicated to waste decontamination should be used)
- Incineration

A summary of different categories for segregating laboratory waste and their recommended treatment is given in Table 1.

Table 1: Categories of segregated laboratory waste materials and their recommended treatment

CATEGORY OF LABORATORY WASTE MATERIAL	TREATMENT
Uncontaminated (non-infectious) material	Can be reused or recycled or disposed of as general municipal waste
Contaminated sharps (hypodermic needles, scalpels, knives and broken glass)	Must be collected in puncture-proof containers fitted with covers and treated as infectious
Contaminated material for reuse or recycling	Must be first decontaminated (chemically or physically) and then washed; thereafter it can be treated as uncontaminated (non-infectious) material
Contaminated material for disposal	Must be decontaminated onsite OR stored safely before transportation to another site for decontamination and disposal
Contaminated material for incineration	Must be incinerated onsite OR stored safely before transportation to another site for incineration
Liquid waste (including potentially contaminated liquids) for disposal in the sanitary sewer system	Should be decontaminated before disposal in the sanitary sewer



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3. Responsibilities

Tasks	Authorised Staff	Responsible
Removal of general waste	Support/cleaning staff	Lab Manager
Autoclaving infectious waste	Laboratory staff who are competent to operate the autoclave	Lab Manager
Removal of decontaminated waste for incineration	Support/ cleaning staff	Lab Manager

4. Equipment & Materials

- Personal protective equipment includes laboratory gown, closed-toe footwear, gloves, eye protection (wrap-around glasses)
- Disinfectant (10% sodium hypochlorite solution)
- Yellow or Red and Green or Black Liner Bins with covers – preferably foot pedal lids
- Yellow or Red bags for contaminated / pathological waste
- Green or black plastic bags for General Waste
- Sharps box / containers – puncture proof

5. Procedure

5.1 Important requirements (See Annexes 1 and 2 below as well)

- **All items used inside the laboratory area shall be regarded as being infectious**
- **Waste generated in the laboratory must be segregated (separated) properly** into the following categories: general or non-infectious, infectious and sharps. Annex 1 below.
- **Waste should, whenever possible, be decontaminated onsite** to minimize the risk of exposure or release during waste transportation.
- **All staff must wear personal protective equipment** when handling or removing waste bags. When handling bags grasp from the top and never hold them against the body.
- **Chemical wastes require management by accredited provider.** They must not be disposed of in any other way – e.g., down a drain or into landfill.
- **Waste bags and sharps containers must not be filled to more than three quarters full.** Once this level is reached, they should be sealed ready for collection.
- General waste should not be collected at the same time or in the same trolley as infectious or other hazardous wastes
- Replacement bags or containers should be available at each waste-collection location so that full ones can immediately be replaced



5.2 Non-infectious waste disposal

- These include papers, packaging boxes, plastic bags and hand paper towels.
- These items shall be disposed-off in black or white polythene bags inserted in 10L plastic buckets with a lid
- These items do not require autoclaving before disposal
- After the day's work the support staff should remove filled bags and replace them with new ones ready for the following day work



5.3 Infectious waste disposal

- Urine and other body fluids (e.g. pleural, peritoneal, joints) from specimen containers may be poured into the waste sink whilst tap is running
- Infectious waste, including disposable blood culture bottles, used specimen containers, faeces samples, inoculated swabs, assay tubes, contaminated gloves, agar cultures should be disposed into red/yellow biohazard bags (double bag if there is likely to be a lot of liquid) within dedicated waste bins clearly marked with the biohazard symbol
- Ensure that biohazard bags containing reusable laboratory items (e.g. glass bijoux bottles or media tubes) are kept separate so that they can be opened safely after autoclaving
- When the bags are three-quarter full, they should be sealed off and removed to the autoclave room
- After autoclaving, non-reusable waste should be taken for incineration in the sealed biohazard bags
- Infectious waste must not be stored or stacked in corridors or stairwells



5.4 Disposal of sharps

- Sharps include glass slides, cover slips, syringes, used needles, plastic pasteur pipettes and pipette tips
- Sharps must not be mixed with general waste
- A properly labelled sharps container shall be put in place and used exclusively for the disposal of sharps.
- Used needles shall be discarded immediately into the sharps container
- Broken glass scattered on the floor shall be picked with aid of special forceps or swept into a special receptacle and then emptied into the sharps container.
- Sharps containers when $\frac{3}{4}$ -full should be autoclaved and then incinerated. Carefully tape the container to ensure that contents cannot spill out during disposal. Do NOT shake the sharps container to create space.
- Never dispose of syringes or needles into general waste.
- Sharps container must not be emptied or re-used.



Any employee who consistently disregards these instructions will be called to account.



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5.5 Transportation and Storage

- Onsite transport should take place during less busy times whenever possible
- Set routes should be used to prevent exposure to staff and patients and to minimize the passage of loaded carts through patient care and other clean areas
- Regular transport routes and collection times should be fixed and reliable
- Transport staff should wear adequate personal protective equipment
- Hazardous and non-hazardous waste should always be transported separately



6. Safety

Follow local blood or body fluids exposure policy, if punctured by contaminated needle or splashed in the eye.

For other safety aspects, please review this document G_10_Info_3 Laboratory Biosafety.

7. Quality Control

Autoclave cycle – adequacy of process time and intensity should be assessed weekly with chemical indicator strips.

Incineration – waste to be burnt must be weighed and not exceed the load limits for the incinerator.

8. References and Related documents – available from <https://path-png.org/lqm-associated-documents/>

- G_10_EX_001 Abridged WHO Laboratory Biosafety Manual 4th Edition 2020
- G_10_Info_3 Laboratory Biosafety Information Sheet
- Relevant local autoclave operating procedure



Annex 1. Waste Segregation Chart





Annex 2. Bag Closing Procedure

Close bag with a single overhand knot: 



Do not close by crossing tabs ("bunny or dog-ear" method) 

