

Minimum Requirements and Recommended Standards for Intermediate Health Care Waste Storage Rooms (Sluice Rooms) and the Central Health Care Waste Storage Area at a Hospital or a Clinic

A. Intermediate Storage of HCW at Health Care Facilities.

The rate of HCW generation, the size of containers used as well as the distance from the HCW source to the central storage area on the health care facility premises, will determine the need for intermediate storage facilities within the wards or for a group of wards. In smaller clinics and at health care practitioners, the short transport distance from the generation point to the central storage area will enable health care professionals to transport the containers from the source, directly to the central storage area. Box 1 details recommendations related to the provision of intermediate storage areas.

Box 1: Recommendations related to the provision of intermediate storage areas.

- *For hospitals and larger clinics it is recommended that dedicated intermediate storage areas for HCW be established for each ward/department or group thereof;*
- Preferably a dedicated “waste room” is recommended which will cater for waste and soiled linen. The size of the intermediate storage areas is ultimately determined by the rate of HCW generation in its service area, the type of containers used as well as the frequency of HCW collection. *A minimum size of 2 3 meters is recommended and would allow for intermediate storage of both HCRW and soiled linen before collection at least on a daily bases as well as storage of clean HCRW containers/bags to replace units being collected.*
- If sluice rooms have sufficient space available, this can be used as intermediate HCW storage areas, but it is preferred to have a separate room as indicated above;
- Overcrowding of the intermediate storage area must be avoided and the bulk sorting and rinsing of linen is not recommended to take place in the sluice room.
- The area should allow for the storage of full and empty containers.
- Arrangements must be made to cater for sudden increased volume of waste either by increasing the frequency of collections or providing alternative storage
- Intermediate storage areas should be well ventilated, well illuminated and easy to clean, (for example by providing a tiled floor and walls). HCW that is likely to generate odours must be sealed and removed more frequently;
- Access to intermediate storage areas should preferably be easy for waste collection via the main passages, thus avoiding movement of HCW through wards. The intermediate storage room should be placed close to the main entrance to the wards to minimise the movement of sealed/closed waste containers inside the wards;
- Intermediate storage areas should be lockable to ensure controlled access e.g. during night shifts etc. when there is limited staff and supervision. However, if the ward is well staffed the room need not be locked at all times;
- The cleaning of intermediate storage areas must be carried out at least daily or more frequently using G-cide or other approved disinfectant soaps. All the containers both with waste and empty must be wiped down with G-cide (or similar) daily. Special attention must be given to the lids, crevices, wheels, and handles.
- Anatomical (pathological) waste must not be stored in the intermediate storage areas for longer than 2-3 hours unless it is refrigerated at -4 degrees C. It must be taken directly to the mortuary

or central storage area for refrigeration. If no central refrigeration is available pathological waste must be removed from the premises for treatment within 24 hours of generation.

- Each ward/department should ideally be equipped with an intermediate storage area, but depending on the availability of space and distances, intermediate storage areas could be shared by two or more wards/departments, assuming that responsibility for cleaning and orderliness could be managed.

For smaller HCW generators, where transport of HCW containers from the source to the central storage area will not have a significant impact on the daily health care activities, there is no need for intermediate storage areas, but for one central waste storage area (see below).

The various options available for intermediate HCW storage dealing with its location, size and the frequency of collection, is presented in Box 2.

Box 2: Options available for intermediate storage of HCW:

- Dedicated intermediate storage areas provided per ward (*preferred*)
- Dedicated intermediate storage area shared for groups of wards or departments;
- Sluice rooms used as intermediate storage areas
- Mortuary for storage of anatomical waste
- Size of intermediate storage area to accommodate frequency of collection rounds (at least once per day).

B. Internal Transport between Intermediate and Central Storage Areas

To prevent a build-up or the prolonged storage of HCW at or near the point of generation, internal collection and transport of HCW is required. Internal collection of HCW is therefore the removal of HCW from the intermediate storage area (or point of generation where no intermediate storage area exists), for transport to the central storage area or onsite treatment facility (where applicable). The rate of HCW generation, the types of containers used, the distance between the internal storage (or generation) area and the central storage area as well as the accessibility for different types of trolleys to both the intermediate as well as the central storage areas will inter alia determine the internal transport system to be used.

Box 3 provides a number of recommendations related to internal transport of HCW.

Box 3: Recommendations related to internal transport of HCW:

- There should be no long-term (more than 24 hours) accumulation or storage of HCW inside the wards/departments other than at the central waste storage area (central collection point);
- All HCW shall be removed from intermediate storage areas for transport to the central waste storage area at least once a day;
- Collection of HCW from intermediate storage areas should be done by dedicated cleansing or waste management staff that have received the necessary training, protective equipment etc.;
- In the case of small generators, the health care professionals may be responsible for the removal

of HCW;

- Staff responsible for HCW management shall not handle the HCW unless containerised and shall not undertake any form of resorting of mis-segregated waste.
- HCW workers should be appropriately informed about the way in which containers are to be handled as well as the risks of infection and the associated occupational health and safety risks;
- No full HCW bags or non-puncture resistant containers are to be carried directly against the body, e.g. the legs, (due to the risk of pricking should waste be mis-segregated). The number and weight of containers carried should be limited to what can be carried safely without coming into direct contact with the body. The mass of individual HCW containers to be handled manually should not exceed 15 kg and containerisation of HCW should in all instances ensure a safe working environment;
- All personal protective equipment (PPE) required such as gloves, aprons, masks, overalls etc., are to be provided to all persons responsible for the handling of HCW containers;
- Only one open unit of each type of receptacle should be kept in use in the intermediate storage area at any time to minimise the filling time and allow for best possible reduction of odour, whilst limiting access to the HCW;
- Wherever practical, all internal transfer/transport of HCW should be based on wheeled transportation to secure best possible ergonomics for workers while securing cost-efficient and flexible collection. Manual lifting and carrying over distances of HCW should be avoided wherever practical, with heavy or awkward lifts and manipulations not being permitted under any circumstances;
- Based on the building configuration as well as the distance from the various intermediate storage areas to the central storage area, a decision could be taken on the viability of using a small tractor as a driving mechanism for multiple trolleys;
- Equipment used for transport of HCW shall ensure safe transport thereof, avoiding spills and preventing unauthorised persons from coming into contact with the HCW. Trolleys, containers etc., when loaded, shall not be left unattended in areas accessible to the public, visitors and uninformed staff;
- The transport equipment used shall be easy to load and unload, whilst securing the HCW containers during transport;
- HCRW containers shall not be loaded higher than the design level. No unsecured containers that may drop from trolleys shall be loaded onto the trolleys;
- The equipment used for transporting should be durable with low maintenance requirements.
- The equipment used for transporting should be easy to clean and disinfect. Cleaning of all equipment must take place at least daily and when required (spills etc.) with G-cide or other approved disinfectant soap. Special attention should be given to the lids, crevices, wheels and handles.
- Transport equipment should be easy to move and manoeuvre and should be able to get access to all places from which HCW is to be collected or to which HCW is to be delivered. This includes allowance for elevator sizes in the event of multi storey buildings;
- Precise trolley dimensions for the loading areas is determined by the types and sizes of HCW containers to be transported and the width of doors and passages;
- It is further important during the design of the trolleys to pay attention to the type and size of wheels to be used, to the comfort of the handle and the way in which it will be placed when parked to avoid a tripping hazard, that there are no protruding elements and that the trolleys are equipped with “bumpers” to prevent damage to walls and frames. The trolleys should however not become too heavy to be pushed/pulled. Transporters must be able to see either through the trolley when fully loaded or over the top of the trolley

C. Storage of HCW at the Central Storage Area.

Having collected and transported the HCW from the various sources (or intermediate storage areas) inside the health care facility, the HCW is accumulated at a central onsite storage area from where it is collected for onsite- or offsite treatment. Centralised storage can therefore be described as the placement of HCW in a suitable location outside the health care facility, but within the outer perimeter thereof, with the intention of near future removal for treatment and/or disposal.

Although limited, there may be situations where the health care facility, and therefore the sources of HCW generation, are spread over such large areas, that the establishment of a second central storage area may be justified to reduce the transport distance between the intermediate storage areas and the central storage area.

A number of recommendations related to the central storage of HCW are presented in Box 4.

Box 4: Recommendations related to central HCW storage:

The following requirements exist for central HCW storage areas:

- Each health care facility should have at least one dedicated central HCW storage area serving as either:
 - (i) The interface from where service providers collect waste for off-site treatment or
 - (ii) From where waste is brought to the nearby on-site treatment facility;
- The total volume of HCW being generated between external collection rounds will determine the size of the central storage area. Adequate allowance for backup in the event of a sudden increase in the HCW generation rate or alternatively a temporary breakdown in the HCW collection service must be provided. Provision should also be made within the area for the separation of clean containers and the full ones waiting to be removed. Suitable size of central storage areas, including clean containers (please note that conditions and assumptions may vary considerably, thus, requiring special adaptations to particular equipment, generation patterns etc.):
 - *For a large regional specialised hospital a suitable central storage area for HCRW only could be 20-36 m².*
 - *For a district hospital a suitable central storage area for HCRW only could be 15-24 m².*
 - *For a Community Health Centre a suitable size could be 9-15 m².*
 - *For smaller clinics a suitable size could be 5-15 m².*
- Should an onsite treatment facility be used, the size of the central storage area could be reduced, depending on the availability and efficiency of the on-site treatment operation;
- For smaller HCW generators, the intermediate and central storage areas could be combined;
- The central storage area should:
 - Be well ventilated
 - Be well illuminated
 - Be lockable and secure,
 - Have access to wash basin, soap and towels
 - Be accessible by trolleys from ground level or via ramps
 - Be kept clear of vermin and other vectors
 - Be placed away from food storage and kitchens
 - Have clear signage at the entrance that indicates the contents of the room, the contact details for the responsible person as well as contact details for use in the event of an emergency;
 - Under special conditions only be equipped with any monitoring facilities (e.g. for

radioactivity).

- Easy access for trolleys delivering HCW and trucks collecting HCW is necessary using ramps with an incline of less than 1:10;
- The configuration of containers during storage will depend on the type of containers being used:
 - HCRW containers may only be stacked to a maximum height of three boxes or 1.8 meters whichever is the relevant;
 - Sharps containers are to be stacked in a configuration that will prevent it from collapsing or placed inside larger containers
 - Wheelie bins are not be stacked at all;
 - High density waste like for instance blood or anatomical (pathological) waste in specicans, are not to be stacked at all;
- HCGW and HCRW may be stored in the same room, provided that the various HCW categories are separated to the extent that it will avoid unintentional mixing;
- Where justified, bulk HCGW storage containers, with or without compaction equipment to reduce the volume, may be considered as part of the central HCW storage facility;
- As most HCW contains biodegradable materials, the packaging should be tight and the storage time limited;
- The central storage room temperature should be kept down by protecting it from temperature increases resulting from direct sunlight and un-insulated corrugated iron walls/roofs. The maximum storage time shall be limited to avoid problems with odour
- All anatomical (pathological) waste as well as other HCRW, where required due to climatic conditions or extended storage periods, shall be cooled / refrigerated by means of i) dedicated cooling / refrigeration facilities for HCW at the central storage area, or ii) the possible use of the morgue / mortuary for cooling down of anatomical (pathological) waste;
- In the event of pharmaceutical waste being stolen, a dedicated area with increased security is to be provided for the storage of such waste;
- The floor of the central storage should be hard standing and impermeable with a floor drain and water supply as part of a wash facility. The floor should be free from damp and moisture;
- The storage room should be easy to clean and disinfect. For this purpose walls with ceramic tiles are preferred;
- Cleaning of the central storage area must be carried out daily using G-cide or similar approved disinfectant. Clean containers kept inside the stores must be protected from dust and rodent droppings. Wiping down of the containers can be carried out as required using cleaning equipment and disinfectant.
- A spill kit containing the necessary equipment to clean up spills of sharps, broken bottles, blood or infectious waste from split bags etc. must be provided at the central storage areas. The transporters and storage attendants must be trained to wipe up spills.
- A supply of cleaning equipment, protective clothing and waste bags or containers should be located conveniently close to the storage area;
- There should be no sources of open fires that can result in the outbreak of a waste fire;