

Safe management of solid and liquid waste is critical for public health and is a crucial component of a comprehensive Infection Prevention and Control (IPC) strategy. In the case of disease outbreak, waste management is vital to prevent the further spread/retransmission of infectious diseases such as Corona Virus Disease (COVID-19), Ebola, and cholera, and must therefore be properly practiced for the safety of **community members, patients, staff, the general public, and the environment**. The objective of successful waste management in disease outbreak settings is to render all waste non-infectious and inaccessible to the population. The waste management procedures outlined in this note are recommended for screening points and facilities at **Migration Response Centres (MRCs), transit sites, Points of Entry (POEs)** as well as at **health care facilities (HCFs) and at communal facilities in camp and camp like settings**.

General Guidelines

- WASH expertise, in collaboration with local stakeholders, should establish and regularly review waste management plans. Plans should define resources required, roles and key management responsibilities.
- Waste management plans should be developed in line with national/cluster guidelines while taking into account **contextual public health risks**. Plans should be informed by **initial qualitative and quantitative assessment** of wastes as well as existing waste management practices.
- In HCFs, all health care waste generated during patient care at a cholera or Ebola treatment center or at a HCF with COVID-19 confirmed case(s) is **considered infectious**; it should always be separated from general waste and treated/safely disposed within the premises at fit-for purpose facilities guided by **appropriate protocols**.
- In community settings, **existing waste management infrastructure** can be utilized with adjustments (e.g. more frequent collections) to cater for additional waste quantities. Targeted **hygiene promotion** to raise awareness is also vital.

Minimum Requirements

- In HCFs, there should be a designated waste zone with restricted access comprising of:
 - * Twin chamber incinerator operating at temperatures of **at least 850°C [1]** and located **at least 15m[2]** from the nearest habitable building.
 - * Organic/sharps pits with the bottom **at least 2m[3]** above the highest groundwater table and **at least 30m[2]** downhill of water sources.
- In communal settings, the communal waste temporary storage/collecton area should be **clearly marked and fenced**.
- In communal settings, size on-site disposal communal pits adequately (**6m³ per 50 people[2]**) and establish them **not more than 100m[2]** from dwellings to be served. Off-site disposal options e.g. landfilling, composting, incineration, etc. can be considered paired with suitable transportation options that are either human/animal-powered or motorized.
- In HCFs, provide **at least one set of 3 segregated containers per 30 beds [2]**. In communal settings, provide **at least one container for ten households[4]** to cater for the increased waste production especially in the COVID-19 context where homecare for patients may occur.
- Protective measures must be assured for staff handling wastes. Provide Personal Protective Equipment (PPE), a minimum of **heavy-duty gloves and boots** for cholera and **full PPE** (see below) for COVID-19/Ebola. Provide **vaccinations for tetanus, hepatitis B and Ebola** if appropriate.

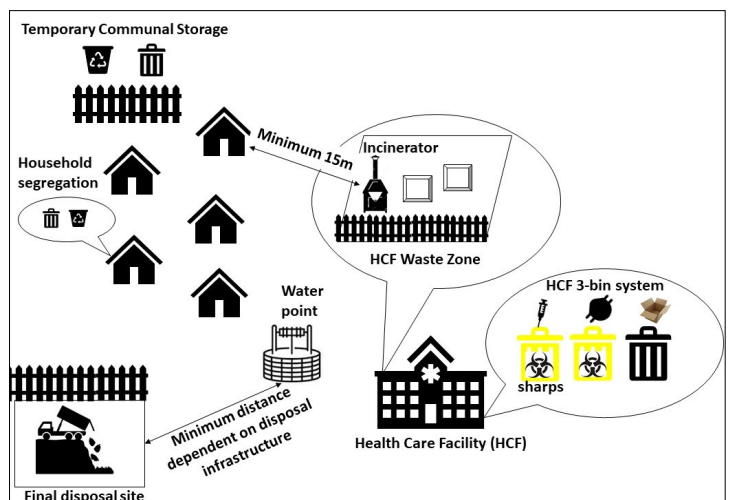
Items and Infrastructure

- PPE- overalls, boots, heavy duty gloves, safety glasses, protective masks
- Waste collection containers
 - * Strong/thick plastic bags and where not available use double bags
 - * Plastic buckets/bins with tight fitting lids. In HCFs, **colour-coded/well labelled 3 bin system**. In communal settings, 1/2 bins maybe used depending on the treatment option used. Where possible, use **pedal-operated waste bins** to minimize the risk of infection transmission
- Transportation mechanism
 - * In HCFs, trolleys/carts and where unavailable, wheelbarrows
 - * In communal settings, wheel barrows/handcarts for relatively short distances and motorized options e.g. trucks for longer distances
- Waste disposal infrastructure
 - * In HCFs: incinerator, organics and sharps pit
 - * In communal settings: pits, landfill sites, or other appropriate systems
- Items for cleaning/disinfection e.g. chlorine-based solutions, buckets, etc.

Recommended practices

- In HCFs, provide training on medical waste management for all staff. Waste management team personnel and cleaning staff should receive additional training on segregation, good handling and disposal procedures including hand hygiene and use of PPE.
- In communal settings, incorporate awareness on solid waste management in **hygiene promotion** programs.
- Appropriate practices should be adopted across all stages of waste stream i.e. handling, collection, storage, transport, treatment and waste disposal. See overleaf for recommended practices for different types of wastes.
- Establish mechanisms for regular monitoring of waste management plans and use the findings to make improvements where necessary.
- In HCFs, ensure that the outside of all bins/bags with infectious wastes are disinfected with chlorine solutions before disposal. Use 0.5% chlorine for Ebola and 2% chlorine for cholera settings.
- Ensure that storage areas, collection containers and transport modes are regularly cleaned and disinfected with **appropriate chlorine solution**.
- Always empty waste storage containers when **3/4 full** and never carry them against the body e.g. on shoulders. Transport waste collection containers along fixed routes and during periods of low activity.
- Hand hygiene must be practiced after handling waste. Where possible, set up handwashing facilities in designated waste zones.
- In HCFs, vomitus and excreta from patient beds should be disposed of in a specific toilet used only for this purpose where possible or toilets designated for use by patients.

Waste management in a communal setting with a HCF



In all settings, ensure that hygiene promotion activities/trainings on improved waste management practices are complementary to the establishment of infrastructure and protocols.

Waste management practices for cholera, Ebola, and COVID-19 settings

	Cholera	Ebola	COVID-19
Likely waste characteristics*	Besides typical wastes in HCFs such as sharps (e.g. needles), softs (e.g. PPE), organic wastes (e.g. body parts) and domestic waste (e.g. food waste) in communal settings, there is an expected increase in		
	liquid waste such as vomit, faeces, soiled beddings/clothes/rags in both HCFs and communal settings	soiled beddings/clothes/rags in communal settings and used PPE, liquid waste in HCFs	PPE, tissues as well as single-use containers (e.g. empty disinfectant bottles) in both HCFs and communal settings
Collection	In HCFs, use: leak and puncture resistant containers for sharps, leak-proof plastics bags for organics and		
	waste bin with a lid for softs	double plastic bags in a bin for softs	double plastic bags in a bin for softs
	In both HCFs and communal settings, use a pre-filled bucket with 1cm of 2% chlorine for liquid waste	In both HCFs and communal settings, use a pre-filled bucket with 2cm of 0.5% chlorine for liquid waste. Soiled linen should be placed in clearly labelled leak-proof bags/containers after carefully removing faeces/urine	In communal/household settings, separate potentially infectious waste e.g. used face masks, tissues from other domestic waste and collect in strong black bags , if possible label them
Storage	Sharps containers can be used until 3/4 full , covered waste bins for softs can be stored up to 24 hours in hot climates and 48 hours in cold climates [3]		
	Plastic buckets with liquid waste should be discarded/emptied immediately or when they are at most 1/3 full	Plastic bags and buckets with liquid waste should be discarded/emptied immediately . If not possible, use 10% lime slurry to inactivate the virus temporarily	In household settings, If possible, store bags with infectious waste for at least 72 hours [5] before putting outside for collection
Treatment & Disposal	<p>Selection of treatment options should be based on assessment of potential environmental, health and safety risks to workers/beneficiaries and should respect country regulations as well as take into account the social, economic environmental and technical risks and restrictions associated with each option.</p> <ul style="list-style-type: none"> In HCFs, dispose of closed sharps containers directly into sharps pits**; use a twin chamber incinerator operating at >850°C for softs and dispose of residue in ash pits and cover with compacted soil or a lid; and dispose organics into ventilated organic waste pits**, and cover with wood ash before closing the lid. In communal settings, on-site disposal pits should only be used as a short-term measure for potentially infectious wastes. Establish systems for off-site treatment/disposal options such as incineration. See treatment options for a full range of waste disposal solutions that can be employed in all settings. In all contexts, soiled linen should be washed with warm water and detergent followed by soaking in 0.05% chlorine solution. In the context of Ebola, mattresses should be burned after spraying with 0.5% chlorine. At all times, AVOID open dumping (potential health hazard for waste pickers) or open burning (can result in the emission of dioxins, furans, and particulate matter). In the context of COVID-19, the informal waste sector has been/will continue to be greatly affected. Support waste pickers to modify their working practices e.g. using of masks; practicing frequent hand hygiene; avoiding potentially infectious wastes e.g. used masks and gloves; practicing social distancing, removing and washing clothes before entering the house. 		

*The management of dead bodies and other chemical/pharmaceutical waste is outside the scope of this guidance. However, if appropriate, WASH teams can support in dead body management through coordinating with health and camp management actors regarding the location and procedures for dead body management (while respecting cultural practices) in order to preserve surface and groundwater, control vectors and implement IPC measures (disinfection and cleaning of bodily fluids).

****Decommissioning**— backfill the organics pit and fill sharps pit with concrete or similar material to encapsulate the sharps and to protect future users of the land.

MORE RESOURCES

[MSF Haemorrhagic Fever guidelines](#)

[WHO COVID-19 WASH Technical brief](#)

[MSF cholera guidelines](#)

[MSF Management of Cholera Epidemic](#)

[MSF Public Health Engineering](#)

[UNICEF guidelines for WASH in Cholera Treatment centres](#)

[IOM health and Emergencies training module 5:IPC](#)

[UNICEF Ebola waste management guidance note](#)

[WHO/UNICEF Ebola key questions and answers concerning health care waste](#)

[WHO Cholera WASH Technical Note](#)

[WHO technical note on solid waste management](#)

[Health care waste management within MSF settings](#)

[SI COVID-19 WASH basic IPC measures](#)

[UNEP COVID-19 treatment options](#)

¹[UNICEF Ebola WASH Guidance Note](#)

²[WEDC Emergency sanitation](#)

³[WHO safe management of wastes from health care activities](#)

⁴[Sphere handbook](#)

⁵[UNEP COVID-19 Waste Management webinar presentation](#)