



How to dispose of healthcare waste in landfills during the COVID19 crisis?

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- During the pandemics, it is important to make sure that healthcare waste is properly and safely collected, treated and disposed of.
- In many countries, during the pandemics all the hospital waste are considered and managed like infectious ones.
- Healthcare waste should be treated before their disposal in order to eliminate any possibility for infection.

- However, in many developing countries the only solution available is to dispose of healthcare waste in landfills or to store them temporarily.
- Disposal in landfills should be implemented in a certain way – we will discuss this practice today.

Healthcare waste involve hazards like:

- Presence of infectious agents
- A genotoxic or cytotoxic chemical composition
- Presence of toxic or hazardous chemicals
- Presence of biologically aggressive pharmaceuticals
- Presence of radioactivity
- Presence of used sharps

Rule 1: the safer the better

We prefer the most controlled disposal site available.

Prefer Sanitary Landfills Vs Engineered Landfills and Dumpsites

In the absence of sanitary landfills:

Prefer Engineered Landfills Vs Dumpsites

Rule 2: no contact

Our main purpose is to ensure that:

- Waste workers will not be at risk during the disposal activities.
- Once the healthcare waste is dumped, no human or animal will be able to contact with them.

Rule 3: not business as usual

In case healthcare is brought to the disposal site:

- Waste workers should be informed and take special precautions if possible like wearing masks and gloves.
- In any case, workers should keep a distance and avoid any direct contact with the waste.
- **Unload the waste as close as possible to the dumping area**
- **Dump the waste immediately after unloading** - do not leave healthcare waste piles waiting to be dumped

Rule 4: go in depth and isolate

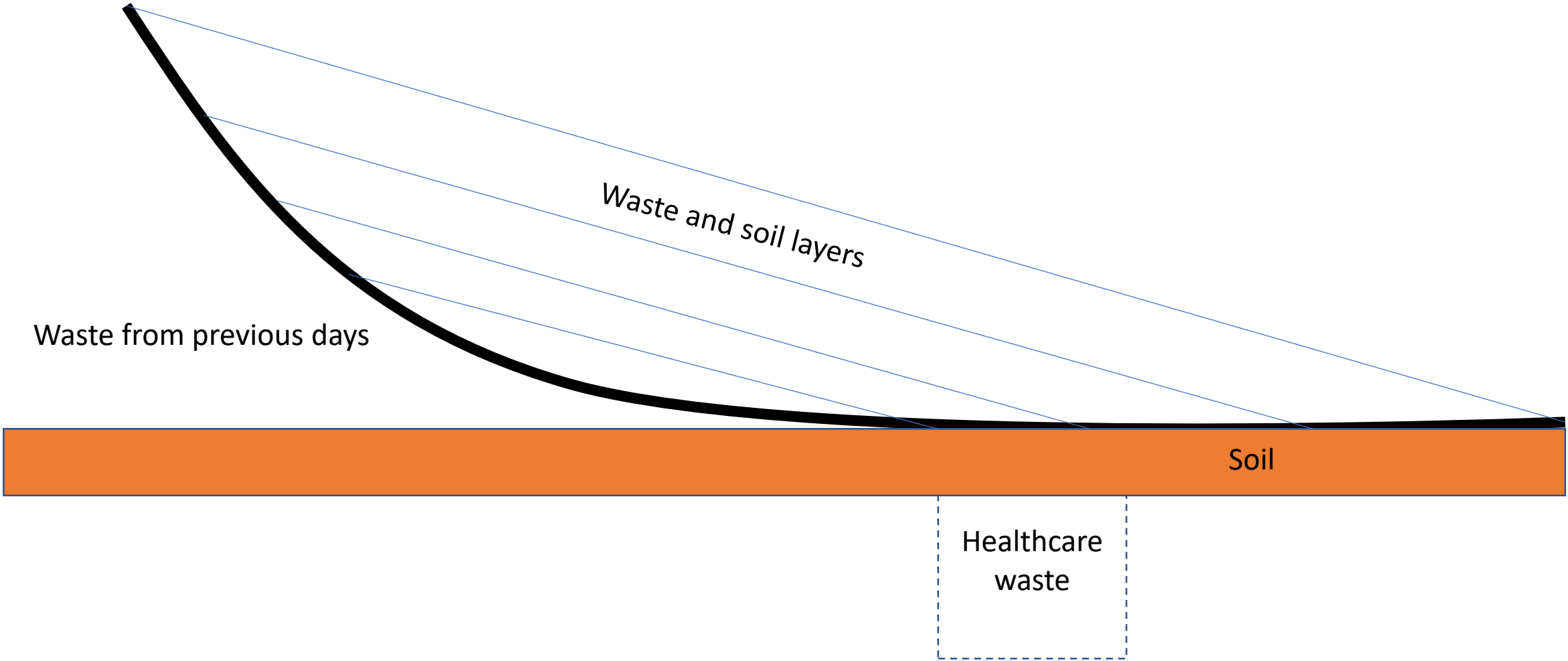
- Tipping area
- Old parts of the landfill
- Special burial pit
- Encapsulation

First way: tipping area

- Go to the tipping area
- Make a shallow hollow on the bottom of the tipping area
- Fill it with healthcare waste
- Cover it with soil
- On top of it, build the new waste layers, at least 2 m high
- Make sure that scavengers do not have access there

More details for landfill operations at: ISWA Landfill Operations Guidelines, 2019, ISWA available at <https://www.iswa.org/download-the-newest-3rd-landfill-operations-guidelines/>

Healthcare waste in the tipping area



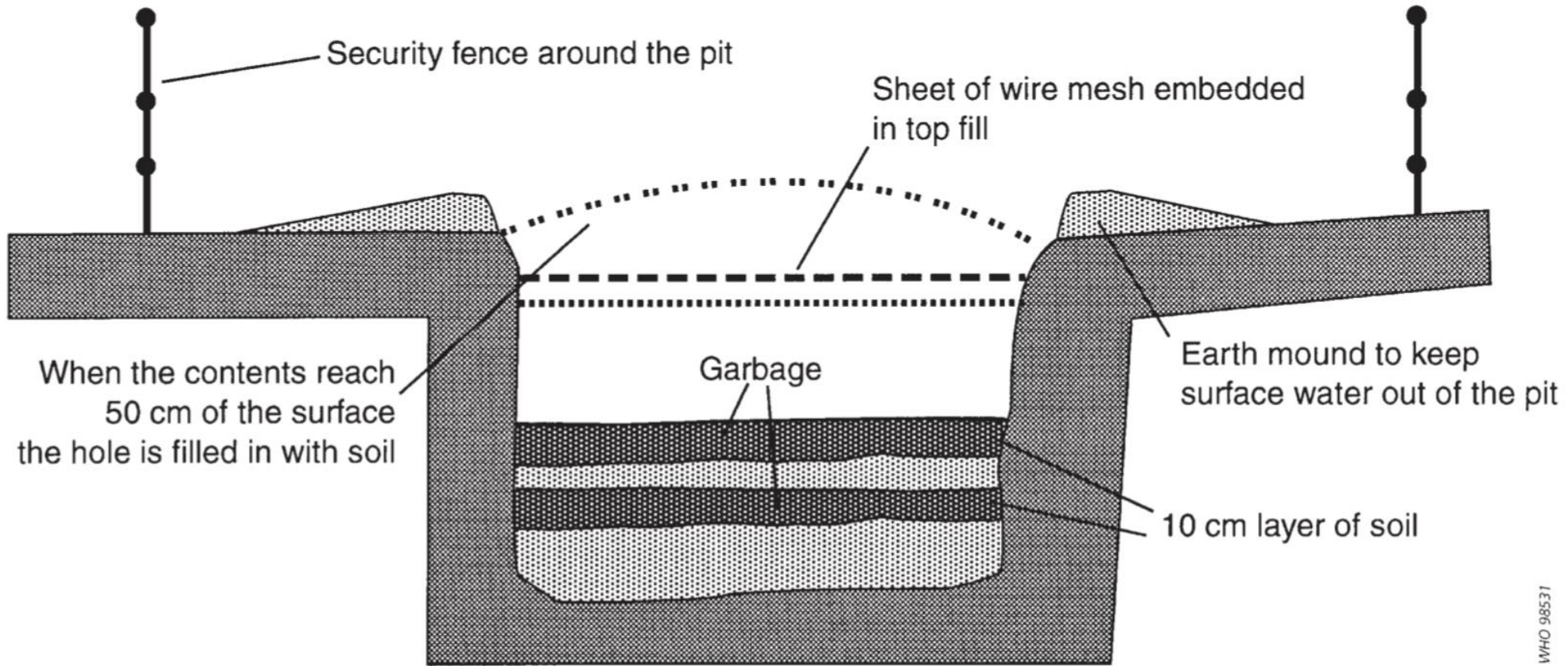
Second way: old parts of landfill

- Find a place on top of mature waste (3 months old)
- Excavate a 2 m deep trench
- Backfill it with healthcare waste
- Cover it with the excavated mature waste
- Put soil on top (0.5-1m)
- Make sure that scavengers do not have access there

Third way: special burial pit

- Isolate and fence an area in the landfill
- Excavate a 2 m deep pit
- Put healthcare waste in layers - put soil on top of each layer immediately after their disposal
- Add lime if possible
- Backfill the pit until max. 0.5 m below the surface and fill the final 0.5 m with soil
- Make sure that scavengers do not have access there

Example of a special burial pit



Source: Safe management of wastes from health-care activities, 2014 WHO, available at https://apps.who.int/iris/bitstream/handle/10665/85349/9789241548564_eng.pdf?sequence=1

Fourth way: encapsulation

- Fill metal or plastic containers up to $\frac{3}{4}$ with waste
- Add a medium like plastic foam, bituminous sand, cement mortar or clay on top to seal them.
- After the medium is dried dispose the containers in the landfill.



To recap: 4 rules

- Rule 1: The safer the better
- Rule 2: No contact
- Rule 3: No business as usual
- Rule 4: Go deep and isolate

Landfills and pandemics

- Sanitary landfills are an indispensable part of any waste management system.
- In pandemics, in the absence of thermal treatment, sanitary landfills are a safe final sink for healthcare waste but certain procedures have to be applied.
- But even if thermal treatment for infectious waste is available, in pandemics the healthcare waste generated are usually much more than usual, so sanitary landfills can provide an alternative disposal route.

<https://www.iswa.org/media/publications/knowledge-base/>

Find more for healthcare & medical waste management at
ISWA's Knowledge Base