

MANAGEMENT AND SAFE DISPOSAL OF EMPTY AND EXPIRED COVID-19 VACCINES VIALS

The extent of COVID-19 vaccination campaign has been unprecedented in the context of the number different vaccines being used against a single disease and the quantity of vaccine doses that are being deployed to be utilized within a relatively shorter shelf life.

The COVID-19 vaccination activities are generating huge amount of waste that is challenging for most low- and middle-income countries with limited resources and health care waste management capacity. One of the major concerns is how to dispose COVID-19 vaccine vials in a manner safe for both the public and the environment. This job aid provides guidance on how to safely dispose COVID-19 vaccine vials.

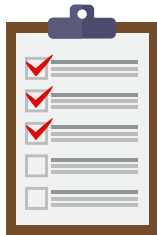
Generally, there is no special waste management procedures applied to COVID-19 vaccine.



It is the health workers' responsibility to ensure that all used and unused COVID-19 vaccine vials are accounted for and returned to the health facility for proper management and/or disposal.



Disposal of used and expired COVID-19 vaccine should follow national legislation/ local guidelines.



There should be no wastes lying around the vaccination, storage or disposal areas.



If national legislation/local guidance does not exist, countries are encouraged to select methods that pose lesser environmental risk and with consideration to existing capacities, resources and national policies/ regulations.



The most important point regarding health-care waste management is to make sure wastes are properly packed, marked, stored and finally disposed of.

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AT VACCINATION SITES

Prepare sufficient numbers of waste containers with plastic lining (e.g. to avoid leakage) for the day.



Put empty/expired vaccine vials in the waste container.



Once waste container is nearly full, put it aside and make sure it is closed/ sealed with adhesive tape and marked for disposal before taking it away to the storage or disposal area.



Ensure that there are no wastes lying around the vaccination site.



Wash hands frequently with soap.



MANAGING EMPTY AND EXPIRED VIALS

When a waste container is 3/4 full, close it carefully, seal it with adhesive tape and mark it according to instructions given.



Ensure that there are no wastes lying around the storage or disposal areas.



Follow proper disposal method, including wearing of personal protection equipment (PPE) such as gloves.



Wash hands frequently with soap.

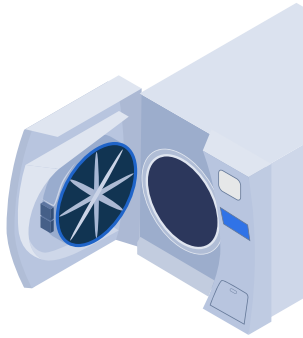


AT WASTE STORAGE/DISPOSAL FACILITY

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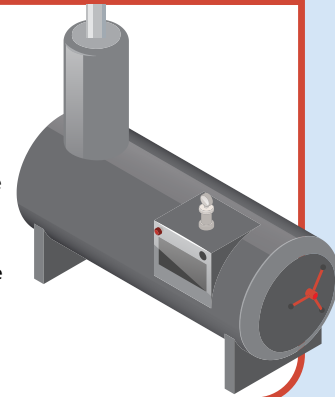
AUTOCLAVING

- The use of high-pressure steam at 121°C–134°C to kill pathogens over a specified duration
- Most environmentally friendly method.
- Glass vials full of liquid (i.e. not opened) should be “loosened” /opened to avoid rupture, unless the autoclave has an integrated shredder.
- Plastic vials or glass vials that are empty or contain little liquid do not need to be opened or punctured.
- After autoclaving, vials will be sterile but must still be disposed of following national or local waste management guidelines.



INCINERATION

- Controlled burning of vials in a furnace at temperatures >1100°C for complete combustion of glass vials.
- It is recommended to use rotary-kiln incinerators and industrial furnaces.
- Co-incineration in industrial furnaces (e.g. cement kilns) will both inactivate and destroy vials and can be done in partnership with an industrial facility.
- Ash and any other post-incineration residue must be treated as toxic waste and disposed of according to national or local waste management guidelines.



STERILIZING EMPTY AND EXPIRED VIALS PRIOR TO FINAL DISPOSAL

CHEMICAL STERILIZATION (E.G. WITH BLEACH)

- Sterilization of vaccine vials by immersing in 0.5% chlorine solution.
- Preparation: Mix 9 parts clear water with 1-part liquid bleach.
- Alternatively, household bleach maybe used.
- Vials should be opened and immersed in the solution for at least 30 minutes.
- After treatment, vials and leftover chlorine solution must both be disposed of following national or local waste management guidelines.



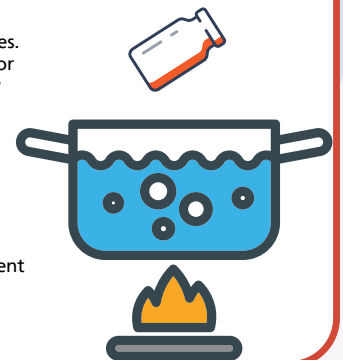
ENCAPSULATION

- Immobilization of vials using impervious material (such as cement) in a container.
- Disposes vials without immediate inactivation (and without opening the vials) but makes it inaccessible and puts it beyond use.
- Involves filling containers $\frac{3}{4}$ full of vials, adding an immobilizing material (e.g. sand, cement, or clay) and sealing and burying the containers.
- Encapsulated waste must be disposed of following National or local waste management guidelines.



BOILING

- Boiling vials at water boiling temperature (100°C) for 30 minutes.
- Immersing vials in boiling water for approximately 30 minutes destroy pathogenic micro-organisms.
- Both glass and plastic vials can be safely boiled.
- Glass vials can be boiled without opening.
- After boiling, the sterilized vials should be disposed of following national or local waste management guidelines.



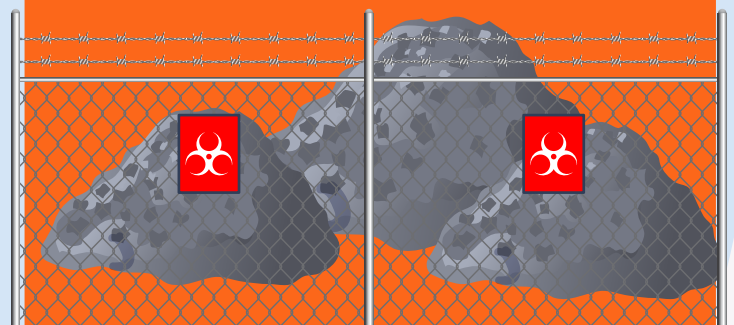
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FINAL DISPOSAL OF STERILISED EMPTY AND EXPIRED VIALS

Transport the waste materials to a waste facility, such as sanitary land fill, municipal dump, industrial waste site, or other waste disposal facility meeting national and local waste guidelines)

Bury the waste materials in a secured and fenced-off burial site.

OR



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FINAL DISPOSAL OF STERILISED EMPTY AND EXPIRED VIALS

**In health-care facilities
(located in low density
populated area)**



- Onsite incineration, if available, or
- Secure on-site burial, or
- Sterilize with chlorine prior to transport to waster disposal or recycling facility.

**In health-care facilities
(located in high density
populated area)**



- Off-site transportation to larger centre with treatment facility, municipal incinerator or to sanitary landfill after sterilization.

**In temporary
vaccination sites or
mobile settings**



- Always ensure off-site transportation of all wastes to the reference health facility for storage and treatment.
- Label the wastes, complete required recording/reporting form and keep in a secure area until they can be transported to the designated waste storage or disposal facility.
- On-site treatment / disposal should be avoided.