



STANDARD OPERATING PROCEDURE (SOP)

Waste management of used COVID-19 vaccines vials and ancillary supply

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1. Glossary

SOP:	Standard Operational Procedure.
HCWM:	Health Care Waste Management.
COVID-19:	CORONA VIRUS Diseases.
HTH:	Sodium Hypochlorite. Chlorine-based disinfecting agent
NaDCC:	Dichloroisocyanurates (NaDCC). Chlorine-based disinfecting agent
PPE:	Personal Protective Equipment.
Sharp Container:	Container dedicated specifically to contain sharps (needles, syringes, etc.), containing them in a secured and safe way, to prevent puncture accidents and blocking transmission of diseases.
Safety Box:	See "Sharp Container".
Neutralize:	Treatment process that kills and eliminate infectious agent

2. Purpose

The purpose of this Standard Operating Procedure (SOP) is to describe the detailed process on how to manage discarded COVID-19 vaccine vials and associated waste after COVID-19 vaccination activities end. The SOP provides clear instructions on how to perform the appropriate treatment and safe disposal of these wastes to minimize any associated health risk with consideration to local context.

3. Scope

This SOP is intended for study staff involved in the COVID-19 vaccination activity and covers the procedures from the collection of vaccination waste until the final destruction and disposal of the waste.

4. Principles

It is inherent to any vaccination activity that all used and discarded vaccine vials, including the used ancillary supplies and consumables MUST be safety **collected**, **treated**, **transported** and **disposed**,



Used COVID-19 vaccine vials and ancillary supplies are considered infectious material, and they must be correctly and safely stored, collected, treated and disposed, under the supervision of well-trained staff or HCWM specialist technician.

The management of used and discarded COVID-19 vaccine vials and associated waste MUST be incorporated in the vaccination campaign operational plan with clear budget line items. Therefore, the allocation of required resources and implementation of the waste management procedures are integrated from the start of the vaccination campaign.

Staff involved in COVID-19 waste management MUST BE properly trained on the technical specifications and have a general knowledge in WHO's HCWM principles and procedures.

Prior to the launch of COVID-19 vaccine activities, responsible personnel should ensure that both the waste management procedures are always correctly applied and the required waste management and supporting infrastructures are available and functional.

5. Materials:

- Plastic container with cover (for collecting discarded COVID-19 vaccine vials)
- Safety boxes, for sharps collection
- Chlorine product (HTH, NaDCC)
- Autoclave/sterilization device
- Incinerator, ash and sharp pits
- PPE sets (surgical gloves, heavy duty gloves, goggles, boots, mask, gown, etc.)

6. Procedures

6.1 Collection of waste during the COVID-19 vaccination activity

Collection of vaccine vials

- Any used or discarded COVID-19 vaccine vials MUST be collected safely and separately from the rest of the waste. Both the empty vials and those with remaining vaccine doses discarded at the end of the daily vaccination activity shall be collected and safely stored until they are collected for final treatment and disposal. These vials must be counted and recorded by the responsible team for the purpose of vaccination activity analysis (e.g. utilization, coverage, wastage, etc.).
- Used vials should be collected in leak proof bag, preferably with no less than 40-50 microns and not bigger than 15L to fit in the dimension of the main chamber of incinerators available in the field. If only normal bags (waste bags) are available, it is recommended to place the waste in double bag and place any absorbent material (e.g. paper tissue, absorbent pad or similar) to retain any possible leakage from the waste materials.

Collection of syringes and sharp waste

- In parallel, all sharp wastes (e.g. needles, auto-block syringes, scalpels, etc.) MUST be collected inside the appropriate and dedicated container, such as sharps container or safety box.

Collection of other waste materials: used PPE, cottons, wrap, etc.



- Used PPE, cottons and wrap should be collected in leak proof bag, preferably with no less than 40-50 microns and not bigger than 15L to fit in the dimension of the main chamber of incinerators available in the field.

Interim waste disposal at lower facility

- At the end of the day, upon return to the base and after counting and recording the number of vials and syringes used, the waste may be transferred to a centralized dedicated container for potentially infectious materials. This container should have a secured lid cover, safe, and made of rigid plastic. Clean and disinfect “field” waste containers to make them available for the following days.
- Keep all generated waste (discarded COVID-19 vaccine vials, used sharps and the rest of the solid waste) in an enclosed and securely locked place in the base until they are collected for treatment and final disposal. The waste storage should be placed under supervision and with limited access only to the responsible personnel.

6.2 Storage of the collected waste

All wastes must be stored in the following condition until they are collected for delivery in an appropriate waste treatment and disposal facility:

1. Protected from the sun to ensure the integrity of the packaging.
2. Protected from rain and water, to ensure the integrity of the packaging and the avoid leakage and spread of the products due to contact with water. The water in contact with waste should be collected and managed as the rest of the wastes.
3. Protect from rodents and other plagues to ensure the integrity of the packaging and avoid the spread of the waste.
4. Isolated from food and water sources to avoid contamination.
5. Protected from other staff to avoid improper manipulation and accidental exposure to reagents and other infectious/toxic products.

6.3 Treatment of the discarded COVID-19 vaccine vials before final disposal:

- Before performing the following procedures, you must first wash your hands and put on surgical gloves for your personal protection.
- Before subjecting the vaccine vials to any treatment procedures, remove all vial caps (with the aluminium seal) and labels – if any to ensure effective treatment. Collect all caps in a plastic bag and set aside for latter incineration. Once done, vials are ready for treatment.

Treatment by disinfection with chlorine solution:

- Disinfection of used vials with 0.5% chlorine solution is often the quick and easy method at the field level. This can be done with any available chlorine-containing products (e.g. HTH, NaDCC, bleach, bleach powder, etc.).
- Prepare the 0.5% disinfection solution in quantity enough to completely fill the plastic container with discarded vials.



- Using heavy-duty gloves, submerge the vials in the chlorine solution making sure the disinfecting solution gets inside each of them and reaching all surfaces. Let them react for at least 30 minutes.
- After the 30-minute reaction time, remove all vials from the disinfecting solution. Make sure you are wearing heavy-duty gloves and all vials are emptied. Collect the vials for their final disposal.
- Used disinfecting solution (0.5% Chlorine) MUST be disposed in a safe and appropriate manner to protect the environment and bodies of water.

Note: Discharge used chlorine solution into the toilets / latrines, if possible. If not, leave the solution exposed to sunlight for several hours prior discharging in a controlled place, far from water sources and/or food gardens.

Treatment by sterilization through autoclaving process:

If an autoclave is available, use it to effectively sterilize discarded COVID-19 vaccine vials before final disposal.

- First wash your hands and put on surgical gloves.
- Place the vials inside of the autoclave, following specified instructions for using the equipment.
- Turn on the autoclave and allow sterilization process to complete. Then, collect the sterilized vials from the autoclave for their final's disposal.

6.4 Treatment of other associated waste:

- Collect all sharp wastes (e.g. needles, scalpels, etc.) in a dedicated “sharps container” (safety box). Dispose used sharps inside the “sharps pit” without removing them from the safety box. There is no need to sterilize before disposal.
- The rest of the solid waste WILL NOT be treated before incineration.

6.5 Transport of the waste

- The staff in charge of transporting waste should wear gloves and goggles during the manipulation of waste to prevent leakage of toxic reagents and other products during transport.
- It is recommended to use vans, pick-ups or similar vehicles which has a separate driving zone from the cargo zone to ensure protection of the staff.
- Comply with national regulations' requirement for labelling the vehicle used for transporting waste, if any.

6.6 Final disposal of the waste from COVID-19 vaccine:

- All used syringes and sharp wastes: MUST be treated by incineration (preferably using an appropriate incinerator that is able to reach high temperatures, with double chamber to reduce emissions of toxic gases).
- Follow recommended methods for proper final disposal of resulting ashes.



- After incineration, dispose “solid waste fraction” inside the dedicated “ash pit” previously identified in the selected Health Structure.
- Neutralized COVID-19 vaccine vials can be safely disposed in a manner that is not accessible or reusable, and neither being an environmental nor a health threat.
- COVID-19 vaccine vials (preferably not crushed) MUST be properly disposed inside the dedicated “ash pit” previously identified in the selected Health Structure. Make sure the “ash pit” capacity is adequate and compliant with national standards.
- In absence of any dedicated structure (e.g. “Sharps pit”), used sharps may be encapsulated (preferably not crushed). This will prevent them from being reused and accessible, and no longer pose a risk to both the population and environment.

***Encapsulation** is done by placing already treated COVID-19 vaccine vials in a container, mixing them within cement, lime and water mixture (3/3/1 parts by weight) in a sealed metallic drum. Once mixture solidified, the whole block is buried within a secured area (either inside the waste zone of the hospital or health centre, in a dedicated dumping area, or any proper identified place)*