

This FAQ was developed as emergency response on questions on Healthcare Waste (HCW) issues arising from the COVID-19 outbreak in 2020 in our project countries. The FAQ is mainly destined to health care professionals; however, general public may be interested in the information for persons in quarantine at home (see in priority, in that case, section 2 on this subject). Due to the emergency situation, the document was only partly reviewed by the project partners but will be regularly updated. The views expressed in the document are those of the authors and do not necessarily reflect the official opinion of the GEF, UNDP or WHO. Neither the organizations nor any person acting on their behalf may be held responsible for the use which may be made of the information contained therein.

Coronavirus waste FAQ

Last updated: 28 August 2020

1 General advice

Can COVID-19 spread through waste?

There is no evidence that direct, unprotected human contact during the handling of health care waste has resulted in the transmission of the COVID-19 virus.

Regular handwashing/hand hygiene, maintaining physical distance from others and not touching the face are the most important measures to prevent the spread of COVID-19

2 Community waste during COVID-19 outbreak

How should masks or gloves being worn in the community be disposed of?

The use of re-usable cloth masks should be encouraged to reduce waste generation and to prevent shortages of supplies required by medical staff. These should be washed at 60°C after each use. Single use masks and gloves should be disposed of as normal general waste in a lined bin, the bag should be sealed, and disposed of in a municipal landfill. Masks or gloves should be destroyed (e.g. by cutting) before disposal to prevent reuse. Take off masks only touching the elastic or ties, and always wash or sanitise hands after taking off PPE.

What do I do with the waste generated at home from suspected or confirmed COVID-19 cases?

Waste generated at home is classified as non-hazardous waste and can be disposed of with the other general waste for disposal. No disinfection or other precautionary measures are

necessary. However, if there is a possibility that masks or PPE are being targeted for illegal reuse, they can be cut or mutilated before disposal.

Waste should be packed in strong bags and closed securely. Wash or sanitise hands after removing gloves and masks and after handling waste or bags.

As a minimum standard the local sanitary authority should ensure that the waste is disposed of at a sanitary landfill and not at an unmonitored open dump¹. If no sanitary landfill is available, interim measures may be done until more sustainable and environmentally friendly measures can be put in place. Safe burial at municipal dumps or on hospital premises is likely to be the next best option, but if even this is not possible, controlled burning may be considered as a last resort.

3 Waste from healthcare facilities during a COVID-19 outbreak

How much extra treatment capacity may be needed to handle healthcare waste during a coronavirus outbreak?

If existing segregation rules are adhered to, there should be no need for extra capacity. There are reports of healthcare waste increasing by up to 6 times, but this was primarily in the early days of the pandemic, where classification and segregation rules were altered and all healthcare waste was considered potentially infectious. In other countries, segregation was maintained and no increase in waste was seen.

Should hygienic towels and diapers be handled as infectious waste?

Standard procedures should be maintained for these wastes. In general, these are not regarded as infectious, though national guidelines differ. Diapers or towels should be put in a lined bin, bag closed when 3/4 full and disposed of via the general waste stream.

How do I handle infectious waste from COVID-19 patients?

¹ WHO (2020), Home care for patients with COVID-19 presenting with mild symptoms and management of their contacts.

[https://www.who.int/publications-detail/home-care-for-patients-with-suspected-novel-coronavirus-\(ncov\)-infection-presenting-with-mild-symptoms-and-management-of-contacts](https://www.who.int/publications-detail/home-care-for-patients-with-suspected-novel-coronavirus-(ncov)-infection-presenting-with-mild-symptoms-and-management-of-contacts)

Coronavirus waste is handled in the same way as other infectious waste. Medical staff should wear appropriate PPE². Deposit infectious waste into a lined bin, which should be colour-coded and labelled according to national or WHO standards. Collect the waste at least once a day. Maintain segregation during transport and storage. Double bagging is not necessary, but waste must be transported in a leakproof container, labelled with the biohazard symbol. Storage, treatment and disposal should be done with other infectious waste at the hospital, or in central treatment plants in accordance with the national and international standards.

Do I need to treat all waste from COVID-19 patients as infectious?

Treat coronavirus waste as ordinary infectious waste. You should maintain and reinforce your current waste segregation procedures. Note: Waste from COVID-19 patients is not classified as highly infectious waste!

How should mixed waste (infectious and non-infectious) from COVID-19 patients be treated?

Any waste that has been mixed with potentially infectious waste has to be classified as infectious waste and has to be handled, treated and disposed of as such.

Do I need specific PPE or specific hand disinfection procedures when managing COVID-19-related healthcare waste?

No, you should maintain and reinforce your current standards for PPE and hand hygiene procedures. If hands are not visibly dirty, the preferred method is using an alcohol-based hand rub for 20–30 seconds using the appropriate technique. Alcohol-based hand rub should contain at least 60% alcohol. When hands are visibly dirty, they should be washed with soap and water for 40–60 seconds using the appropriate technique³. Use hand cream or moisturiser if necessary. Frequent washing can dry and crack skin reducing its ability to protect you from infection.

Are there specific precautions in the laboratory managing COVID-19 related wastewater?

No, the standard procedures for safe and environmental sound disposal of samples and chemical waste should be applied. Wherever possible, waste avoidance and minimisation should be practiced. As there are many different chemicals and reagents used during testing

² WHO (2020) Water, sanitation, hygiene, and waste management for the COVID-19 virus: interim guidance.

<https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-the-covid-19-virus-interim-guidance>

³ WHO (2009) guidelines on hand hygiene in health care.

<https://www.who.int/gpsc/5may/tools/9789241597906/en/>

procedures, a risk assessment should be conducted to identify the safest treatment / disposal option.

For further information please refer to the WHO guideline “[Safe management of wastes from health-care activities](#)”

How should pharmaceutical waste from COVID-19 patients be dealt with?

In many countries, the law specifies that pharmaceutical waste should be incinerated; for the 184 countries that are parties to the Stockholm Convention⁴, incineration should be done according to the best available technology and best environmental practices, including high quality air pollution control. Other options that should be considered, especially in countries that do not have incinerators of the standards recommended by the Stockholm Convention are to return unwanted pharmaceuticals to the supplier, or to encapsulate them and inter them in a landfill^{5,6}.

4 Protection for waste handlers

What protective equipment should waste workers wear?

Healthcare waste workers should wear the same personal protective equipment (PPE) as usual: waterproof apron or gown, boots, gloves, and mask and goggles or equivalent face protection. Wearers should follow safe procedures for putting on and taking off PPE. Always practice hand hygiene after taking off PPE. <https://www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf>

Should workers wear an N95 mask?

It's not essential. N95, FFP2 and FFP3 masks are designed to protect the wearer from aerosols, whereas waste workers need to have splash protection. A surgical or even a cloth mask can protect against splashes and also help prevent workers touching their faces. Always follow safe procedures for taking off face masks and perform hand hygiene afterwards.

Should workers wear goggles?

⁴ UNEP (2020) Status of ratification of the Stockholm Convention

<http://www.pops.int/Countries/StatusofRatifications/PartiesandSignatoires/tabid/4500/Default.aspx>

⁵ WHO (1999) Guidelines for Safe Disposal of Unwanted Pharmaceuticals

in and after Emergencies https://www.who.int/water_sanitation_health/medicalwaste/unwantpharm.pdf

⁶ USAID Nepal (2013) Doing the right thing <https://www.youtube.com/watch?v=z1srf3u-7LA&t=2s>

Goggles and visors (face shields) are valuable protection. They prevent splashes to the eyes, which can transmit COVID-19, and also prevent workers touching their eyes, another potential route of infection.

How should waste bins be cleaned?

Bins should be cleaned with soap and water. Afterwards the bins should, as usual, be disinfected with 0.1% (equivalent to 1000 parts per million) sodium hypochlorite to deactivate other potentially pathogenic microorganisms.

How should the waste management area be disinfected?

Normal cleaning and disinfection procedures apply for both waste management and storage areas. Make sure they are properly carried out at least once a day. Storage areas should be cleaned each time the waste is collected.

Surfaces should always be first cleaned with soap and water, prior to application of disinfectants. After cleaning, surfaces should be disinfected. The virus is susceptible to most normal disinfectants. Alcohol with at least 70% concentration or sodium hypochlorite at 0.1% (1000ppm) may be used for disinfection of frequently touched surfaces. Ensure the surface or equipment is compatible with the disinfectant product. Available guidance: <https://www.who.int/publications-detail/cleaning-and-disinfection-of-environmental-surfaces-in-the-context-of-covid-19>

What disinfectants can be used against coronavirus?

Disinfection can be done with 0.1% (1000ppm) sodium hypochlorite or alcohol at 70% or higher concentration. Take care to use a disinfectant that is compatible with the product you are disinfecting.

How do we make overalls and other work clothing safe?

Machine washing with warm water at 60–90°C and laundry detergent is recommended. If washing machines are not available, overalls can be soaked in hot water and soap in a large drum using a stick to stir, taking care to avoid splashing. The drum should then be emptied, and the overalls soaked in 0.05% (500ppm) chlorine for approximately 30 minutes. Finally, the overalls should be rinsed with clean water and allowed to dry fully, if possible in sunlight.

Can PPE and face masks be reused?

Many PPE and face masks are not designed to be reused and may not have the same level of protection if they are. Only PPE marked as reusable should be reused, following reprocessing according to the manufacturer's instructions. All other PPE must be disposed of after use.

How do we clean and disinfect reusable PPE?

Reusable PPE should always be cleaned AND disinfected. Soap and disinfectants are effective against the COVID-19. Soap should always be used first when PPE is visibly dirty. Boots, heavy duty gloves, aprons/gowns, goggles/face masks can all be cleaned with soap and warm water and then disinfected. Clean PPE carefully and avoid splashing which might transfer the virus to the face.

Should the waste handler follow the same procedure wearing and removing PPE like a health care worker e.g. doctor/nurse?

Yes, waste workers should use the same procedures for taking off PPE as medics. Face shields can be good for waste workers. They protect the whole face, including eyes, from splashes and can be cleaned with soap and water.

The European Centre for Disease Control has guidelines on how to put on and take off PPE: <https://www.ecdc.europa.eu/en/publications-data/guidance-wearing-and-removing-personal-protective-equipment-healthcare-settings>.

Is it a good idea to disinfect waste by spraying with bleach/hypochlorite solution?

Waste bins and storage areas should be regularly cleaned and disinfected (see separate question) but chemical disinfection of waste is unnecessary and may even increase risks. Research shows that the virus does not re-aerosolise from surfaces, so once it is in a waste bag, it will be safely contained. Disinfectants added to waste are likely to react with other substances there, and not actually inactivate any virus there. Handling and using chemical disinfectants poses their own set of risks and overuse of chlorine sprays has been found to damage lungs⁷, so any non-essential use should be avoided.

5 Waste transportation

Can I transport COVID-19 waste to central treatment facilities?

Yes. Waste from COVID-19 patients is not considered as highly infectious waste and therefore can be transported on public streets like other infectious waste as long as transport that meets national or international requirements is available and any necessary permissions have been obtained.

⁷ Mehtar *et al.* (2016) Deliberate exposure of humans to chlorine-the aftermath of Ebola in West Africa. Antimicrobial Resistance & Infection Control 5(1):45, <https://www.ncbi.nlm.nih.gov/pubmed/27895903>

What are the transport category requirements for this waste?

Infectious waste from healthcare facilities, whether or not it contains COVID-19 waste, must be transported as UN 3291 waste or the national equivalent. Any necessary permissions must also have been obtained. Available guidance:

<https://www.washinhcf.org/wp-content/uploads/2019/03/Guidelines-Transport-of-infectious-waste-UN3291.pdf>

6 Technologies, including green options

Available guidance for further information:

In the 2019 WHO health care waste technology document with further information:
https://www.who.int/water_sanitation_health/publications/technologies-for-the-treatment-of-infectious-and-sharp-waste/en/

UNEP in 2012 produced a compendium of waste treatment technologies including discussion of environmental aspects.

<http://wedocs.unep.org/handle/20.500.11822/8628?show=full>

Health Care Without Harm has a database of waste treatment technology suppliers.
<http://medwastetech.info/>

What innovative measures are in place to avoid waste burning through incineration which poses a great risk of pollutions to the environment, i.e. going green?

Non-incineration waste treatment technologies like autoclaving or microwaving should always be implemented wherever possible. WHO calls on all stakeholders to uphold the Stockholm Convention on Persistent Organic Pollutants and work towards improving safe health care waste management practices to protect health and reduce harm to the environment⁸.

Are mobile incinerators or other mobile treatment technologies recommended?

Mobile waste treatment of any type is more difficult and costly than transporting the waste, so the cost effectiveness needs to be assessed. Non-incineration waste treatment technologies like autoclaving or microwaving should always be implemented wherever possible. WHO calls on all stakeholders to uphold the Stockholm Convention on POPs and work towards incrementally improving safe health care waste management practices to protect health and reduce harm to

⁸ Stockholm Convention on Persistent Organic Pollutants: www.pops.int



the environment. If incinerators are purchased, they should meet the requirements of the Stockholm Convention⁹.

⁹ UNEP (2006) Guidelines on BAT and Guidance on BEP: Section V. Guidance/guidelines by source category: Source categories in Part II of Annex C.
http://chm.pops.int/Portals/0/Repository/batbep_guidelines/UNEP-POPS-BATBEP-GUIDE-08-EN-2.English.PDF