

COVID-19 Emergency Preparedness and Response

WASH and Infection Prevention and Control in Health Care Facilities

Guidance Note

This guidance note is for UNICEF Regional and Country Office WASH staff to help them in their preparedness and response to the current COVID-19 global pandemic. It provides an overview of Infection Prevention and Control (IPC) and its intersection with water, sanitation and hygiene (WASH). It also provides key actions that UNICEF staff can implement to help prevent infection and its spread in health care facilities (HCFs) - that is from human to human- among health care workers and patients, through droplets, and by touching surfaces contaminated with the virus. WASH, including waste management and environmental cleaning are all important for IPC.

The guidance is not comprehensive but provides highlights of key actions UNICEF staff can undertake to prevent infection in health care facilities.

Understanding Infection Prevention and Control:

According to WHO, infection prevention and control (IPC) is a scientific approach and practical solution designed to prevent harm caused by infection to patients and health workers. It is grounded in infectious diseases, epidemiology, social science and health system strengthening. IPC occupies a unique position in the field of patient safety and quality universal health coverage since it is relevant to health workers and patients at every single health-care encounter.

Poor WASH and IPC lead to health acquired infections, transmission of diseases from health facilities to communities and increased use of antibiotics and exacerbate outbreak and spread of infections- in this case- COVID- 19. On the contrary, effective IPC reduces hospital-acquired infections by at least 30% (WHO 2016).

In the context of HCFs, we also differentiate IPC and WASH: IPC cannot be met without WASH services, the later providing the basis for adequate IPC (water, sanitation and hygiene services). It is important to note that with a potential increased patient influx, the demand for water and sanitation services might be higher than the available offer and that it will be essential to support the gap to avoid health service to be disrupted. The below guidance also applies to temporary screening facilities set-up, inside or nearby existing HCFs, or in other buildings requisitioned for this purpose, where IPC-WASH services need to be put in place or strengthened. However, we do not include the screening process itself and medical equipment disinfection and sterilization as part of UNICEF WASH, but we acknowledge that HEALTH can intervene on these aspects. We also must bear in mind that each country MoH has norms and standards in terms of water and sanitation for health facilities, that COs must be aware of.

Important resources to read:

- Joint WHO-UNICEF WASH technical brief: <https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-covid-19>
- WHO technical guidance pages on IPC: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control>
<https://www.who.int/infection-prevention/publications/en/>
- WHO revised online IPC training: <https://openwho.org/courses/COVID-19-IPC-EN>
- CDC Best Practices for Environmental Cleaning in Healthcare Facilities in Resource-Limited Settings <https://www.cdc.gov/hai/pdfs/resource-limited/environmental-cleaning-508.pdf>

Key practices for IPC and WASH in HCFs:

- Hand Hygiene (handwashing with soap and running water or alcohol-based hand rub AHRB/ sanitizer) and safe cough and sneeze etiquette in all settings
- Ensure availability at all time of properly labelled water points for different usages (safe water for drinking; water for handwashing stations; water for cleaning and disinfection of surfaces) in adequate quantity and sanitation services regularly serviced and disinfected
- Environmental cleanliness (cleaning floors, surfaces and any touch points and linen)
- PPE and WASH equipment disinfection (aprons, boots, goggles, waste containers, water containers)
- Infectious and hazardous waste management

What WASH can do to reduce infection risk in health care facilities (HCFs)

First steps include:

- Undertake a quick assessment (using WASH-FIT or national existing tools) to determine HCFs without WASH services and those with the highest patient population which could undermine their safety. In accordance with MoH and WHO, the assessment format can be adapted to assess in priority COVID-19 related key IPC parameters where numerous HCFs are to be evaluated quickly. The WASH assessment will need to be done based MoH priorities in terms of geographical areas and HCFs as not all facilities can be tackled at the same time. In addition, work with Health Systems Strengthening teams in the UNICEF health section to identify communities with multiple deprivations. Capacity assessment must be done, and training health care workers and non-medical staff on IPC measures in coordination with health colleagues may be needed.
- In the framework of the contingency COVID-19 preparedness and response plan, it is likely that MoH will identify HCFs that are utilized for screening only, and those for screening and patient treatment; each type will require a different degree of IPC intervention and coordination with MoH and WHO to clearly share roles & responsibilities. It is important to prepare a plan for providing and improving or upgrading WASH services

and supplies and implement them to support facilities established for screening and treatment. Ensure the continuous availability of critical hygiene and prevention items like soap, hand-sanitizers, chlorine (HTH 60-70%) commercial disinfectant (eg. clorox) and disinfection materials (mop, buckets etc.), drinking water dispensers and personal protection equipment for use of hygienists in HCFs.

- Develop a simple system to monitor functionality of services - in both supported and non-supported HCFs. The following aspects must be frequently monitored: availability of water, chlorinated water at different concentrations (1%, 0,5%, 0,05%), availability of chlorine, detergents and disinfectants, handwashing systems (water/soap, alcohol rub /hand-sanitizers or chlorine water), bathroom and toilets cleanliness (separated from suspected/confirmed cases and other persons), medical and solid waste regular disposal and safe elimination.

Provision of WASH services in HCFs

Water

Is required to support personal hygiene including hand washing with soap as a key preventive measure. Water must be available for regular cleaning and disinfection purposes, cleaning, disinfection, laundry and other activities while sufficient drinking water remains crucial.

Key actions:

- **Ensure that safe and adequate running water is available in HCFs** especially at points of care (screening rooms, examination rooms, injection rooms, wards, treatment rooms, labour rooms, delivery rooms and postnatal care rooms as well as mortuaries), and for environmental cleaning, laundry activities, personal hygiene and decontamination of equipment and surfaces.
- **If there is no running water**, all means must be put in place to secure continuous availability of water for health care facility uses, this may require transporting water or increasing on-site water storage capacity.
- **In areas where trucking water is opted for.**
 - A. Each truck load should be checked for free residual chlorine (>0.5 mg/l) to ensure water safety
 - B. Allow water to settle in the tank before releasing for use.
 - C. Ensure regular cleaning of storage tanks.
- **Ensure the water is safely treated.** A number of measures can be taken to improve water safety starting with collection and safe storage of treated water in regularly cleaned and covered containers. Furthermore, conventional, centralized water treatment methods which utilize common filtration system and disinfection inactivate COVID-19.
- **When possible, provide water stations with pedal-operated taps and devices or water dispensers with sensors to minimize hand contact and reduce the risk of**

infection; avoid installation of metal taps where possible and use elbow operated taps (as in surgical rooms) where feasible; in most cases though, where standard taps are in use, ensure taps are regularly disinfected together with regular handwashing or provide paper towels to use when opening and closing taps and facilities for disposing of towels safely.

Technical Annex:

WHO brief on free residual chlorine measurement:

https://www.who.int/water_sanitation_health/hygiene/envsan/chlorineresid.pdf

Personal hygiene

Hand hygiene and safe behaviors are key IPC measures for preventing the transmission of COVID-19 in HCFs. Hand hygiene must be performed at every point and moment after touching surfaces made of copper, cardboard, plastic and stainless steel as recent studies indicated the virus may remain on these surfaces up to two to three days; touching doors handles, elevator doors and buttons, after removing masks; going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing. There is a need to make hand sanitizers or handwashing facilities positioned in every critical HCF room (entrance, screening and observation, care, near toilets, exit).

Key actions:

- Hand rubbing with an alcohol-based formulation makes hand hygiene disinfection possible at the point of care, is faster, more effective and better tolerated; alternatively, regular hand washing with soap and water, or a 0,05% chlorine solution, is necessary to avoid infection.
- The appropriate technique and time taken to clean hands is also important (20-30 seconds for alcohol rub and 40-60 seconds for handwashing with clean water and soap).
- Where patient care is taking place, hand hygiene facilities, including products (e.g. alcohol-based hand-rub if available, water, soap, sinks) should be **in place, easily accessible, as close as possible** (e.g. within arm's reach) to the point of care to fulfil the right times for hand hygiene in support of patient and health worker safety.
- Support behavioral change amongst health workers, patients and care takers towards effective hand hygiene as part of quality of care and patient safety.
- Avoid close contact with other people - no hugging, kissing/ pecking cheeks, shaking hands.
- Remind, brief and train healthcare workers, patients and clients including mothers on why, when and how to wash hands frequently.
- Ensure the availability of hand washing stations with soap and water or alcohol rub/hand sanitizers in healthcare facilities entrance and exit, near bathroom and toilet, and all points of care (screening, observation, treatment).

Face hygiene messages should also be disseminated to patients and health care workers:

- Avoid touching your eyes, nose, and mouth if hands have not been disinfected previously
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash. Always disinfect or washing your hands with water and soap after coughing or sneezing. Covering the mouth with bare hands while sneezing is not recommended.

Technical Annexes:

WHO Open online course on IPC: WHO IPC MODULE 3 – PPT [HERE](https://openwho.org/courses/COVID-19-IPC-EN)
<https://openwho.org/courses/COVID-19-IPC-EN> (Module3, slide 11-17)

CDC Handwashing guidance:

<https://www.cdc.gov/handhygiene/providers/guideline.html>

CDC cough and sneezing etiquette guidance:

https://www.cdc.gov/healthywater/hygiene/etiquette/coughing_sneezing.html

CDC poster on how to make 0,05% chlorine solution for hand washing with HTH:

<https://www.cdc.gov/vhf/ebola/pdf/chlorine-solution-liquid-mild.pdf>

Environmental cleaning

Environmental cleaning is a key IPC measure for preventing the transmission of COVID-19.

Existing recommended cleaning and disinfection procedures in HCF should be followed consistently and correctly. Laundry and surfaces in all medical environments should be regularly (at least once a day and when a patient is discharged) cleaned. There are many disinfectants, that are active against COVID-19. Currently, WHO recommends the use of:

- 70% Ethyl alcohol to disinfect small areas e.g. reusable dedicated equipment (e.g., thermometers) between uses.
- Sodium hypochlorite at 0.5% (equivalent 5000ppm) for disinfection of surfaces.

Key actions:

- Ensure availability of detergents, soap powder or liquid soap, disinfectant (HTH 65-70%, NaDCC tablets, commercial chlorine bleach) and cleaning materials (wipes, mops, buckets etc.) in targeted HCFs.
- Clean and disinfect frequently touched objects using a regular household cleaning spray or wipe.
- Wipe down with cloth often-touched surfaces such as door and window knobs, doors handles, handrails, chairs, elevator buttons, to remove dirt, followed by thorough disinfection with using preferably hand sprayers.
- Ensure adequate and frequent environmental cleaning of facility floors with warm water and detergent or soapy water, followed by proper disinfection.
- Cleaning staff (hygienist) should be trained on the WHO recommended procedures for donning/doffing PPEs and on decontamination practices.

Technical Annexes:

WHO Open online course on IPC: WHO IPC MODULE 3 – PPT [HERE](https://openwho.org/courses/COVID-19-IPC-EN)
<https://openwho.org/courses/COVID-19-IPC-EN> (Module 3, slides 23-33)

CDC Best Practices for Environmental Cleaning in Healthcare Facilities in Resource-Limited Settings:

<https://www.cdc.gov/hai/pdfs/resource-limited/environmental-cleaning-508.pdf>

CDC PPE Sequence guidance:

<https://www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf>

CDC visual brief to make 0,5% chlorine solution with liquid bleach:

<https://www.cdc.gov/vhf/ebola/pdf/cleaning-handwashing-5percent-liquid-bleach.pdf>

CDC visual brief to make soapy water for surface cleaning:

<https://www.cdc.gov/vhf/ebola/pdf/chlorine-solution-liquid-soapy.pdf>

Northern Ireland Regional IPC Manual, cleaning and disinfection in simple words:

<https://www.niinfectioncontrolmanual.net/cleaning-disinfection>

UNICEF DRC, health care facilities cleaning and disinfection protocols in EVD context (translation): [HERE](#)

Waste management

Solid waste management including HCF infectious waste volumes will increase because of higher generation of personal protective equipment (PPEs) such as gloves, face and nose masks, water-proof protective gowns, rubber boots, rubber apron, and other contaminated materials including paper tissues. To reduce waste volumes, it is advisable to use reusable plastic PPEs that can be cleaned and disinfected with 0.5% chlorine solution (not for the masks, waiting for WHO instructions). Proper collection, storage, transfer, treatment and final disposal of infectious waste from healthcare facilities and COVID -19 treatment units is key.

Key actions:

- Pedal-operated waste collection bins with liners should be available at point of use in healthcare facilities as the preferred choice.
- In the absence of pedal-operated waste bins, bins with swinging lids can be opted as the alternative. Otherwise, open waste containers are better than those which require physical opening/covering by hands.
- Color-coded waste segregation bins according to the 3-bin system (infectious waste, sharps and general waste). Waste bin coding/labelling is key to identify infectious healthcare waste and home-based materials to prevent infection. Waste bin liners should also be procured.
- Waste record keeping is important to understand how much waste is generated per day.

- Storage location to cater for large volumes, transport mechanism in decontaminated trucks and final disposal arrangements through incineration and autoclaves should be arranged in advance.
- Pit burning with the aid of fuel drops such as kerosene can be opted in the absence of incinerators and autoclave.
- Train waste handlers and sanitation crew on donning/doffing PPEs, decontamination, Infection Prevention and Control (IPC) measures.

Technical Annexes:

ICRC Medical waste management guidance:

<https://www.icrc.org/en/doc/assets/files/publications/icrc-002-4032.pdf>

CDC Medical waste management guidance:

<https://www.cdc.gov/infectioncontrol/guidelines/environmental/background/medical-waste.html#i2>

UNICEF DRC, health care facilities medical waste management in EVD context (translation):

[HERE](#)

Overview of technologies for the treatment of infectious and sharp waste from health care facilities.

[HERE](#)

Safe management of wastes from health-care activities: A summary WHO/FWC/WSH/17.05

<https://apps.who.int/iris/bitstream/handle/10665/259491/WHO-FWC-WSH-17.05-eng.pdf;jsessionid=FA873B0E9CB2F888E53B6F88EF30AAE8?sequence=1>

Sanitation

COVID-19 is less likely to be transmitted through fecal-oral routes, the respiratory route remains the major route of transmission. However, precautionary principles apply and all fecal sludge generated from HCFs must be properly disposed of. Around 1 in 5 HCF lack a sanitation service. That means, over 1.5 billion people are going to health centers with no toilets at all^[1]. The COVID-19 emergency response efforts demand the availability of safely managed sanitation systems such as improved latrines or toilets connected to a septic tank or sewer lines to safely confine and treat faeces. As for the water demand, there might be an increased need of toilets and volume of faecal sludge and wastewater to collect and eliminate due to patients influx in HCFs.

Wastewater from washing hands, cleaning, laundry, bathing, flush toilets and teeth brushing activities should be safely collected and treated with chlorine before being sent to sewer lines or infiltrated into a soak-away pit (providing the water table is at least 1.5 m under the bottom of the pit at any time). The potential of contamination to the sanitation crew, the general community, healthcare workers and environment is of course, of critical concern.

Key actions:

- Ensure the safe collection, treatment and final disposal of patient feces and wastewater from screening and treatment HCFs.
- Ensure availability of clean and adequate toilets or latrines, dedicated for suspected and confirmed cases of COVID- 19, complying with local MoH standards.
- Support and advise on the proper use of toilets to avoid droplets splashes.
- Use chlorine solution to pre-treat wastewater from washing hands, cleaning, laundry, bathing and teeth brushing activities.
- Whereas the disinfection power of chlorine kills viruses in wastewater, inactivating viruses in faecal materials shall be done by raising the pH of the faecal materials by lime to higher levels (>12) for 30 minutes.
- Ensure availability of disinfection supplies (chlorine, lime, detergents) and cleaning equipment (backpack and hand sprayers, mops and buckets), as well as protective equipment for workers.

- Liaise with Health teams to ensure that Sanitation staff are trained on the WHO recommended procedures for donning/doffing PPEs.
- Assess the availability of desludging trucks, sewage holding tanks and locations of desludging to ensure they are safely managed and do not represent a risk for the nearby communities.

Technical Annexes:

Protocols for safe disposal of contaminated faecal sludge (based on Liberia Ebola response 2015) [HERE](#)

[i] WHO / UNICEF Joint Monitoring Programme Report for WASH in Healthcare Facilities, April 2019