

International recommendations and Ukrainian legislation on hygiene-related IPC at Health Facilities in Ukraine during the COVID-19 outbreak

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Introduction

An assessment of Health Facilities in the eastern conflict area of Ukraine (REACH, April 2020) found that 60% of facilities put infectious waste into normal garbage disposal systems, including 6 of 18 designated COVID-19 hospitals on Donetsk and Luhansk Oblasts. It found that 72% of facilities reported limited access to hand sanitizer with 11% having no stock at all. 29% of facilities reported problems with their source of drinking water. 55% of health facilities did not have paper towels at all, including 12 out of 18 designated COVID-19 hospitals. When taken together, the data emphasizes that improvements to water sanitation and hygiene conditions at health facilities throughout Ukraine, could make a significant impact in improving Infection Prevention and Control (IPC) within health facilities.

These guidelines aim to help international and local agencies to support local authorities in improving hygiene and IPC, at health facilities, by combining international recommendations and good practice with standards recommended in Ukrainian law.

The document should be read in conjunction with “Key Actions” identified in the WASH and Infection Prevention and Control in Health Care Facilities, Guidance Note ([UNICEF, 2020](#))

Water Quality and Chlorination

SanPiN z1067-14¹ states that water quality of water supplied to the technological needs of a central Sterilisation Department (CSD) must meet the requirements of the State Sanitary Norms and Rules "Hygienic requirements for drinking water intended for human consumption", dated May 12, 2010 № 400, registered in the Ministry Justice of Ukraine on July 1, 2010 for № 452/17747. If tap water does not meet the requirements of technological sterilization equipment, its additional purification (should be) carried out.

Practical Considerations

During the COVID-19 outbreak it seems reasonable that all water used within a health facility will follow the SanPiN (above). WHO and UNICEF recommend at least a 0.5 mg/L free chlorine residual is recorded in all water used in facilities². However, in addition, sodium hypochlorite solutions at 0.1% (1000 ppm) is recommended by WHO for disinfecting surfaces and at 0.5% dilution (5000 ppm) for disinfection of blood or bodily fluids spills in health-care facilities³.

¹ SanPiN z1067-14 <https://zakon.rada.gov.ua/laws/show/z1067-14>

² WASH and Infection Prevention and Control in Health Care Facilities, Guidance Note (UNICEF, 2020)

³ Water, sanitation, hygiene and waste management for the COVID-19 virus, Interim guidance, (WHO, 23/4/20)

Simple water quality testing options would be useful to help hospital staff and non-technical workers to easily understand whether water has been adequately chlorinated. Useful options include pool testers and paper strip tests, for example:

- Pool testers as used by UNICEF <https://supply.unicef.org/s5006051.html>
- Paper strip testers <https://supply.unicef.org/s5006056.html>

Please note that many other equivalent brands also exist.

Water Storage

International guidelines (SPHERE) recommend the following regarding water volume usage and necessary water storage at healthcare facilities during an outbreak⁴

- 1) The volume of water storage recommended should be 48 hours' capacity for each location;
- 2) The quantity of water per day at health facilities may be assumed to be
 - 5 litres per outpatient per day, plus
 - 60 litres per inpatient per day in cholera treatment centres (for comparison 300–400 litres per patient per day for a viral haemorrhagic fever treatment centre).

Practical Considerations

Although no specific guidance exists for a coronavirus medical facility, the volume of water storage needed for a cholera treatment centre might be a good start: (60 litres per inpatient, per day). Note that some international agencies have suggested that 100 L per inpatient per day could be more appropriate, due to the repeated need for washing hands.

Additional practical steps might include:

1. In the Ukrainian context it should be possible to have a conversation with hospital staff to determine the approximate daily water volume needed (handwashing, cleaning, drinking, disinfecting) and simply multiply by two (for 48 hours' water storage), to decide what water storage volume is needed overall.
2. Cleaning of water storage tanks themselves can be coordinated with the local vodokanal or in accordance of recommendations made by the drinking water supplier.

Handwashing

Note that different designs of handwashing station might be considered for use in health facilities in Ukraine, however some guidance about permanent handwashing basins and taps is given in the national standards (SanPiN)

⁴ Sphere Handbook (2018) [file:///C:/Users/mbuttle/Downloads/Sphere-Handbook-2018-EN%20\(1\).pdf](file:///C:/Users/mbuttle/Downloads/Sphere-Handbook-2018-EN%20(1).pdf)



Metal temporary handwashing station



Plastic temporary handwashing station

SanPiN 5179-90⁵ states that taps for wash basins should be elbow-operated in infectious diseases areas, as well as for washbasins used by staff. It also states that in infectious disease departments there should be 1 shower cubicle per 10 people in infectious and tuberculosis departments, plus one shower per 15 staff (minimum one shower exclusively for staff). There should be a separate room for female staff, also with a shower. Incidentally the temperature of hot water in children's wards should not exceed 37 deg C, but it seems that other rooms can simply use mixer taps to obtain the desired temperature.

SanPiN z1067-14⁶ mentions that liquid soap should be used, though its not clear if that *only* refers to Central Disinfection Departments.

Practical Considerations

- In the Ukrainian case it is unlikely that plastic handwashing stations will be appropriate at health facilities, even though these could be considered for other locations in the community.
- WHO recommends that hand sanitizer for use in the COVID-19 response should contain a minimum of 70% alcohol. Please note that supposed active ingredients in water-based sanitizers may not be effective against COVID-19.
- Consider providing paper towels, as well as liquid soap and hand sanitizer.
- Where soap is not present, UNICEF and WHO recommend using a 0.05% chlorine solution to wash hands⁷. However soap should be available throughout Ukraine.
- The absolute quantity of sanitizer needed per health facility is not clear and needs to be defined further.

⁵ SanPiN 5179-90 <https://zakon.rada.gov.ua/laws/show/n0003400-90>

⁶ SanPiN z1067-14 <https://zakon.rada.gov.ua/laws/show/z1067-14>

⁷ WASH and Infection Prevention and Control in Health Care Facilities Guidance Note (UNICEF, 2020)

Sanitation (Excreta disposal)

SanPiN 5179-90⁸ states that waste should either be treated by municipal wastewater treatment facilities, or “locally” ensuring full biological treatment. The number of toilets is stated as one per 15 male patients (equal numbers of urinals and regular toilets) and one toilet per 10 female patients.

Practical Considerations

Viruses have been found in the faeces of COVID-19 patients, however it is not known if it is possible for the disease to be transmitted from one person to another via this route and the risk of that happening is perceived to be low based on data from previous outbreaks of diseases caused by related coronaviruses, such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS)⁹.

It is important to have a conversation with cleaning and maintenance staff at each health facility, to understand where sewage from the facility goes to. Also, to discuss the dangers of dealing with faecal matter while cleaning toilets or for when septic tanks need emptying

Best practices for protecting the health of sanitation workers should be followed. Workers dealing with sewage should wear appropriate PPE, which includes protective outerwear, heavy-duty gloves, boots, goggles or a face shield, and a mask; they should perform hand hygiene frequently; they should avoid touching their eyes, nose or mouth with unwashed hands, and they should practice social distancing while working.

Medical Waste Disposal

SanPiN 5179-90¹⁰ states that (outdoors) garbage containers with tight-fitting lids should be used outside, for which special platforms with asphalt or concrete pavement, should be provided, allowing disinfection and washing of those sites. Garbage containers must be at least 25 m from wards and medical diagnostic buildings. Waste bins should be systematically rinsed and disinfected. Garbage and food waste collection should be carried out daily. Additional outdoor bins should be provided at 50 m spacings, and these should be emptied daily and cleaned.

The same **SanPiN (5179-90)** also states that “specific hospital waste” (postoperative, pathological etc.) is subject to mandatory centralized burning in incinerators. Incinerators up to 100 kg / h can be located within the hospital’s hospice at a distance of at least 50 m, and incinerators of more than 100 kg / hour should be located at least 100 m from residential buildings and 50 m from hospital buildings. These distances might be increased depending on local conditions.

SanPiN z1067-14¹¹ mentions that different garbage containers must be clearly identified by marking.

⁸ SanPiN 5179-90 <https://zakon.rada.gov.ua/laws/show/n0003400-90>

⁹ CDC <https://www.cdc.gov/coronavirus/2019-ncov/php/water.html>

¹⁰ SanPiN 5179-90 <https://zakon.rada.gov.ua/laws/show/n0003400-90>

¹¹ SanPiN z1067-14 <https://zakon.rada.gov.ua/laws/show/z1067-14>

Statement of the State sanitary and anti-epidemic rules and norms concerning medical waste management (**Order 325**)¹² states that:

- Disinfection by physical (heat, microwave, radiation) or chemical (only for food waste or if physical methods don't exist on site, in which case it becomes mandatory). Category B waste cannot leave site without disinfection; and
- Liquid waste should be disinfected before entering sewers

Practical Considerations

Note that according to the WHO¹³

- General Waste would require black bags
- Infectious Waste and/or Pathological Waste: Yellow bags (preferably with biohazard symbol)
- Chemical and Pharmaceutical Waste: Brown bags
- Note that Sharps Waste would need puncture-proof containers (yellow).

In assessing improvements to medical waste management it is important to discuss with staff where waste is taken, in particular “infectious waste” such as used PPE. It should be carefully stored on site, then incinerated or removed to a specialized waste handler.

Regarding the treatment with chemicals of Medical Category B (infectious) waste, at hospital level, note that some medical waste in Ukraine is reportedly treated with chlorine solution, on site, which could be problematic:

- It may not guarantee the disinfection of soiled material: heavily soiled or organic waste will use up, fully, the oxidizing potential of any active chlorine very quickly (no matter how strong the solution), leaving pathogens treated on all but the most surface layer;
- Chlorination with a solution may be ineffective on waterproof PPE as the waste will entrap air and will prevent chlorine from reaching all of the surfaces;
- The process will require drying of the waste, before transportation. If not done properly this may expose waste handling personnel to an infection risk, and might lead to dripping wet bags of infectious waste being loaded for transport. This is an obvious health hazard;
- It may add to the overall weight and cost of transported waste and is time-consuming.

Overall it may be better to focus on using the correct yellow heavy-duty bags for infectious waste and try to ensure incineration is completed efficiently, even at an off-site location. However a shortage of incineration at facilities previously highlighted to international organisations by some oblasts.

Note that often there may also be some simple operational improvements that could improve the handling of this waste at a health facility: increasing the frequency of trucks removing infectious garbage, or just checking where the waste is going to. Health facilities may only realize that they need an incinerator or an efficient burn pit on site during an active discussion on medical waste disposal.

¹² <https://zakon.rada.gov.ua/laws/show/z0959-15>

¹³ Safe management of wastes from health-care activities – a summary (WHO, 2017)

Laundry

International organizations have reported that in some parts of Ukraine it is recommended that all linen be first soaked in 0.1% chlorine for 60 minutes before leaving the infectious zone of a hospital.

Practical considerations

As per solid waste handling, chlorine is unlikely to neutralize all pathogens in the laundry, some of which will not be reached before the active chlorine is neutralized. Note that:

- Using chlorine on heavily soiled linen may not be effective unless very large quantities are used;
- Soaking linen in chlorine for 60 minutes will damage the sheets leading to additional expense;
- Soaking linen in chlorine before washing the sheets may damage the washing equipment; and
- The process may give a false sense of protection, and is time-consuming.

Cleaning

SanPiN 5179-90¹⁴ states that cleaning of the outside territory should be carried out daily.

Indoors wet cleaning (mopping, wiping furniture, equipment, window sills, doors etc.) should be carried out at least 2 times a day, using approved detergents (State Sanitary and Epidemiological Service, SSES, approved) and disinfectants (Ministry of Health, MoH, approved). Window glass wiping should be carried out at least once per month from the inside. Cleaning equipment (buckets, basins, rags, mops, etc.) should have a clear marking indicating the premises and types of cleaning work, used strictly for its intended purpose and stored separately. Premises requiring special hygiene measures including infectious wards, should experience periodic exposure to stationary ultraviolet (UV) or mobile bactericidal lamps at the rate of 1 Watt of power lamps per 1 cubic meter of room.

SanPiN z1067-14¹⁵ mentions that to prevent cross-infection, a system of "two buckets" should be used: 4 separate containers (buckets) are used for cleaning and disinfection: two for washing and disinfection of surfaces (walls, furniture, equipment), and two for floor washing.

Practical considerations

According to WHO provision of PPE should be considered for non-medical staff. WHO recommends the following level of personal protective equipment for cleaners at healthcare facilities¹⁶:

- Medical mask
- Gown
- Heavy duty gloves

¹⁴ SanPiN 5179-90 <https://zakon.rada.gov.ua/laws/show/n0003400-90>

¹⁵ SanPiN z1067-14 <https://zakon.rada.gov.ua/laws/show/z1067-14>

¹⁶ Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19), WHO, Interim Guidance 27 February 2020.

- Eye protection (if risk of splash from organic material or chemicals).
- Boots or closed work shoes

This level of PPE for cleaners applies for:

- Entering the room of COVID-19 patients (to clean).
- Cleaning a consultation room after and between consultations with patients with respiratory symptoms.
- Cleaning the area where people with fever are being screened.
- Cleaning isolation area
- Cleaning (an ambulance or other vehicle) after and between transport of patients with suspected COVID-19 disease to the referral healthcare facility.

Also

- It is likely that a 0.5% hypochlorite solution and a 0.1% hypochlorite solution would need to be made up daily, for cleaning purposes (the strength of such solutions decreases quickly over time).
- When considering water quality for health facilities it is important to discuss with staff who can make appropriate cleaning solution during the outbreak, and where it will be stored. It is recommended to discuss with staff how cleaning solutions are stored, separated physically from drinking water, and how cleaning solutions are labelled.
- It could be useful to discuss with cleaners how often they clean (during the pandemic, compared to previously) and if they have enough staff. Discuss the PPE available to them, and what PPE is appropriate.
- Practices for disinfecting ambulances such as spraying, may need to be replaced by “wiping” to avoid creating aerosols.

Other Issues

Working effectively

Regarding IPC and hygiene, it is often advisable to approach the head nurse and, if possible, some of the cleaners, directly, since doctors are normally focused on issues related to clinical practice and case management.

Working Safely

This document does not pretend to give expert advice on how to work safely in health facilities during the COVID-19 outbreak in Ukraine. Expert advice should be sought.

Some commonsense measures that could be useful for international organisations visiting or working at Ukrainian health facilities, could include:

- Make sure the visit is adequately coordinated with local authorities, staff of the health facility, and with other humanitarian organisations;
- Conduct a risk assessment before visiting any Health Facility; and
- Minimise the number of physical visits

Internationally available resource documents

Documents	Location	Comments
WASH in Healthcare Facilities (UNICEF)	https://washcluster.net/covid-19/wash-and-infection-prevention-and-control-health-care-facilities-23-march-2020-eng-fr-sp English, French, Spanish Ukrainian and Russian Translations available on the WASH Cluster Website	Key document outlines practical steps and approaches
Water Sanitation Hygiene and Waste Management for the COVID-19 virus (WHO)	https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-the-covid-19-virus-interim-guidance	Interim Guidance covering many key aspects.
Water Sanitation and Hygiene in healthcare Facilities (WHO/UNICEF)	https://www.who.int/water_sanitation_health/publications/wash-in-health-care-facilities/en/	Introductory approaches, includes “WASH Fit Tool” introduction.
Best Practices in Environmental Cleaning at healthcare Facilities (CDC)	https://www.cdc.gov/hai/prevent/resource-limited/index.html	Detailed cleaning practices. Understanding how many staff are needed. Useful checklists.
Emergency Water Supply Planning Guide for Hospitals and Healthcare Facilities (CDC)	https://www.cdc.gov/healthywater/emergency/ewsp.html	Planning water supply for a hospital or Health Facility in detail!
Technologies for HCF Waste	https://www.who.int/water_sanitation_health/publications/technologies-for-the-treatment-of-infectious-and-sharp-waste/en/	Comprehensive guide on how to deal with HCF waste
Waste management	https://www.who.int/water_sanitation_health/publications/safe-management-of-waste-summary/en/	Safe management of wastes from health-care activities – a summary
SPHERE Guidelines	https://handbook.spherestandards.org/en/sphere/#ch006_008	Overview of international standards
WHO local production of sanitizer	https://www.who.int/infection-prevention/tools/hand-hygiene/handrub-formulations/en/	Guidance on how to produce suitable hand sanitizer locally
CDC Mixing 0.5% Chlorine solution poster	https://www.cdc.gov/vhf/ebola/pdf/cleaning-handwashing-5percent-liquid-bleach.pdf	How to mix 0.5% Chlorine cleaning solution
WASH Cluster Key Guidance	https://washcluster.net/Covid-19/Key-guidance	Online set of key WASH Cluster guidance for COVID-19