

Cox's Bazar WASH Sector technical guidance on disinfection procedures for COVID-19 response (non-health settings) - v. 02

The following recommendations are applicable for "essential" and "critical" humanitarian response scenarios, both for host communities and camp settings.

Last update	11.04.2020
General precautions when dealing with chlorine-based products	<ul style="list-style-type: none"> • Prepare chlorine dosing in an aerated space. Ideally a dedicated space to changing/wearing PPE should be identified, including a space for keeping and storing disinfection materials. Production of gases will anyway damage all carton boxes present in the same room, thus it is recommended to store HTH on its own in a separate area from general stock. After a while it will also damage its own carton packaging, thus long storage (more than 6 month) is not recommended for containers in carton boxes. • Use gloves, goggles and facemasks when dealing with chlorine. • Prepare mother solution and chlorine mix in clean, non-metallic containers, opaque and covered. Add chlorine to water, not the other way around. • Calcium hypochlorite (70%) - HTH is preferred over Sodium hypochlorite. HTH solution can be kept for 3/4 days maximum, in an airtight plastic container/jerrycan¹. HTH chlorine powder for solution should be not taken directly from the 50 kg. bucket but stored in a smaller, tight container, to avoid chlorine to loose its effectiveness. • If chlorine solution is prepared with Sodium Hypochlorite (bleach), it can be kept for maximum 24 hours.
Small equipments (Pooltesters, tablets/phones, turbidity tubes, fingerprint devices etc...)	
Applicable to:	Offices and field locations
Materials needed:	Locally available disinfectant (found in pharmacies), with 70% ethanol ; in alternative hydrogen peroxide (H ₂ O ₂) can be used (usually available in pharmacies as well, however not recommended by MSF), gloves. Alternativley, chlorine based (0.1%, see below) solution can be used for this purpose, making sure not to used it on electronic devices and knowing plastic could be damaged by chlorine.
Concentration:	n/a
Use:	Min. 1 minute contact time.
Frequency:	After every use. If the device is carried and used "house to house", disinfection procedure should take place immediatly after exiting the house.
Precautions:	Alcohol or hydrogen peroxyde should be applied to a cloth, which is then used to wipe the device. Don't use spray or chlorine to desinfect small electronic equipments.
Source:	https://www.journalofhospitalinfection.com/article/S0195-6701(20)30046-3/abstract
Surfaces (floors, desks, walls...)	
Applicable to:	Offices and field locations.
Materials	Chlorine based solution, regular HH detergent, mops and buckets, PPE (gloves, gumboot and masks).
Concentration:	0.1%
Use:	First step: washing with water and soap; second step: rinse with chlorine solution. For COVID-19 affected HH: WASH teams can provide the HH with chlorine solution with explanation of the process. This intervention is logistically applicable up to a critical number of cases and upon IP resources. If limited cases/clusters, WASH partners could directly implement the disinfection at HH level.
Frequency:	Every day for office spaces. Within 12 hours of detection of COVID-19 case, at HH level.
Precautions:	Efficacy of all disinfectants is affected, to different degrees, by organic material: before applying disinfectant it is necessary to clean the surface with normal detergent. HH members should be provided with gloves and masks to perform HH desinfection. Messages on how to implement desinfection procedures have to be discussed with affected HH.

¹ ACF, *Water, Sanitation and Hygiene for populations at risk*, 2005.

Source	https://www.journalofhospitalinfection.com/article/S0195-6701(20)30046-3/abstract and WHO, UNICEF, <i>Water, sanitation, hygiene and waste management for the COVID-19 virus, Updated technical note, 2nd edition</i> , 6 April 2020.
Water for handwashing use	
Applicable to:	Offices and field locations.
Materials:	HTH or bleach, PPE for staff and HH members.
Concentration:	0.05%
Use:	Chlorinated water to be provided at HW stations at health/collective centers, including distributions sites. IP can adopt this also for office spaces.
Frequency:	n/a
Precautions:	Handwashing with non chlorinated water and soap is considered enough to ensure good hand hygiene. Handwashing with chlorine has to be considered as short-term use only. Handwashing with chlorine solution is not systematically applicable for camps setting (i.e. handwashing stands at latrines' level) because difficult to manage on large scale. This solution is recommended to be adopted only in crowded settings, for extra protection (i.e. distribution sites), if soap is likely to be stolen (i.e. public spaces) or if there's no soap available. MSF is recommending chlorine solution for handwashing only if no soap available and not for health care centers. Note: when hand is visibly dirty, chlorine solution or alcohol based sanitizer will not be effective to disinfect your hands. Always use water and soap to remove any dirt.
Source:	WHO, UNICEF, <i>Water, sanitation, hygiene and waste management for the COVID-19 virus, Updated technical note, 2nd edition</i> , 6 April 2020, SPHERE Handbook, 2018, CDC.
Latrines, water points (including mosques), drainages, bathing shelter, heavy duty tools, reusable PPE	
Applicable to:	Field locations.
Materials:	HTH, sprayers, PPE for staff.
Concentration:	0.5%
Use:	Application via portable back sprayer.
Frequency:	1 time per day (to increase up to 2 for tap stands and communal latrines if possible).
Precautions:	High pressure sprayers are not recommended due to the risk of aerosolization of chemicals (MSF). Discuss with Imams regarding disinfection of mosque WASH facilities before implementing.
Source:	SPHERE Handbook 2018 (0.2% - cholera, 0.5% - Ebola) and WHO, UNICEF, <i>Water, sanitation, hygiene and waste management for the COVID-19 virus, Updated technical note, 2nd edition</i> , 6 April 2020.
Clothes and linen	
Applicable to:	Field locations.
Materials:	Buckets/pans, HTH or bleach.
Concentration:	0.05%
Use:	After regular laundry process (water and soap), soak clothing and linen of affected person with chlorine based solution. WHO and Sphere (non COVID-19 specific) recommend chlorine solution of 0.05% soak for 30 minutes. Note: that MSF recommends 0.1% chlorine solution for 5 minutes soaking time. After soaking time clothes and lined should be rinsed.
Frequency:	1 time after the case has been detected. For field staff can be done every day (personal clothes).
Precautions:	Orientation should be given to staff on how to manage bleach at HH level. Do not shake dirty laundry. This will minimize the possibility of dispersing virus through the air.
Source:	SPHERE Handbook, 2018, CDC website, MSF website, WHO, UNICEF, <i>Water, sanitation, hygiene and waste management for the COVID-19 virus, Updated technical note, 2nd edition</i> , 6 April 2020.

Stock solution and dilution

Guide to quantities (HTH)

- 1 tablespoon contains about 15 g or 15 ml/1 teaspoon contains 5 g or 5 ml of product

Guide to quantities (bleach)

- 1 cup/glass contains about 200/250 ml of product

Note: the quantities are referring to 10 l solution (not water only). Example: to get to 1% concentration for 10 l solution using bleach, the quantity of bleach is 2 l and the quantity of water is 8 l (not 10 l water only).

The ideal container to use for solution preparation is a plastic 10 l jerrycan (opaque). Water to be used for dilution should have turbidity less than 5 NTU (ideally 0 NTU) and with Ph less than 8. Never put water into chlorine product to avoid splashing. After dilution process, **wait 30 min. before use.**

HTH (70%) - preferred	
Concentration	Quantities per 10 l solution
0.05%	7 g
0.1%	14 g
0.5%	70 g
1%	140 g
Sodium hypochlorite - liquid laundry bleach at 5% (Locally available in the market as home cleaning product)	
Concentration	Quantities per 10 l solution
0.05%	100 ml
0.1%	200 ml
0.5%	1000 ml/1 l
1%	2000 ml/2 l

A part from HTH and bleach, **other chlorine-based products can be used**, as follow:

Summary with indications on how to get to 1 liter of 1% chlorine solution			
Chlorine Source	% Available Chlorine	Quantity Required	Approximate Measure
HTH	70	14 g	1 heaped tablespoon
Bleaching Powder	34	30 g	2 heaped tablespoons
Stabilized Tropical Bleach	25	40 g	3 heaped tablespoons
Liquid household disinfectant	10	100 ml	7 tablespoons
Sodium hypochlorite (bleach)	5	200 ml	14 tablespoons
Antiseptic solution	1	1 l	No adjustment needed

Sources of this document

- <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control>
- <https://www.cdc.gov/vhf/ebola/pdf/cleaning-hand-washing-with-chlorine-powder.pdf>
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- [https://www.journalofhospitalinfection.com/article/S0195-6701\(20\)30046-3/abstract](https://www.journalofhospitalinfection.com/article/S0195-6701(20)30046-3/abstract)
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