# CORRIGENDA, 5 March 2024

**Infection prevention and control and water, sanitation and hygiene measures in health-care settings and shelters/congregate settings in Gaza: technical note, 22 February 2024 (WHO/oPt/IPC_WASH/2024.1)**

## Page iv, lines 2–6

*Delete:* World Health Organization (WHO) gratefully acknowledges the many individuals and organizations who contributed to this technical note, which include Ministry of Health State of Palestine, United Nations Relief and Works Agency (UNWRA), WASH Cluster State of Palestine, Health Cluster occupied Palestinian territory (oPt), Global Health Cluster, IPC Public Health Emergency Working Group, WASH in Public Health Emergency Network, UNICEF, external peer reviewers and WHO at the three levels (individual names listed below).

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## Page iv, line 12–13

*Delete:* **United Nations Relief and Works Agency (UNWRA)**
Akihiro Seita; Hamad Khalil; Julianna Smith; Natalie Fischer.

*Insert:* **United Nations Relief and Works Agency (UNRWA)**
Zoheir Elkhatib; Natalie Fischer; Hamad Khalil; Wisam Mubarak; Akihiro Seita; Julianna Smith.

## Page 13, lines 12–21

*Delete:*

- Maintain gender-disaggregated toilets for 1 toilet/20 users, and separate toilets for staff with minimum twice-daily cleaning, disinfection and refilling of hygiene supplies, including those used for handwashing *(2, 5, 18)*.
- Handwashing stations or portable/Veronica buckets (section 2.2) should be installed within five metres of the toilets – for both immediate and longer-term solutions with each toilet *(5, 18)*.
- All toilets must be equipped with safety locks that can be activated from the inside, and all fittings should be heavy-duty/vandal-proof *(18)*.
- Regular minimum cleaning/maintenance contracts are required for all toilets *(18)*.
- Wastewater from sinks, showers, and toilets with water discharge (sewage) must be connected to sewage systems or on-site disposal through septic tank/cesspit and soakaway pit. Lime use for stabilization of sludge in treatment units or in situ disinfection of wastewater can be considered if resources are available *(19)*.

*Insert:*

- Maintain gender-disaggregated toilets for 1 toilet/20 users, and separate toilets for staff with minimum twice-daily cleaning, disinfection and refilling of hygiene supplies, including those used for handwashing (2, 5, 9).
- Handwashing stations or portable/Veronica buckets (section 2.2) should be installed within five metres of the toilets – for both immediate and longer-term solutions with each toilet (5, 9).
- All toilets must be equipped with safety locks that can be activated from the inside, and all fittings should be heavy-duty/vandal-proof (9).
- Regular minimum cleaning/maintenance contracts are required for all toilets (9).
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## Page 14, Table 7, column 1, lines 5–9

*Delete:*

- Take precautions when using or when working around sharp devices. Handling of sharps and disposal should follow standard precautions (sharps safety). Provide puncture-proof sharps container for safe disposal of sharps waste (20).

*Insert:*

- Take precautions when using or when working around sharp devices. Handling of sharps and disposal should follow standard precautions (sharps safety). Provide puncture-proof sharps container for safe disposal of sharps waste *(19)*.

## Page 14, Table 7, column 1, lines 18–21

*Delete:*

- Apply protocols of hazardous waste management and inform workers about safety precautions. Provide the following PPE based on the risk assessment of dealing with hazardous waste (20):

*Insert:*

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## Page 15, lines 13–15

*Delete:* There is no evidence to suggest that the presence of dead bodies inherently leads to disease or epidemics *(21)*. The bodies of people whose deaths were caused by traumatic events such as warfare do not pose a health hazard. They may pose a health risk only in cases where an infectious disease was the cause of the mortality *(21)*.

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**Page 18, lines 20–22**

*Delete:*

- Point-of-use water treatment: Provide approved, point-of-use water treatment as per WHO's evaluation (22), which includes household waste treatment filters or chlorine tablets such as Aquatabs (refer to Annex 3 for use of Aquatabs).

*Insert:*

- Point-of-use water treatment: Provide approved, point-of-use water treatment as per WHO's evaluation *(22)*, which includes household waste treatment filters or chlorine tablets such as *Aquatabs* (refer to Annex 3 for use of Aquatabs).

**Page 18, lines 29–33**

*Delete:*

- In cases where there is limited access to and availability of drinking-water, seawater or saline water can be used for cleaning, toilet flushing, bathing, etc. Doing so will save on supplies of drinking-water. In such cases, inspect areas where seawater is collected to ensure that it is safe to be used for these purposes. WHO has not proposed a health-based threshold for salinity in drinking-water as the contribution from drinking-water to daily sodium intake is small (23); however, it is unacceptable for drinking.

*Insert:*

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**Page 19, Table 9, Column 2, lines 22–23**

*Delete:*

- Detailed guidance is available on menstrual hygiene management for women in the Gaza Strip (24).

*Insert:*

- Detailed guidance is available on menstrual hygiene management for women in the Gaza Strip (23).

**Page 23, lines 4–23**

*Delete:*


18. WASH in Health Care Facilities (2023). WASH FIT portal | WASH in Health Care Facilities [web site]. (WASH FIT Fact Sheets | WASH in Health Care Facilities (https://washinhcf.org))
19. Sozzi E, Fabre K, Fesselet JF, Ebdon JE, Taylor H. Minimizing the risk of disease transmission in emergency settings: novel in situ physico-chemical disinfection of pathogen-laden hospital wastewaters. PLOS Neglected Tropical Diseases. 2015 Jun 25;9(6):e0003776. doi: 10.1371/journal.pntd.0003776
20. Prüss A, Emmanuel J, Stringer R, Pieper U, Townend W., et al. Safe management of wastes from health-care activities, second edition. Geneva: World Health Organization; 2014. (https://iris.who.int/handle/10665/85349, accessed 13 January 2024)
21. Disposal of dead bodies in emergency conditions [website]. Geneva: World Health Organization; 2013( https://cdn.who.int/media/docs/default-source/wash-documents/who-tn-08-disposal-of-dead-bodies. pdf?sfvrsn=530b5835_4&download=true, accessed 13 January 2024)

22. Evaluating household water treatment options: health-based targets and microbiological performance specifications. Geneva: World Health Organization; 2011 (https://iris.who.int/handle/10665/44693, accessed 13 January 2024)
23. Guidelines for drinking-water quality: fourth edition incorporating the first and second addenda, 4th ed + 1st add + 2nd add. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/352532, accessed 13 January 2024)
24. Menstrual Health Management Strategy: Gaza Strip. New York City: United Nations Population Fund; 2023 (https:// arabstates.unfpa.org/en/publications/menstrual-health-management-strategy-gaza-strip, accessed 13 January 2024)

*Insert:*

18. Sozzi E, Fabre K, Fesselet JF, Ebdon JE, Taylor H. Minimizing the risk of disease transmission in emergency settings: novel in situ physico-chemical disinfection of pathogen-laden hospital wastewaters. PLOS Neglected Tropical Diseases. 2015 Jun 25;9(6):e0003776. doi: 10.1371/journal.pntd.0003776

19. Prüss A, Emmanuel J, Stringer R, Pieper U, Townend W., et al. Safe management of wastes from health-care activities, second edition. Geneva: World Health Organization; 2014. (https://iris.who.int/handle/10665/85349, accessed 13 January 2024)

20. Disposal of dead bodies in emergency conditions [website]. Geneva: World Health Organization; 2013( https://cdn.who.int/media/docs/default-source/wash-documents/who-tn-08-disposal-of-dead-bodies.pdf?sfvrsn=530b5835_4&download=true, accessed 13 January 2024)

21. Evaluating household water treatment options: health-based targets and microbiological performance specifications. Geneva: World Health Organization; 2011 (https://iris.who.int/handle/10665/44693, accessed 13 January 2024)

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23. Menstrual Health Management Strategy: Gaza Strip. New York City: United Nations Population Fund; 2023 (https:// arabstates.unfpa.org/en/publications/menstrual-health-management-strategy-gaza-strip, accessed 13 January 2024)

**Pages 31–34**

*Delete* Annex 3 on pages 31–34 and replace with the following four pages.

These corrections have been incorporated into the electronic file.

# Annex 3

## Water quality and waste management

# Annex 3: Water quality and waste management

## Water quality

- Preparation of chlorine solutions

The following chlorine solutions are required for different WASH and IPC measures in health settings:

### Table A3.1 Chlorine solutions for routine cleaning and disinfection

| Chlorine strengths, uses and preparation of solutions for routine disinfection | | | | |
|---|---|---|---|---|
| **Types of chlorine compounds** | **Different concentrations of chlorine use** | | | |
| | **0.05%** | | **0.1%** | **0.5%** |
| **HTH (70% active chlorine)** | 0.7 grams in 1 litre of water or half tablespoon in 10 litres of water. | | Add TWO tablespoons (30g) of high-test hypochlorite (HTH) (70%) to 20 liters of water in a bucket. | 10 tablespoons of HTH (70% chlorine) to 20 liters of water in a bucket. |
| **Sodium hypochlorite (bleach) at 5% active chlorine** | 10 ml of bleach in 1 litre of water or 1 tablespoon in 1 litre of water. | | 400mL of liquid bleach into a 20L bucket, then fill with water to 20L mark (or pour 1 part liquid bleach and 49 parts water for any volume). | 1 part liquid bleach and 9 parts water into a bucket.<br><br>Repeat until full. |
| **Contact time** | 40-60 seconds. | 30 minutes. | 10 minutes. | 10 minutes. |
| **Use** | Hand hygiene (if soap or ABHR not available). | Linen/ laundry after cleaning with detergent if hot water is not available.<br><br>For disinfection of utensils/ plates/ kitchen surfaces. | Surface disinfection after cleaning with soap and water. | Blood/body fluid spills (vomit, feces) after containing spill with cloth or paper towel.<br><br>Soiled PPE (heavy duty gloves, heavy duty aprons). |

Adapted from the following sources:

- Center for Disease Control and Prevention. How to make 0.1% chlorine solution to disinfect surfaces in healthcare settings [website] https://www.cdc.gov/coronavirus/2019-ncov/downloads/hcp/non-us-settings/chlorine-solution-healthcare-settings.pdf
- Decontamination and reprocessing of medical devices for health-care facilities. Geneva: World Health Organization; 2016. https://iris.who.int/handle/10665/250232
- Center for Disease Control and Prevention. How to make strong chlorine solution from bleach [website] https://archive.cdc.gov/www_cdc_gov/coronavirus/2019-ncov/downloads/Appendix4.pdf
- Five keys to safer food. WHO Poster. https://www.who.int/publications/i/item/WHO-SDE-PHE-FOS-01.1

### Table A3.2. Chlorine solutions according to use for Cholera only.

| Chlorine solutions according to use | | | |
|---|---|---|---|
| **Types of chlorine compounds** | **Different concentrations of chlorine use** | | |
| | **0.05%** | **0.2%** | **2%** |
| **HTH (70% active chlorine)** | 0.7 grams in 1 litre of water or half tablespoon in 10 litres of water. | 3 grams in 1 litre of water or 2 level tablespoons in 10 litres of water. | 30 grams in 1 litre of water or 2 level tablespoons in 1 litre of water. |
| **Sodium hypochlorite (bleach) at 5% active chlorine** | 10 ml of bleach in 1 litre of water or 1 tablespoon in 1 litre of water. | 40 ml of bleach in 1 litre of water or 4 tablespoons in 1 litre of water. | 400 ml of bleach in 1 litre of water or 2 cups in 1 litre of water. |
| **Use** | Washing hands (when soap and ABHR are not available), utensils and dishes, PPE (gloves, apron, goggles, etc.). | Disinfection of all parts of the wards, floors, latrines, kitchen, shower/bathing units, beds or cots, patient's bedding and linens, clothing, utensils, containers and dishes, waste containers and covers, vehicles used for transporting patients. | Disinfection of vomit and stool. |
| **Precautions** | Solution must be changed every day and protected from heat and light. | Use with gloves .<br><br>Solution must be changed every day and protected from heat and light. | Use with gloves.<br><br>Solution must be changed every two days and protected from heat and light. |

Source: Global Task Force on Cholera Control. Technical Note: Water, Sanitation and Hygiene and Infection Prevention and Control in Cholera Treatment Structures. Geneva: CTFCC; 2019.

## Different concentrations of Aquatabs for specified quantities of water

### Table A3.3. Different types of Aquatabs.

| Chart of different types of Aquatabs for disinfection of water in specified quantities | |
|---|---|
| **NaDCC content per tablet** | **Litres of water treated per tablet** |
| • 8.5 mg | • 1 litre of water |
| • 33 mg | • 5 litres of water |
| • 67 mg | • 10 litres of water |
| • 167 mg | • 20 litres of water |
| • 1.67 g | • 200 litres of water |
| • 2.5 g | • 370 litres of water |
| • 8.68 g | • 1000 litres of water |
| • Aquatab granules | • 1000+ for all volumes greater |

Source: https://www.aquatabs.com

## Messages on use of Aquatabs[20]

1. Check package to see the strength of your Aquatabs (see table above).
2. Use the chart provided to see how much water you can treat with the strength of tablet you have. Use the tablet for specified quantities of water.
3. Water should be free from turbidity (less than 5 NTUs) or organic material. Aquatabs should be used for pretreated (filtered) water.
4. Remove tablet(s) from the strip of Aquatabs and drop into a clean container with the correct amount of water.
5. Stir the water with a clean utensil.
6. Cover the container.
7. Wait for 30 minutes before drinking or using the water.
8. Drink and use the safe water within the next 24 hours.

## Waste management

### Table A3.4. Waste management categorization.

| Category | Colour | Way of disposal | Type of container |
|---|---|---|---|
| Infectious non-sharp waste | Yellow or red/labelled | Protected pits or incinerated<br>External waste treatment facilities (autoclaves / incinerators) only with safe means of transport<br>De Montfort Mark 7 incinerators | Washable 40-50 litre PVC containers or cardboard containers with strong, leak-proof plastic bag |
| Sharps | | | Puncture-proof containers, such as plastic bottles; encapsulation and disposal of the sharps in sharp pit |
| Non-infectious common waste (paper, cardboard) | Black/labelled | With general household waste, by the municipal waste collection service | |
| Chemical waste (medicines, solutions) | Brown/labelled container | | Plastic bag or container |
| Radioactive waste | | | Lead box with radioactive symbo |

Source: Prüss, Annette, Emmanuel, Jorge, Stringer, Ruth, Pieper, Ute, Townend, William. et al. (2014). Safe management of wastes from health-care activities, 2nd ed. World Health Organization. https://iris.who.int/handle/10665/85349

[20] Adapted from US Centres for Disease Control and Prevention, Cholera Prevention and Control: Introduction and Community Engagement (Source: Cholera Prevention and Control: Introduction and Community Engagement. Atlanta: US Centers for Disease Control and Prevention [website] https://stacks.cdc.gov/view/cdc/23130/cdc_23130_DS1.pdf)