Water, sanitation, hygiene and waste management for preventing COVID-19

Global WASH Cluster Webinar: 11 Mar 2019

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Session plan

GWC
- Welcome
- Brief Update

WHO
- WASH Technical Brief - Overview and Key Take-aways
- COVID-19 Virus and virus survival rates
- General WASH recommendations on water, sanitation, hygiene, waste, cleaning …

UNICEF
- COVID 19 as a WASH Response
- WASH in Health Care Facilities
- WASH in Schools
- WASH in Homes and Communities

WASH Partner Updates
- (please flag in message box for a 2 minute presentation –eg “Update – Oxfam”)

WASH Partners – Q&A
- Questions for presenters
- Key concerns and challenges

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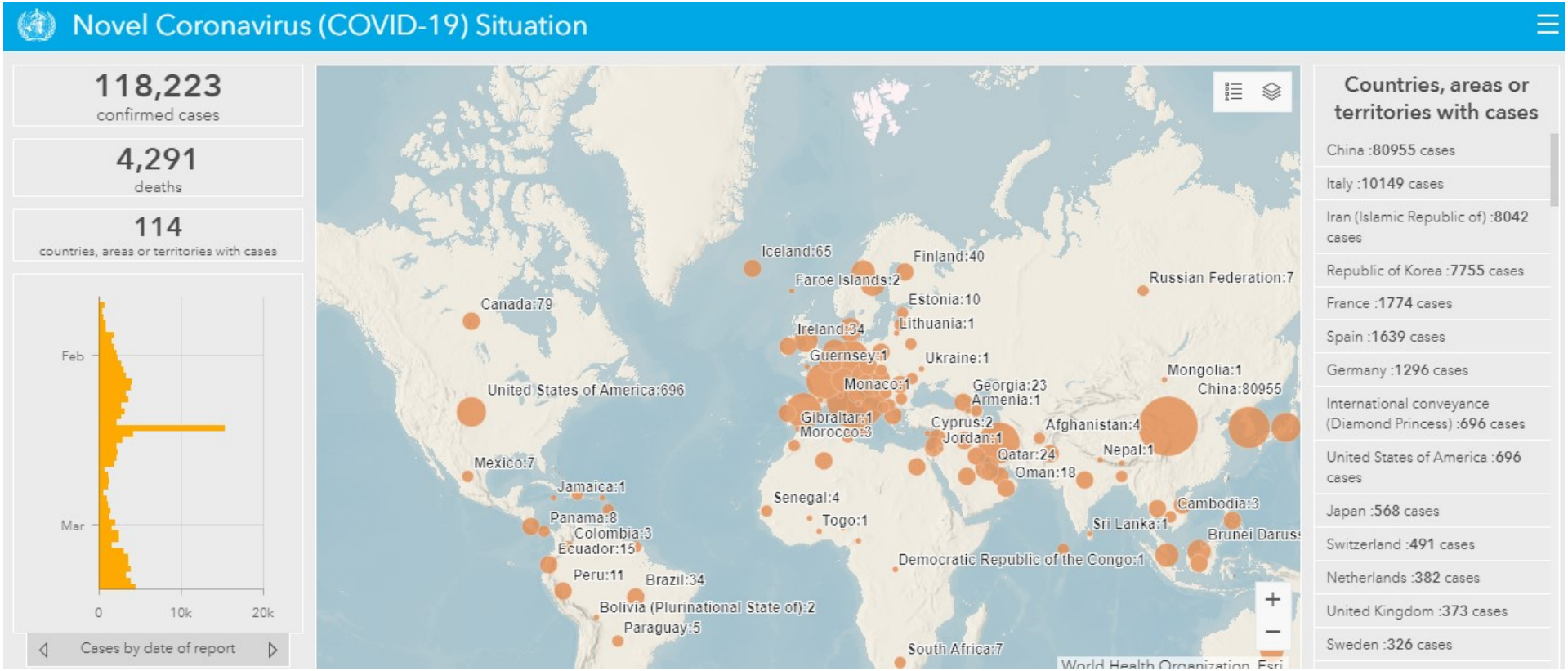
Latest figures

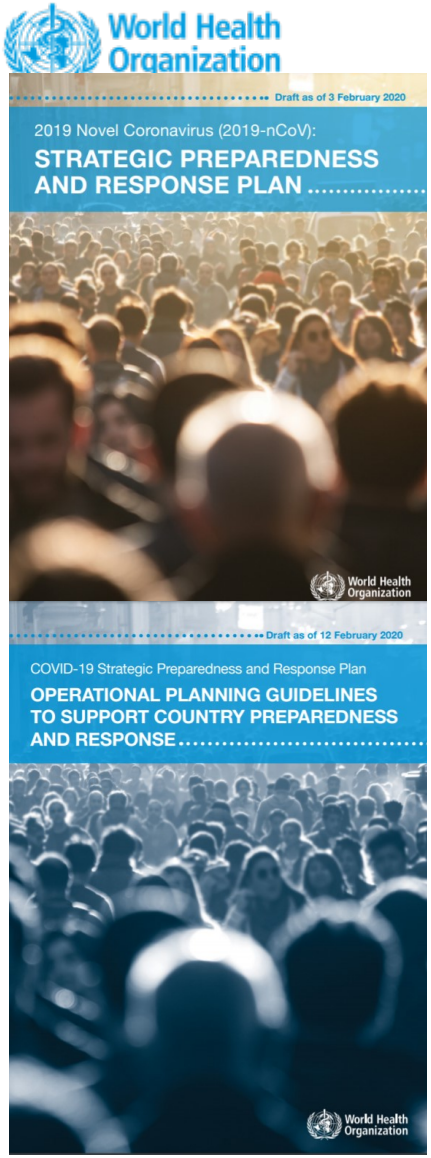


COVID-19 response

Response lead by WHO at Global level
Under leadership of MoH at country level

Pillars for the response:
Pillar 1: Country-level coordination, planning, and monitoring
Pillar 2: Risk communication and community engagement
Pillar 3: Surveillance, rapid response teams, and case investigation
Pillar 4: Points of entry
Pillar 5: National laboratories
Pillar 6: Infection prevention and control
Pillar 7: Case management
Pillar 8: Operational support and logistics

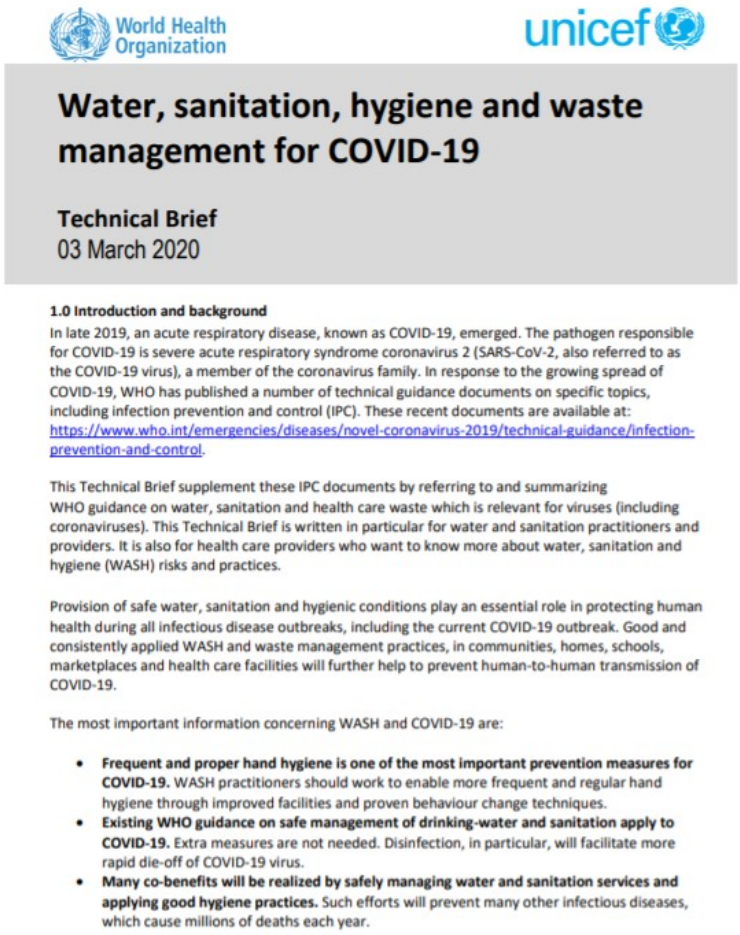
https://www.who.int/publications-detail/strategic-preparedness-and-response-plan-for-the-new-coronavirus



WASH Technical Brief - Overview

Joint WHO-UNICEF Technical Brief Topics

1.1 COVID-19 transmission
1.2 Persistence of the COVID-19 virus in drinking-water, faeces/sewage and surfaces
1.3 Keeping water supplies safe
1.4 Safely managing wastewater and/or fecal waste
2.0 WASH in health care settings
3.0 Considerations for WASH practices in homes and community



World Health Organization

unicef

Water, sanitation, hygiene and waste management for COVID-19

Technical Brief
03 March 2020

1.0 Introduction and background

In late 2019, an acute respiratory disease, known as COVID-19, emerged. The pathogen responsible for COVID-19 is severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, also referred to as the COVID-19 virus), a member of the coronavirus family. In response to the growing spread of COVID-19, WHO has published a number of technical guidance documents on specific topics, including infection prevention and control (IPC). These recent documents are available at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control.

This Technical Brief supplement these IPC documents by referring to and summarizing WHO guidance on water, sanitation and health care waste which is relevant for viruses (including coronaviruses). This Technical Brief is written in particular for water and sanitation practitioners and providers. It is also for health care providers who want to know more about water, sanitation and hygiene (WASH) risks and practices.

Provision of safe water, sanitation and hygienic conditions play an essential role in protecting human health during all infectious disease outbreaks, including the current COVID-19 outbreak. Good and consistently applied WASH and waste management practices, in communities, homes, schools, marketplaces and health care facilities will further help to prevent human-to-human transmission of COVID-19.

The most important information concerning WASH and COVID-19 are:

- **Frequent and proper hand hygiene is one of the most important prevention measures for COVID-19.** WASH practitioners should work to enable more frequent and regular hand hygiene through improved facilities and proven behaviour change techniques.
- **Existing WHO guidance on safe management of drinking-water and sanitation apply to COVID-19.** Extra measures are not needed. Disinfection, in particular, will facilitate more rapid die-off of COVID-19 virus.
- **Many co-benefits will be realized by safely managing water and sanitation services and applying good hygiene practices.** Such efforts will prevent many other infectious diseases, which cause millions of deaths each year.

Technical Brief key take-aways

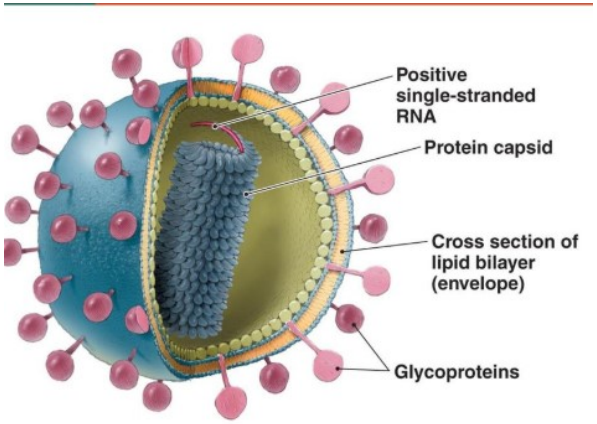
- Frequent and proper hand hygiene one of the most important prevention measures.
- Existing WHO guidance on the safe management of drinking-water and sanitation services applies to the COVID-19 outbreak. Another reason to invest in WASH.
- Many co-benefits will be realized through good WASH, including preventing many other infectious diseases, which cause millions of deaths each year.

Table 1. | **Disease burden from inadequate WASH, 2016**[a]

DISEASE	DEATHS	DALYS (THOUSANDS)	POPULATION-ATTRIBUTABLE FRACTION
Diarrhoeal diseases	828 651	49 774	0.60
Soil-transmitted helminth infections	6 248	3 431	1
Acute respiratory infections	370 370	17 308	0.13
Malnutrition[b]	28 194	2 995	0.16
Trachoma	<10	244	1
Schistosomiasis	10 405	1 096	0.43
Lymphatic filariasis	<10	782	0.67
SUBTOTAL: drinking-water, sanitation and hygiene	*1 243 869*	*75 630*	*NA*
Malaria	354 924	29 708	0.80
Dengue	38 315	2 936	0.95
Onchocerciasis	<10	96	0.10
SUBTOTAL: water resource management	*393 239*	*32 740*	*NA*
Drownings	233 890	14 723	0.73[c]
SUBTOTAL: safety of water environments	*233 890*	*14 723*	*NA*
TOTAL: inadequate water, sanitation and hygiene	**1 870 998**	**123 093**	**NA**

Source: Water, sanitation, hygiene and health: a primer for health professionals, WHO, 2020. https://www.who.int/water_sanitation_health/publications/water_sanitation_hygiene-primer-for-health-professionals/en/

COVID-19 virus



- No evidence that the COVID-19 virus is found in drinking-water or sewage
- Furthermore, no evidence that other surrogate, human coronaviruses are present in surface or groundwater
- Enveloped virus, surrounded by weak lipid membrane
- Relatively fragile in the environment and will become inactivated faster than non-enveloped human enteric viruses (e.g. adenoviruses, norovirus, rotavirus, hepatitis A virus)
- Few patients have diarrhoea (2-10%)
- COVID-19 virus RNA fragments have been detected in reasonably high concentrations in stools of patients; however only one study has cultured COVID-19 virus from the stool of one patient

Survival of surrogate, human coronaviruses,

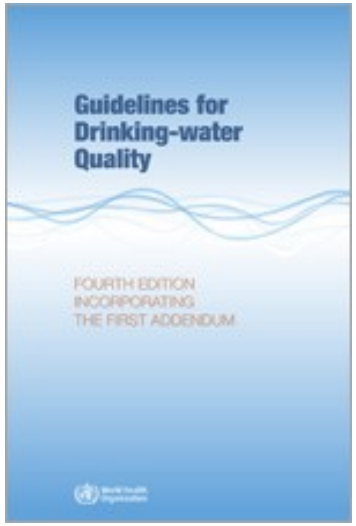
Media	Temp (°C)	Time	Removal	Reference
Dechlorinated tap water	20	2 days	None surviving	Wang et al, J Virol Methods, 2005
Dechlorinated tap water	23	8-12 days	99.9%	Gundy et al Food Environ Virol, 2009
Hospital wastewater	20	2 days	None surviving	Wang et al, J Virol Methods, 2005
Settled sewage	25	14 days	99.9%	Casanova, et al, Water Research, 2009
Wastewater	23	2-4 days	99.9 %	Gundy et al Food Environ Virol, 2009
Baby faeces	20	3 hours*	None surviving	Lai, et al., Clinical Infectious Disease, 2005
Adult faeces	20	1 day	None surviving	Lai, et al., Clinical Infectious Disease, 2005
Cotton gown	20	5 min- 24 hours**	None surviving	Lai, et al., Clinical Infectious Disease, 2005
Various surfaces (review of 22 studies)	Average 20	2 hours-9 days	None surviving	Kampf, et al., Journal of Hospital Infection, 2020.

*Quicker die off attributed to lower pH in baby feces (pH 6-7).
**Quicker die off when there is a lower initial concentration of the virus.

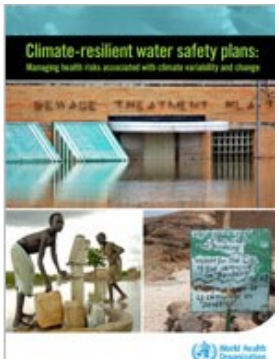
Survival of surrogate, human coronaviruses, contin.

- Heat, high and low pH, sunlight and common disinfectants (e.g. chlorine) all facilitate die-off
- On surfaces, effective inactivation can be achieved in 1 min using 70% ethanol or sodium hypochlorite.
- Data on transmissibility of coronaviruses from contaminated surfaces to hands were not found.
- For comparison, adenovirus (non-enveloped, fecal oral pathogen) it took 132 days (> 4 months) to achieve 99% die off in sewage. (Biofill-Mas, et al., 2006)

Safely managed water supplies



Guidelines



Water safety planning and climate

Water treatment performance

(e.g. boiling, high performing ultra or nano filters, solar, UV, or appropriately dosed chlorine)

Key considerations

- Use water safety approach (protection from source to consumer)
- Residual chlorine of ≥0.5 mg/l after at least 30 minute of contact time
- Point of use treatment where safe, piped supplies not available

Health care facilities

Safely managed sanitation-key points

- Safe management along every point of the sanitation chain important; system should be able to meet an increase in demand
- Important to check safety plumbing (e.g. sealed bathroom drains, backflow valves on bathroom sprayers and faucets)
- Staff and patients should have separate toilets; where possible COVID-19 patients should have their own toilets
- Regular cleaning and disinfection of bathrooms and anyone with risk of exposure to excreta should wear PPE
- Practical, simple wastewater treatment technologies exist (e.g. waste stabilization pond)

GUIDELINES ON SANITATION AND HEALTH

WHO (2018) Guidelines on Sanitation and Health
https://www.who.int/water_sanitation_health/publications/guidelines-on-sanitation-and-health/en/

Hand hygiene

Ensuring hand hygiene occurs at the right time & in the right way is achieved through a multimodal approach:

1. The **infrastructure** & **resources** available to perform hand hygiene

2. People **trained** in the why, when and how

3. **Checks** in place to monitor whether it is being performed at the right time & in the right way & **timely feedback** so that corrective action can be addressed

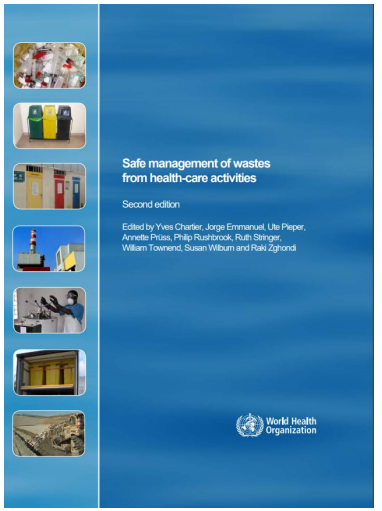
4. **Reminding** people to perform hand hygiene at the right time and in the right way

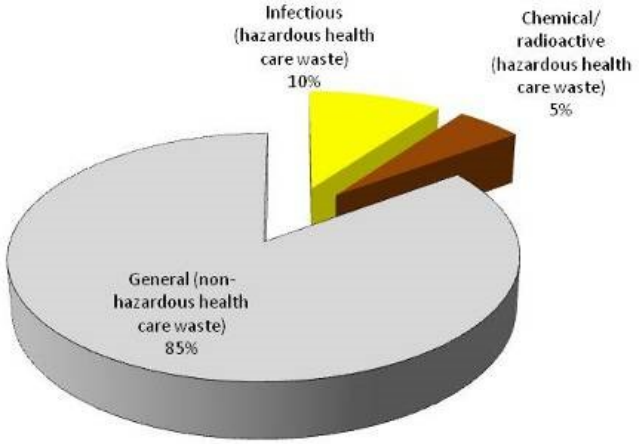
5. A **culture** within a care facility that values hand hygiene, especially the support of senior managers

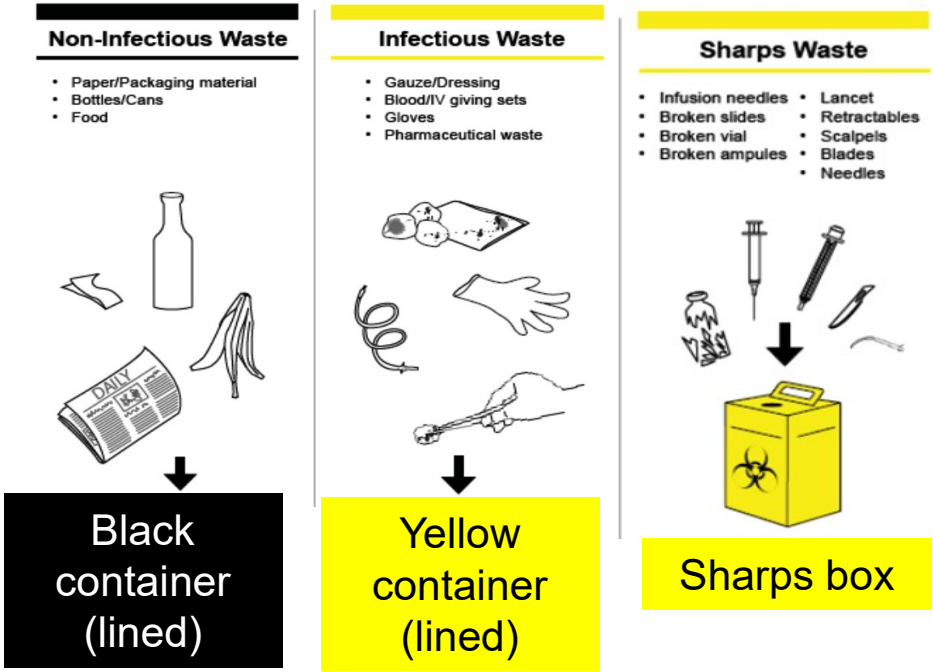
WHO multimodal improvement strategy https://www.who.int/infection-prevention/publications/ipc-cc-mis.pdf?ua=1

Safe health care waste management

- Follow regular safe management of waste practices (e.g. segregation, treatment, safe disposal)
- Use PPE while handling waste (boots, apron, long-sleeved gown, thick gloves, mask and goggles or face shield)







Cleaning

- Follow existing recommendations-(e.g. trained staff, SOPs, cleaning frequency based on risks)
- Existing disinfectants effective (e.g. 70% ethyl alcohol and 0.5% sodium hypochlorite)
- Soiled linens should be machine washed (60-90 C) with detergent OR soaked in warm water and detergent followed by 0.5% chlorine

Characteristics of PH emergencies – COVID-19

WASH Sector has significant experience in PHE (cholera, Ebola, Zika, vector-borne diseases….)

Public Health emergencies are:
- Multi-sectorial
- Based on a pillar system that does not perfectly align with IASC sectors

Specific attention to scope due to # of countries involved across regions

Response will differ by country based on:[12]
- Epidemiology
- Country capacity
- Organisation capacity

Table 1 - DISEASE CATEGORIZATION		
Category 1: Current epidemics of concern and diseases of epidemic/pandemic potential with significant public health impact, requiring the development of the full package of preparedness activities as detailed below.	**Category 2:** Endemic or epidemic diseases of potential threat/changing pattern and/or currently with a more limited geographic distribution, requiring additional attention and capacity building with the development of a basic support package of preparedness activities as detailed below.	**Category 3:** Endemic or epidemic diseases currently affecting a limited geographic area and/or posing lower threat, with response package limited to summarizing key facts and linking to existing resources as detailed below.
Arboviruses: Chikungunya, Dengue, *Yellow fever*, Zika	Hepatitis E[2]	Diphtheria
Avian influenza, Pandemic influenza	Leptospirosis[2]	Monkeypox
Ebola, Marburg	Novel Coronaviruses (MERS-CoV[3] and SARS-CoV[4])	Japanese encephalitis
Cholera	Typhoid fever[2]	Pertussis
Malaria	Viral Hemorrhagic Fevers[5]: Crimean-Congo hemorrhagic fever, Lassa fever, Rift Valley fever	Plague
Measles		Seasonal influenza
Meningococcal disease	West Nile virus	Shigellosis, Enterohemorrhagic *E. coli*
Polio (non-vaccine derived)	Nipah and related henipaviruses[6]	Rubella

NOTE: *Italicized* diseases are those with pre-existing UNICEF global programmes

3. WASH technical response – Overarching document

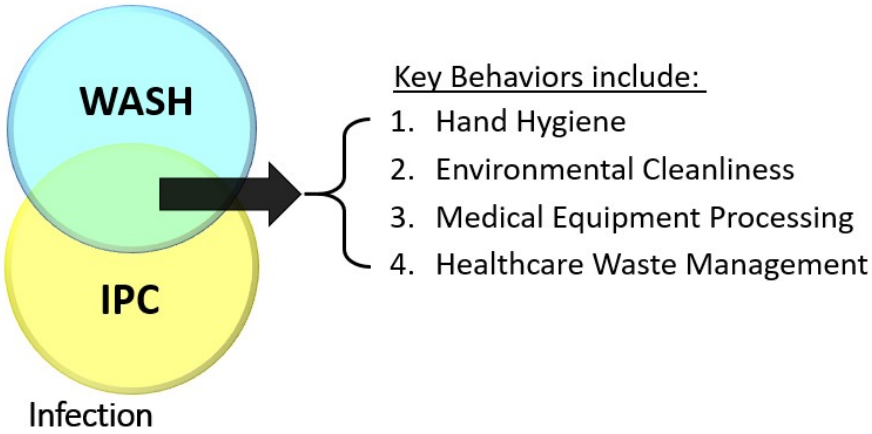
Pillar 2: Risk Communication and Community Engagement	Hygiene Promotion Guidance
Pillar 6: Infection Prevention and Control	WASH in Healthcare facilities Guidance WASH in Schools and social institutions Guidance WASH in Communities and Households Guidance

Across guidances:

1. Use ongoing programmes as entry points
2. Do not divert ongoing emergency responses for as long as possible
3. Reach out to donors to start negotiating flexibility on funding

3. WASH technical response – HCFs

1. Key practices for IPC and WASH in HCFs:



2. Use existing programmes

- Get hold of IPC protocols in place in country
- Review JMP data and assess the situation
- Incorporate COVID-19 preparedness and response activities into WASH programmes
- Promote the use of the WASHFIT tool
- Strengthen government capacities and leadership to implement Eight Practical steps.

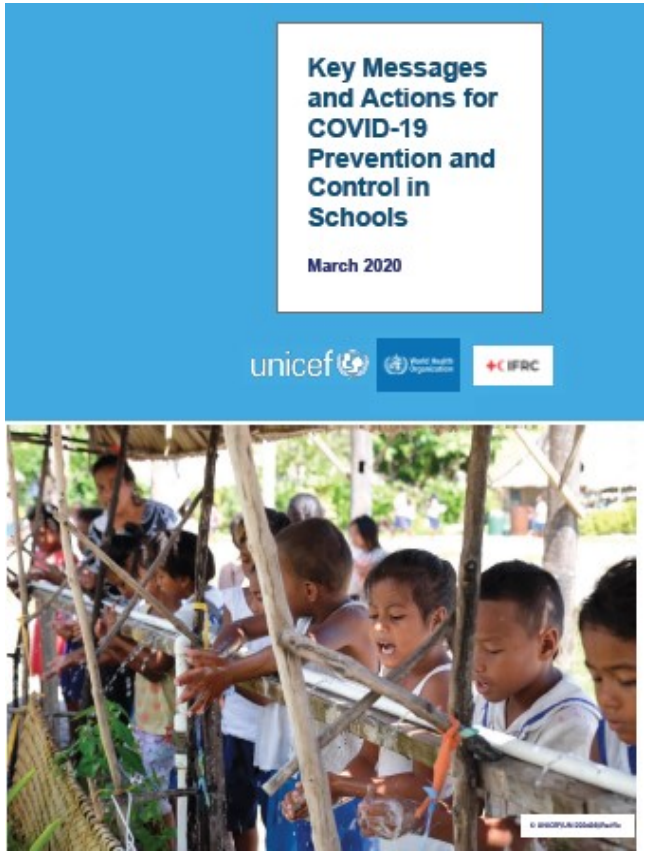
3. WASH technical response – Schools

1. Key practices for IPC and WASH in Schools:

- ❖ Ensure availability of safe water in adequate quantities at all times and separate sanitation facilities for girls and boys.
- ❖ Ensure the availability of hand washing stations with soap and water or hand sanitizers dispensers or water with chlorine solution (0,05%) in schools.
- ❖ Environmental cleanliness and availability of PPEs.

2. Use existing programmes

- ❖ Review JMP data and assess the situation
- ❖ Incorporate COVID-19 preparedness and response activities into WASH programmes based on the guidance document on COVID –19 response for WASH in schools.
- ❖ Strengthen implementation of the 3-star approach for WASH in schools and promote regular hand washing especially at key moments. Use the compendium of hand-washing facilities document to learn about different technologies for adaptation.
- ❖ Ensure age-appropriate WASH facilities for pre-schools and other ECDs.



3. WASH technical response – Communities

Two main objectives:

1. The exposure to the disease is reduced in community settings in affected areas.

> Adequate personal and interpersonal hygiene practices (handwashing, cough and sneeze etiquette) should be supported by all necessary hardware intervention, while public places environmental cleaning and disinfection should be intensified.

2. The secondary impacts of the outbreak and its response on WASH services are mitigated.

> WASH services continuity must be carefully monitored and support provided when communities are deprived of services increasing risks of infectious diseases and protection for children and women.

3. WASH technical response – Households

- Promote during key moments and make assessible hand hygiene facilities
- Frequently clean high touch surfaces if patient is at home (e.g bedside tables, bedframes, etc)
- Ensure access to functioning toilets/latrines + safe containment, conveyance, treatment and disposal
- Clean with detergent and disinfect (0.5% sodium hypochlorite) bathrooms at least once a day)
- Use PPE while cleaning and practice hand hygiene before and after removing PPE

Key resources

Download the WASH and COVID-19 technical brief at:
https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-covid-19

CDC, 2019. Best practices for environmental cleaning in health care facilities: in resource limited settings. US Centers for Disease Control. USA. https://www.cdc.gov/hai/pdfs/resource-limited/environmental-cleaning-508.pdf

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Subject heading: COVID-19 – Issues, Questions and Challenges