

**KINGDOM OF CAMBODIA
NATION RELIGION KING**



Ministry of Health

Guidelines For Water, Sanitation and Hygiene in Health Care Facilities

**Directorate General for Health
Department of Hospital Services**



FOREWARD

The provision of adequate water, sanitation and hygiene (WASH) services is an essential component of health care and serves to prevent infections, protect staff and patients, and uphold the dignity of vulnerable population, including pregnant women, children and person with disabilities. There are numerous consequences of poor WASH services, including increased risk of health care associated infections. This infection burden is especially high in newborns, who are particularly susceptible to fatal cases of sepsis and severe infections. Furthermore, lack of access to water and sanitation in health care facilities may discourage women from giving birth in these facilities or cause patients to delay seeking care. A research in 2017 by the national institute of public health within 5 provinces and 117 health care facilities (16 referral hospitals and 101 health centres) resulted that WASH conditions have not yet responded to the requirement and standard of Cambodia.

The Ministry of Health formulated the National Guideline for Water Sanitation and Hygiene in health care facilities in collaboration with WHO and other health development partners based on the Ministry of Health national guideline for infection prevention control in the health care facilities, and the Ministry of Rural Development guidance on water quality, and WHO's internationally recognized standards on environmental health. This guideline is important in the pursuit of universal health coverage in the Kingdom of Cambodia.

The Ministry of Health disseminates National Guideline on **Water, Sanitation and Hygiene** in health care facilities for referral hospitals and health centers for the purpose of improving the quality and safety of health care services. These guidelines should be used as a reference for policy-makers, planners, managers and practitioners in Health and WASH sector in Cambodia. Ministry of Health strongly believes that adherence to these guidelines will provide a safer work environment for health care staff and a higher quality of care for patients.

Phnom Penh, 13 November 2018

Prof. ENG HUOT
SECRETARY OF STATE

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1. Introduction

Water, sanitation and hygiene (WASH) services in health care facilities are essential for improving quality of care within the context of Universal Health Coverage. Universal Health Coverage is a global health priority and part of the Sustainable Development Goals (SDGs) under target 3.8.¹ In addition, improving and maintaining WASH services in health care facilities is a critical element for achieving health aims linked to infection prevention and control, and maternal, newborn and child health.

WASH in health care facilities is captured in SDG 3 Targets 3.2 and SDG 6 Targets 6.1 and 6.2, which recognize that access to water and sanitation is a basic to reduce mortality and disease. The WHO/UNICEF along with with health and WASH partners across the globe, have committed to the following vision: “By 2030, every health care facility, in every setting, has safely managed, reliable water, sanitation and hygiene facilities and practices to meet staff and patient needs in order to provide quality, safe people-centred care”.² In 2015, WHO and UNICEF launched a Global Action Plan on WASH in health care facilities, with one of the five key change objectives being that all countries have national standards and policies on WASH in health care facilities, and dedicated budget for improving and maintaining services³.

Focused attention to this triangulation between quality, UHC and WASH can catalyse improvements in a number of other areas, including:

- **Health and safety:** reduced health care-associated infections, reduced antimicrobial resistance and improved occupational health and safety.
- **Disease prevention and treatment:** improved outbreak prevention and control of
- communicable diseases (e.g., cholera and Ebola) and improved diarrhoeal disease prevention and control.
- **Staff morale and performance:** improved satisfaction and ability to provide safe care.

¹ SDG Target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

² WHO (2015) *Delivering quality, people-centered health care for all* (online), available at www.who.int/water_sanitation_health/facilities/wash-and-quality-uhc.pdf

³ WHO. (2015). Water, Sanitation and Hygiene (WASH) Global Action Plan. www.who.int/water_sanitation_health/facilities/wash-and-quality-uhc.pdf

- **People-centred care:** increased uptake of services (e.g. births and vaccinations).
- **Community WASH:** health staff model good hygiene behaviour, which leads to improved hygiene practices at home.
- **Health care costs:** more effective and efficient services lead to disease/deaths averted.
- **Climate change and disaster resilience:** facilities better prepared to continue to provide health services in disasters, including climate-related events.

Recognizing the important of WASH in health care facilities and to address this need for clear guidance, the Ministry of Health's Department of Hospital Services initiated the development of the national guidelines for WASH in the health care facilities in close coordination with the National Institute of Public Health, National maternal and child health center, and the concerned ministries as well key partners like WHO, UNICEF, Wateraid Organization and Emory University⁴.

2. Purpose and scope

The purpose of this document is to provide comprehensive guidance on basic WASH services in health care facilities in Cambodia. The intended use of these guidelines is to be a reference for policy-makers, planners, managers and practitioners in the health and WASH sectors to:

- Provide specific guidance on basic WASH services that are appropriate in health care settings.
- Guide the assessment of WASH infrastructure in existing health care facilities.
- Guide necessary WASH improvements in health care facilities, including infrastructure, operation and maintenance and behaviour practices.
- Provide minimum requirements for accreditation and regulation of health care services.

⁴ Emory University has been supporting WASH improvements in HCFs with funding support from General Electric Foundation since 2015.

These guidelines focus specifically on minimum requirements for basic service provision cover the following components :

- Water supply
- Sanitation
- Hygiene
- Overall WASH Management
- Monitoring and evaluation

All health care facilities in Cambodia are expected to comply with these guidelines for basic WASH services. The status of WASH in the health care facilities can be found in Annex I.

3. Water supply, sanitation and hygiene guidelines

3.1 Water supply

For water supply in health care facilities, these guidelines focus on water source, quantity, storage and quality.

3.1.1 Water source

- Health care facilities must have an improved source on the premises that supplies water at all times (i.e. water available throughout the year and not affected by seasonality, power outages, etc.). Improved water sources include piped water, or a licensed supplier, protected well, protected spring, and rainwater as indicated in Annex II.
- A functional water collection point should be available at all points of care (e.g. consulting rooms, delivery room, etc.)
- A functional water collection point and water use facility should be available to allow convenient access to water for drinking, handwashing, toilets, personal hygiene, food preparation, laundry, cleaning, gardening and medical purpose.
- Water piping must be functional (i.e. no major leaks, all end points are connected to an available water supply).
- Drinking water should be made available to staff, caregivers and patients, including children and people with limited mobility, at all times.
- A health care facility should have a secondary improved water source that can be used in case of interruptions to the primary water source.

3.1.2 Water quantity

- The actual quantities of water required will depend on a number of factors such as climate, availability and type of facility, number of patients, level of care and local water use practices.
- Sufficient quantities of water should be available to meet the minimum daily requirements in the health care facility for patients, visitors and staff. Table 3 lists recommended minimum quantities of water required in health care facilities.

3.1.3 Water storage

- Health care facilities should have a water storage tank that has the capacity to supply the facility with water for two full days, to be used as back-up in case of interruptions to the main water source.
- Health care facilities should have sufficient water storage for drinking, handwashing, sanitation facilities, personal hygiene, food preparation, laundry, bathing, cleaning and medical activities.
- Storage tanks should be clean, covered with a tight lid and be well maintained to prevent contamination from entering (i.e. free from any cracks, leaks, etc.).
- Storage tanks should allow for water to be extracted without hands or other potentially contaminated surfaces touching the water (i.e. through use of a tap).
- Storage tanks can be made from a variety of materials, including ferrocement, plastic or stainless steel, etc.

Table 3: Minimum water qualities in health care facilities⁵

Health care settings	Water quantities*
Outpatients	5 litres/consultation
In-patient	40-60 litres/patient/day
Maternity ward	100 litres/intervention
Dry or supplementary feeding centre	0.5-5 litres/consultation
Wet supplementary feeding centre	15 litres/consultation
In-patient therapeutic feeding centre	30 litres/patient/day
Cholera treatment centre	60 litres/patient/day
Severe acute respiratory disease isolation centre	100 litres/patient/day
Viral hemorrhagic fever isolation centre	300-400 litres/patient/day

* To calculate water requirements for individual health care facilities, the above standard quantity for each department should be added up accordingly.

3.1.4 Water quality

- In general, two levels of water quality are necessary for a health care facility:⁶
 - Clean water: water used for drinking, handwashing, toilets, personal hygiene, food preparation, laundry, cleaning and gardening.
 - Sterilised water: water used for specific medical purposes including, but not limited to, disinfection of medical devices, dialysis, surgery, dental operations and respiratory devices (e.g., respirator, humidifier apparatus, etc.)
- Clean water should meet the following standards:
 - Clean water should either be provided by a certified water supplier licensed by the Ministry of Industry and Handicraft, or treated to ensure water is safe (free from microbial and physical contamination) up to the point of consumption.

⁵ Adams, J., Bartra, J., & Chartier, Y. (2008). Essential environmental health standards in health care. Geneva, Switzerland: WHO Press, World Health Organization. Page 29-30

⁶ Ministry of Health (2017). National Guidelines for Prevention and Control of Healthcare Facilities. Phnom Penh, Cambodia: Ministry of Health. Page 82-83

- Clean water quality should be below permissible limits set by the Ministry of Rural Development's National Rural Drinking Water Quality Guidelines. See Annex V for a full list of parameters and permissible limits.
- Microbial water quality parameters should be tested every six months, while chemical and physical water quality parameters should be tested annually to verify compliance with permissible limits, as outlined in Annex III.
- Clean water should not have a taste, odour or colour that would discourage consumption.
- Clean water should be safely stored in a clean container with lid and tap. Such containers must be cleaned regularly to remove the bacterial layer (bio-film) and/or particles that have accumulated in the tank.
- Clean water should be placed somewhere that is accessible to all patients, visitors and staff, including those with limited mobility or children.
- Water taps and containers should be clearly labelled to inform users of its designated use.
- Particular care is needed to ensure that clean drinking water is supplied to immune-compromised patients because of their high susceptibility to infection.
- Sterilised water should meet the following standards:
 - Sterilised water should, at a minimum, meet all the criteria for “clean water” and be sterilised on-site by boiling or disinfecting in batches before use.
 - Sterilised water should be clearly labelled to inform users of its designated uses.
 - Sterilised water should not have any microbial or chemical contamination, such as chlorine or aluminum.
 - Sterilised water should have an appropriate pH and chemical composition so as not to affect medical equipment.
 - Sterilised water should be stored in a clean, covered container. Sterilised water must be changed every day, and containers must be cleaned when the water is changed.

3.2 Sanitation (toilets)

Sanitation in health care facilities refers to safely-managed sanitation systems for human excreta, waste water (grey water and black water), and uncontaminated runoff water (i.e. rainwater). If the health care facility is located in a flood-prone area, sanitation facilities should be designed to ensure they are flood-proof⁷ and functioning at all times. Sanitation facilities should be placed at least 25 metres away and downhill from any water source, and at least two metres above the water table to prevent contamination. Sanitation systems in health care settings include improved toilets and disposal of waste water and runoff water as described below.

3.2.1 Improved toilets

Health care facilities must have improved toilet facilities located on the premises (or inside the building). The toilets must be available, functional and clean at all times. In addition, there must be at least one toilet designated for men and one for women, with facilities to manage menstrual hygiene needs (Infectious waste). There must also be at least one toilet that meets the needs of people with limited mobility (e.g. pregnant women, elderly persons, and/or persons with a physical disability). Health care facilities should comply with the following guidelines regarding improved toilets:

- Improved toilets in health care facilities include flush or pour flush toilets.
- Improved toilets should be of sufficient number to meet the needs of all patients, staff and visitors, as follows:
- For outpatient settings (e.g. health centres), there should be at least four toilets (one for staff, one for women/girls, one for men and one for people with limited mobility).
 - For in-patient settings and larger facilities (e.g. hospitals), more than four improved toilets should be built to meet the needs of the facility. The actual number of toilets/latrines required will depend on the average number of persons at the facility per day. There should be a minimum of one toilet for every 20 users (staff, patients, visitors and caregivers).

⁷ Overflow of sanitary latrines during flood events can pose a serious health risk by infiltrating ground or surface water. In flood-prone areas, latrines should be designed to minimize these risks by elevating latrines and/or lining latrine drainage pits. https://www.ctc-n.org/sites/www.ctc-n.org/files/resources/flood_proof_sanitary_latrines.pdf

- Toilets for women must be equipped for menstrual hygiene management (infectious waste). (i.e. a bin with a lid on it within the cubicle for disposal of sanitary pads/cloths, and water and soap available for washing).
- All toilet facilities should have a functioning handwashing station inside the toilet room or outside within five metres.
- Water should be available at all times in the toilet room for flush/pour flush toilets.
- All improved toilet facilities should have clear signposts indicating men, women or people with limited mobility.
- All toilets should have a door that can be locked from the inside during use to ensure privacy.
- All toilets should have enough light to ensure safety and accessibility for nighttime use.
- To meet the needs of persons with limited mobility, at least one toilet in the health care facility must have the following features⁸:
 - Accessible without stairs or steps.
 - Include an unobstructed pathway, if outside the building.
 - Fitted with handrails for support, attached either to the floor or sidewalls.
 - Built with sufficient room within the cubicle/stall for a wheelchair to turn around.
 - Toilet stall must have sufficient space for a caretaker to assist someone using the toilet, and enough space for maneuvering (150cm x 150cm).
 - Door must be at least 80cm wide.
 - Toilet seat height must be between 40cm and 48cm above the floor of the toilet stall.
- The hand hygiene station outside the latrine should be accessible, and the top of the sink 75cm from the floor.
- Switches for lights should be at an accessible height (max 120cm).
- Other elements should be added when appropriate (e.g. guide rope for people with a visual impairment).

⁸ Specifications are based on ISO 21542:2011 0 Building Construction Accessibility and Usability of the built environment, available at: <https://www.iso.org/standard/50498.html>

3.2.2 Cleaning and maintenance of toilets

Toilets should be cleaned and maintained in a way that they remain hygienic and do not become a centre for disease transmission. Toilets in health care facilities should meet the following standards in regard to cleaning and maintenance:

- Cleaning materials (i.e. water, soap, disinfectant, mops, scrub brushes, etc.) should be made available for performing regular cleaning (minimum of twice per day).
- Toilets should be clean as noted by absence of waste, visible dirt, excreta, insects and stagnant water.
- A routine cleaning programme should be in place to ensure regular cleaning practices (a minimum of two cleanings per day) that result in cleanliness at all times.
- Cleaners should understand their important role and be trained on cleaning practices, including making disinfectant solution. They should be provided with adequate cleaning supplies and personal protective equipment.
- At a minimum, personal protective equipment for cleaners should include rubber gloves, rubber boots and an impermeable apron. When there is a risk of splash in the face, cleaners must wear eye protection and surgical masks.
- The surrounding environment should be free from human faeces, with attention especially paid to the disposal of baby and infant faeces. Soiled disposable diapers should be rolled onto themselves, with the clean part of the diaper facing outward, and taped closed to isolate the faeces. Then, diapers should be disposed of in a plastic-lined, lidded trashcan.
- A maintenance programme should be in place to ensure functionality at all times.
- Toilets should be connected to a safely managed on-site treatment and disposal system (i.e. septic tank followed by drainage pit).
- Septic tank emptying should be scheduled for every six months or when tanks are full, if sooner. This activity should be included in the health care facility's annual budget.
- Faecal sludge from the septic tank should not be used for agricultural purposes, but should be disposed of following safe procedures⁹.
- There should be no major holes, cracks or leaks in the toilet structure.
- Toilets should be maintained to ensure there is no blockage.

⁹ Chartier, Y., Emmanuel, J., Piper, U., Pruss, A., Rushbrook, P., Stringer, R., Townend, W., Wilburn, S., Zghondi, R. (2014). Safe management of wastes from health-care activities- second edition. Geneva, Switzerland: WHO Press, World Health Organization. Page 155.

3.2.3 Disposal of runoff water and waste water

Health risks associated with contaminated waste water as well as the presence of standing water include the following: spread and multiplication of pathogens, pollution of surrounding ground water and surface water, and breeding of insect vectors. Additionally, poorly managed runoff water causes erosion around structures, roads, pits and other critical facilities.

There is a clear distinction between runoff water (e.g. rainwater) and waste water (e.g. used water that has come into contact with contaminants). Runoff water does not need to be treated, but efforts should be made to reduce standing water on the health care facility premises. Waste water can be classified by its origin into the following categories:

- Black water: waste water carrying human excreta.
- Grey water: waste water from sinks, showers and baths.

All runoff and waste water should be disposed of rapidly and safely, and managed in such a way to avoid contamination of the health care facility and the broader environment. The process of runoff and waste water management consists of the following: removal, pre-treatment and disposal.

- Removal: a removal system should be used to transport water away from its source to avoid stagnant water, and direct water to the treatment/disposal site. The collection surface should be gently sloped at least at a 1% grade. Examples of acceptable removal techniques are an open channel or pipe.
- Pre-treatment: if possible, waste water and runoff should be directed off-site and into an existing sewer system that is connected to an adequate treatment plant. If the sewer does not lead to a treatment facility, or if there is no off-site sewer system, on-site pre-treatment through septic tanks or grease traps will be necessary before waste water is discharged. Grey water and black water may be treated in the same septic tank to eliminate faecal material and any other solids or grease in the waste water.
- Disposal: runoff water (i.e. rainwater) that has not been contaminated can be evacuated directly into surface waters (e.g. lakes and streams) or sewer systems, if available. Waste water can be disposed of through soak away pits, infiltration trenches, or directly into sewer systems. Waste water disposal systems should be covered to prevent risk of breeding of insect vectors and of contamination through direct exposure. Pits and trenches

should not overflow into health care facility premises, and should meet the following minimum standards:

- The bottom of infiltration systems should be at least 1.5m from the groundwater table.
- The infiltration system should be at least 25m away from any groundwater well.

Small quantities of infectious liquid wastes (e.g. blood or body fluids) may be poured into sinks or toilets. Most pathogens are inactivated by a combination of time, dilution and the presence of disinfectants in the waste water. Water that contains toxic waste (e.g. reagents from a laboratory) should be treated and disposed of according to the safest feasible available method recommended in the National Guideline on Health Care Waste Management (2012).

3.3 Hygiene

Hygiene in these guidelines focuses on hand hygiene and bathing facilities. Hygiene is important to prevent and minimise the spread of infection within health facility environments. Hand hygiene includes handwashing with soap and water and/or using alcohol-based hand rub. By regularly washing hands or performing hand hygiene, health care facility staff, patients and visitors decrease the risk of getting infections and/or spreading pathogens to others. Bathing, also covered here, is important for personal hygiene, patient recovery and cleanliness of staff and caregivers.

3.3.1 Hand hygiene

To facilitate hand hygiene, health care facilities must have functioning handwashing stations available within the health care compound accessible to patients, visitors and staff. A handwashing station is defined as a dedicated, easy-to-access location where both soap and water are available for handwashing. A minimum recommended number of handwashing stations are as follows:

- At least one in the waiting area for visitors.
- At least one in each delivery room.
- At least two in a ward with more than 20 beds.
- At least one anywhere there will be physical contact with patients (i.e. consultation area).
- At least one within 5m of toilet facilities.
- At least one in the mortuary.

- At least one near any waste disposal area.
- At least one in area where ultrasound and/or X-ray facilities are provided.
- At least one handwashing station accessible for patients with limited mobility, with the top of the sink 75cm from the floor with knee clearance underneath.
- At least one in the canteen facility/kitchen.

All handwashing stations must meet the following requirements:

- Handwashing stations must have a tap and appropriate drainage to avoid stagnant water.
- Handwashing stations must have the following materials available at all times: water, soap, and clean, single use paper or material towel. Multi-use towels must not be used, as they are potential sources of infection.
- Handwashing stations should be cleaned daily and drains should be monitored to avoid blockages and pooling of water.
- Hand hygiene promotion/instruction materials must be clearly visible and understandable at all handwashing stations.
- Water used at all handwashing stations must be from an improved water source.

Health care staff may use alcohol-based hand rub for disinfection between points of care. Instructions for making alcohol-based hand rub on-site can be found in the National Guidelines for Infection Prevention and Control for Health Care Facilities (2017). However, health care staff must wash hands with soap and water when their hands are soiled with dirt or body fluids, and after using the toilet. Alcohol-based hand rub cannot be substituted in these cases. Staff hand hygiene compliance should be monitored regularly, and training should be routinely provided.

3.3.2 Bathing facilities

For in-patient settings, bathing facilities should be made available for staff and patients in order to address personal hygiene needs. Bathing facilities should meet the following requirements:

- Bathing facilities should be provided at a ratio of one facility for every 40 users, which includes staff, patients and visitors.
- Separate bathing facilities should be available for staff and patients/visitors.
- Patient/visitor bathing facilities should be separate for males and females.
- Bathing facilities should be private and lockable from the inside.

- Bathing facilities should include chairs, railings and other aids to ensure accessibility and usability of those with limited mobility.
- Water in bathing facilities should be sufficient and from an improved water source.
- Bathing areas should be adequately lit, including at night.

4. Management

The guideline outlines the roles and responsibilities for WASH services in health care facilities as below:

4.1. Ministry of Health:

- Formulate national policy and strategy.
- Set standards and guidelines as well as trainings.
- Ensure all relevant national health priorities and activities include targets and plans related to WASH.
- Regulate activities of medical professionals and facility managers to ensure compliance with WASH and infection prevention and control guidelines and standards.
- Monitor the health care facilities' implementation to improve WASH in order to reach national targets.

4.2. Provincial Health Department:

- Provide resources and direction for setting, achieving and maintaining WASH targets.
- Ensure to budget in the annual operational plan for provinces for WASH improvements in health care facilities.
- Mobilise political, financial and technical support for WASH improvements.
- Champion clean and safe facilities across the province and ensure compliance with infection prevention and control and WASH guidelines and standards.

4.3. Operational District:

- Provide advice and guidance on identifying problems and recommending solutions for WASH in health care facilities.
- Provide periodic assessment and monitoring of WASH services and behaviour practices.

- Undertake reviews and routine compliance checks of WASH and infection prevention and control conditions.
- Ensure to budget in the annual operational plan for operational district for WASH improvements in health care facilities.

4.4. Referral Hospital and Health Center Managers

- Ensure compliance with standards, policies and procedures relating to water supply, sanitation and hygiene as specified in these guidelines.
- Ensure all standards, protocols and standard operating procedures related to WASH and infection prevention and control are available, up-to-date and accessible to all staff at all times.
- Plan, budget for and implement programmes to monitor and maintain WASH facilities and practices, such as supporting and leading the implementation of WASH FIT.
- Ensure staff are adequately trained and that roles and responsibilities are clear.
- Mobilise political and financial support for WASH improvements.
- Serve as a champion and role model for hygiene and encourage health care staff to practice appropriate hygiene behaviours.

4.5. Referral Hospital and Health Center Staffs

- Carry out infection prevention duties in compliance with the Ministry of Health's National Guidelines for Infection Prevention and Control for Health Care Facilities.
- Sterilise all multi-use patient care equipment.
- Encourage patients, visitors and caregivers to adopt appropriate hygiene behaviours and act as role models of good behaviour.
- Participate actively in maintaining WASH facilities, and report when systems are not functioning.
- Advise patients, visitors, caregivers and new staff on the use of handwashing stations, toilets and bathrooms.

4.6. Referral Hospital and Health Center Cleaners

- Clean and disinfect all floors and surfaces.
- Waste collection, treatment and disposal.
- Care for and maintenance of water and sanitation and hygiene facilities.

- Practice good hand and personal hygiene.
- Ensure availability of soap and paper towels at all hand hygiene stations.

4.7. Referral Hospital and Health Center Management Committee

- Promote accountability, good management and community ownership of facilities (including WASH facilities in health centres).
- Provide a communication channel between the community and the health centre.
- Mobilise resources to support the health care facility's operation and maintenance.

4.8. Patients, visitors and caregivers

- Responsible use and maintenance of facilities.
- Support maintaining cleanliness of facilities.
- Provide essential and honest feedback on the quality of WASH services.
- Practice good hand and personal hygiene.

4.9. Private sectors

- Provide skilled services that comply with national guidelines for construction, maintenance and repair of WASH infrastructure in health care facilities.

4.10. National and International development partners

- Provide funding support for new infrastructure, upgrades to existing infrastructure and ongoing maintenance.
- Provide ongoing technical support, training and professional development to WASH and health stakeholders.
- Support Ministry of Rural Development and Ministry of Health efforts to advocate for improved WASH services in health care facilities.
- Support efforts for strengthening cross-sectorial collaboration between development partners and government ministries.

4.11. Ministries and department concerned

- Ministry of Rural Development and Provincial Department of Rural Development
- Ministry of Industry and Handicraft and Provincial Department of Industry and Handicraft
- Stakeholders at all levels of healthcare systems need to have budget planning and management, and implement basic WASH services based on guidelines.
- Provide collaboration from specialized ministries and departments to support the improvement of WASH in health care facilities, in accordance with broader quality improvement mechanisms and contributing to the improvement of health services.

5. WASH in health care facilities improvement

Facility-level improvements in WASH infrastructure and behaviour practices should aim to reach the optimal level of service through incremental improvements. Improvement activities should follow a continuous cycle of assessment, risk prioritisation and targeted actions. These improvement efforts should be integrated into a facility's existing activities, such as infection prevention and control, antimicrobial resistance and other quality of care improvement activities.

5.1 WASH FIT (water and sanitation for health facilities improvement tool)

To guide WASH in health care facility improvements and sustainable maintenance, WHO and UNICEF have developed the WASH FIT tool¹⁰ with support from WHO, UNICEF and WaterAid in 2017. The Ministry of Health has adopted WASH FIT at several health care facilities in Cambodia. WASH FIT is summarised below.

- WASH FIT is a comprehensive and systematic tool for health care facilities to use internally to prioritise and maintain WASH improvements, focusing on protective measures, Annex IV.

¹⁰ A PDF version of WASH FIT can be found here:
<http://apps.who.int/iris/bitstream/10665/254910/1/9789241511698-eng.pdf?ua=1>

- WASH FIT Covers seven key domains: water, sanitation, personal hygiene, cleaning/disinfecting, health care waste management, environmental management and facility management.
- Intended for primary, and in some instances secondary, care facilities as part of broader quality improvements in health care settings.

5.2 Technology choice, operation and maintenance

Facilities should be resilient, durable and able to be maintained WASH infrastructure without specialised skills or equipment. Choice of technology should take into account local capacity for maintenance and repair. Responsibilities for operation and maintenance should be clearly defined, and appropriate expertise should be available for undertaking necessary activities. Maintenance and repair of all water, sanitation and hygiene facilities should be planned and budgeted in all health care facility management systems.

6. Monitoring and evaluation

Improving and managing WASH services requires strong and consistent monitoring mechanisms to measure progress and direct efforts where needs are greatest. Monitoring is required at national, sub-national and facility level. WASH indicators should be built into routine monitoring for health and WASH sectors.

6.1 Monitoring WASH in health care facilities

Existing Health Management Information Systems (HMIS) and/or annual facility inventory surveys may provide an opportunity for regular monitoring of WASH in health care facilities. These monitoring questions have already been used in a national WASH in health care facility assessment in 117 health care facilities across five provinces.¹¹ These monitoring questions can be considered for regular use among existing Ministry of Health monitoring systems.

Regular monitoring of WASH in health care facilities should be conducted according to the following guidance:

- Monitoring should be conducted at the following levels:

¹¹ Por, I (2017) Public health care facilities assessment on water, sanitation and hygiene of five provinces in Cambodia. Phnom Penh, Cambodia: National Institute of Public Health.

- Facility level: infection prevention and control committee conducts regular (minimum quarterly) assessment of WASH infrastructure and behaviour practices.
 - Provincial Health Department/Operational District level: integrate WASH monitoring into existing Health Equity Quality Improvement Programme monitoring.
 - National level: conduct regular monitoring through national assessments.
- It is best to use indicators that are easily and frequently measured to identify problems and correct them in a timely manner.
 - Monitoring records should be developed at the national or sub-national level, so that monitoring reports and data can be compared across health facilities and tracked over time.

6.2 Indicators

The WHO/UNICEF Joint Monitoring Programme (JMP) is responsible for global monitoring of Sustainable Development Goal targets on drinking water, sanitation and hygiene (targets 6.1 and 6.2).¹² In regards to WASH in health care facilities, JMP has established definitions for basic service levels (see Table 4). See Annex IV for the detailed JMP service ladder for WASH in health care facilities. Any indicators used to monitor WASH in health care facilities in Cambodia should reference these global indicators and levels of service.

¹² SDG Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all. SDG Target 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

Table 4: WHO/UNICEF basic service levels for water, sanitation and hygiene in health care facilities

Water	Sanitation	Hand hygiene
Water from an improved source is available on-premises.	Improved sanitation facilities are available and usable, separated for patients and staff, separated for women and allowing menstrual hygiene management, and meeting the needs of people with limited mobility.	Hand hygiene materials, either a basin with water and soap or alcohol hand rub, are available at points of care and toilets.

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Glossary

Guidelines: recommended practices to achieve desirable minimum environmental health standards in health care settings. They are not law, but should be used as guidance.

Standards: requirements that must be met to achieve minimum essential environmental health conditions in health care settings. They must be clear, essential and verifiable statements.

Clean water: drinking water obtained from improved water sources, such as protected deep pump well, protected shallow pump well, protected well and protected rainwater, which is of a quality in compliance with the National Guidelines on Rural Water Quality.

Water source: the point at which water can be abstracted, such as a spring or well. An 'improved' water source is one that is more likely to provide 'safe' water, such as a piped connection or borehole.

Improved sanitation: a flush or pour flush latrine connected to sewage, a septic tank or a covered pit, or a pit latrine with a slab or a ventilated improved pit (VIP) latrine.

Sanitation: management and disposal of human urine, excreta, domestic waste water, grey water, and runoff water.

Hygiene: conditions or practices conducive to maintaining health and preventing disease, especially through cleanliness and disinfection.

Waste water: liquid waste discharged from homes and other residential premises, commercial and industrial premises and similar sources, to individual disposal systems or to municipal sewer pipes. It contains mainly human excreta and used water.

Grey water: water from the kitchen, bath and/or laundry, which generally does not contain significant concentration of excreta

Faecal sludge: sludge of variable consistency collected from on-site sanitation systems such as toilets, non-sewered public toilets and septic tanks that contain solids from human excreta.

Runoff water: uncontaminated water, primarily rainwater, that does not infiltrate into the ground.

Health centres: facility that is the first point of contact and acts as gatekeeper to higher levels of care, providing (i) maternal, neonatal and child health services, mother and child immunisation, nutritional education, integrated management of childhood illness, birth spacing, screening for breast and cervical cancer, safe abortion; (ii) treatment and prevention of communicable diseases, including diarrhoeal diseases, sexually transmitted infections (STIs) and HIV/AIDS, tuberculosis and leprosy, malaria and dengue fever, avian influenza; (iii) treatment and prevention of noncommunicable diseases and injuries, including high blood pressure, diabetes, breast and cervical cancers, oral health, mental health, eye problems, small surgery; and (iv) outreach activities (once a month per village).

District referral hospitals: facilities that provide treatment for referred cases, complicated tuberculosis cases, medical, surgical and obstetrical emergency cases, some surgery, maternal, newborn and child health services, provision of x-ray, ultrasound and laboratory services, and rehabilitation services.

Provincial hospital: facility that has a special status as it plays both a role for a referral hospital in the operational district in which it is located, and also for other operational districts within the province.

National hospital: facility that provides the highest level complementary package of activity nationwide – national hospitals include general hospitals and hospitals specialised in paediatrics, maternal, newborn and child health and tuberculosis.

Operational district: the basic functional unit of the Cambodian health system with two levels of health services. The first contact level for the public is a health centre, which provides a minimum package of activities. Each operational district covers a population of 100,000-200,000, with at least one referral hospital and a number of health centres that each cover 10,000-20,000 people.

Point of care: the place where three elements come together: the patient, health care workers, and care or treatment involving contact with the patient or his/her surroundings.

Sterilisation: the use of a physical or chemical procedure to destroy all microbial life.

Annex I: Status of WASH in health care facilities

In 2015, the Cambodia National Institute of Public Health conducted a policy review of assessment tools and documents related to Universal Health Coverage, to identify key linkage points between Universal Health Coverage and WASH services. This review concluded that Cambodia lacks specific policies, guidelines and monitoring and evaluation systems related to WASH in health care facilities¹³.

Although a number of documents include relevant guidance on WASH, namely the Building Brief for Health Center Minimum Package of Activities (2018), the National Guideline on Health Care Waste Management (2012), and the National Guidelines for Infection Prevention and Control for Health Care Facilities (2017), none provide detailed and sufficient guidance on WASH infrastructure and resources required in health care facilities.

With support from WHO, WaterAid and UNICEF, a comprehensive assessment of WASH conditions in 117 health care facilities (101 health centres and 16 referral hospitals) across five provinces was carried out to provide baseline data on key indicators for WASH in health care facilities.¹⁴ The results of this assessment are listed in Table 1.

Table 1: Current status of WASH in health care facilities in Cambodia

Indicators	Status
Access to basic water supply (water available from improved sources on premises)	<ul style="list-style-type: none"> All health care facilities: 91% Health centres: 90% Referral hospitals: 93.8%
Access to limited sanitation (at least three improved and usable toilets, but not meeting or meeting some of the needs of specific groups)	<ul style="list-style-type: none"> All health care facilities: 39% Health centres: 36% Referral hospitals: 63%
Access to basic hand hygiene (functional hand hygiene stations available at outpatient department, delivery room/area and within five metres of toilets)	<ul style="list-style-type: none"> All health care facilities: 15% Health centres: 14% Referral hospitals: 19%

¹³ Por, I.(2015). Towards Safer and Better Quality Health Care Services in Cambodia: A Situation Analysis of Water, Sanitation and Hygiene in Health Care Facilities. Phnom Penh, Cambodia: WaterAid.

¹⁴ Por, I (2017). Public Health Care Facilities Assessment on Water, Sanitation and Hygiene of Five Provinces in Cambodia. Phnom Penh, Cambodia: National Institute of Public Health.

It should be noted that based on this assessment, none of the health care facilities had access to basic sanitation, as defined by the WHO/UNICEF (at least one toilet designated for men and one for women, with facilities to manage menstrual hygiene needs (Infectious waste)) and meeting the needs of people with limited mobility. However, 39% of health care facilities had access to limited sanitation (meaning at least three improved and usable toilets not meeting or meeting some of the needs of specific groups).

A recent detailed situation analysis supported by WHO in 2017 revealed that although WASH is included in Cambodian health policies, particularly in quality of care improvement mechanisms, it is not consistently represented across all policy documents and monitoring mechanisms. More importantly, there are no agreed minimum standards for WASH in health care facilities, and no formal coordination on alignment of targets for WASH in health care facilities between the Ministry of Health and other ministries responsible for WASH, such as the Ministry of Rural Development and Ministry of Industry¹⁵.

Within the Ministry of Health Strategic Plan 2016-2020, the Ministry has set targets for water and sanitation coverage in health care facilities by 2020, as listed in Table 2.

Table 2: Key WASH targets set in the Ministry of Health Strategic Plan 2016-2020

Indicators	Status as of 2016	2020 target
Percentage of public health care facilities (health centers and referral hospitals) with access to basic water supply.	91%	95%
Percentage of public health care facilities (out-patient) with access to basic sanitation (toilets).	39%	90%

¹⁵ WHO (2017) Achieving quality universal health coverage through better water, sanitation and hygiene services in health care facilities: a focus on Cambodia and Ethiopia. Geneva, Switzerland: WHO Press, World Health Organization.

Annex II: Guidance for improved water supply sources

Dug Well: any dug wells shall comply with the following minimum requirements:

- A well shall be located at least 25m away from any latrine or waste pit.
- Wells should be on higher ground than the closest latrine or waste pit.
- Platform shall be well drained so as to prevent any stagnation.
- Above-ground wall/barrier shall be well sealed and without cracks.
- Well shall be adequately covered at all times.
- Rope and bucket/collection shall be stored safely away from any likely source of contamination.

Tube well: any tube wells shall comply with the following minimum requirements:

- Tube wells shall be more than 25m away from a latrine or waste pit.
- Nearest latrine shall be at lower ground level than the well.
- Platform shall be minimum 150mm above ground level, and drainage shall be adequate to prevent any pooling.
- Handpump shall be well sealed and anchored appropriately at the base to prevent.
- Well shall be fenced to prevent access by animals.

Rainwater harvesting system: any rainwater harvesting system shall comply with the following minimum requirements:

- Rainwater storage tank shall be covered at all times.
- The tank shall have faucet outlet for water collection.
- Tank shall have a concrete footing with good drainage.
- Guttering and roofing shall be free of mould, rust free and of general good quality.
- First flush shall be used as a minimum to prevent contamination.

Piped water: any piped water through the health care facility shall comply with the following minimum requirements:

- Any pipework within the facility shall be buried at least 1m below the ground.
- All pipework shall be of PVC quality or higher.
- All exposed pipework shall be safely mounted via brackets to walls to prevent damage by weather, animals etc.

Annex III: National rural drinking water quality parameters

Parameter Category	Parameter		Exceptions	Minimum examination frequency		Acceptable intervention
	Unit	Premisable Limit		a (every six months)	b (Annually)	
Microbial						
E.coli (or Thermo-tolerant coliforms)	CFU or MPN/100ml	0		A		HWTS if water has <100CFU/100ml
Chemical						
Arsenic (As)	mg/l	0.05	For ground water		B	
Chlorine (free residual) (Cl ₂)	mg/l	0.2-0.5	Where chlorine is used as residual deinfectant	Chlorine residual to be tested every week		
Fluoride (F)	mg/l	1.5	Ground water		B	Use fluoride removal technology
Iron (Fe)	mg/l	0.3			B	Use alternative source, or HWTS (e.g sand filter)
Manganese (Mn)	mg/l	0.1			B	
Nitrate (NO ₃ ⁻)	mg/l	50			B	
Nitrite (NO ₂ ⁻)	mg/l	3			B	
TDS or Conductivity	mg/l μ S/cm	800 or 1600			B	
pH	n/a	6.5-8.5			B	
Taste and Odour	n/a	Acceptable			B	
Turbidity	NTU/FTU	10			B	
CaCO ₃ Total hardness (as CaCO ₃)	mg/l	500			B	

	<input type="checkbox"/> Improved source (1-4) off-premises over 500m <input type="checkbox"/> Unprotected dug well <input type="checkbox"/> Cart with small tank or drum/tanker truck <input type="checkbox"/> Surface water <input type="checkbox"/> Other source, specify: _____
06.	Are these water sources (main and secondary sources) used for drinking water at all? <input type="checkbox"/> No <input type="checkbox"/> Yes
07.	Does the referral hospital treat the water for drinking purposes? <input type="checkbox"/> No <input type="checkbox"/> Yes
08.	If Yes, what treatment methods are used? (Multiple answers possible) <input type="checkbox"/> Filtration <input type="checkbox"/> Disinfection by boiling <input type="checkbox"/> Disinfection by using chlorine <input type="checkbox"/> Other, specify _____
09.	If No, why? (Multiple answers possible) <input type="checkbox"/> The drinking water source is considered safe <input type="checkbox"/> Referral hospital does not have filter or purification materials <input type="checkbox"/> None of the staff know how to do it <input type="checkbox"/> No time to treat the water <input type="checkbox"/> Other, specify: _____
10.	Is there any source of drinking water provided for clients? <input type="checkbox"/> No <input type="checkbox"/> Yes <i>(Confirm by observing if drinking water for clients is available at the patient waiting areas, e.g. of the outpatient department/triage, during referral hospital walkthrough)</i>
11.	If Yes, what is the source of drinking water provided for clients? <input type="checkbox"/> Available referral hospital water source <input type="checkbox"/> Bottled water bought by the referral hospital <input type="checkbox"/> Other, specify: _____
12.	What is the source of drinking water for staff? (Multiple answers possible) <input type="checkbox"/> Available referral hospital water source <input type="checkbox"/> Bottled water bought by the referral hospital <input type="checkbox"/> Staff bring their own bottled water <input type="checkbox"/> Other, specify _____
13.	In total, do all water sources provide enough water for all the needs (drinking, food preparation, personal hygiene, medical activities, cleaning and laundry) of the referral hospital throughout the year? <input type="checkbox"/> No, never enough water <input type="checkbox"/> Yes, sometimes, only seasonally, even when only use for general purposes other than drinking

	<input type="checkbox"/> Yes, enough water all year only for general purposes other than drinking <input type="checkbox"/> Yes, enough water all year for all purposes, including drinking <input type="checkbox"/> Don't know
14.	If Yes, what treatment methods are used? (Multiple answers possible) <input type="checkbox"/> Filtration <input type="checkbox"/> Disinfection by boiling <input type="checkbox"/> Disinfection by using chlorine <input type="checkbox"/> Other, specify _____
15.	If No, why? (Multiple answers possible) <input type="checkbox"/> The drinking water source is considered safe <input type="checkbox"/> Referral hospital does not have filter or purification materials <input type="checkbox"/> None of the staff know how to do it <input type="checkbox"/> No time to treat the water <input type="checkbox"/> Other, specify: _____

Waste water and sanitation facilities (for outpatient department or emergency ward)

(Please select the correct answer using ✓ in the box as :) if any others, please specify)

01.	How many toilets/latrines are there in the outpatient department block (or emergency ward) of the referral hospital at this time? <input type="checkbox"/> No 0 <input type="checkbox"/> Yes, specify how many _____ <i>(Verify by the counted number during referral hospital walkthrough)</i>
02.	How many of them are IMPROVED toilets/latrines? (IMPROVED: flush toilets, ventilated improved pit latrines, pit latrines with slab, composting toilets) <input type="checkbox"/> No 0 <input type="checkbox"/> Yes, specify how many _____ <i>(Verify by the counted number during referral hospital walkthrough)</i>
03.	Are there separate improved toilets/latrines for men and for women/girls (at least one for each group)? <input type="checkbox"/> No <input type="checkbox"/> Yes
04.	Are there separate improved sanitation facilities for staff and for clients (at least one for each group)? <input type="checkbox"/> No <input type="checkbox"/> Yes
05.	Does at least one of these improved toilets/latrines meet the needs of (designated for) people with reduced mobility? (MEETING THE NEEDS OF PEOPLE WITH REDUCED MOBILITY: improved toilets/latrines that are accessible without stairs or steps, having

06	<p>Does the referral hospital have any appliances available for sterilising medical equipment?</p> <p><input type="checkbox"/> No, there is none or a broken one <input type="checkbox"/> Yes</p> <p><i>(Check at the sterilisation room if there are functioning sterilisers available during referral hospital walkthrough)</i></p>
07.	<p>If Yes, what type of appliances does your referral hospital use to sterilise medical equipment?</p> <p><input type="checkbox"/> Electric autoclave <input type="checkbox"/> Non-electric autoclave/pressure cooker</p> <p><input type="checkbox"/> Electric dry heat steriliser <input type="checkbox"/> Electric boiler or steamer</p> <p><input type="checkbox"/> Other, specify _____</p>
08.	<p>Does the referral hospital have any infection prevention and control (IPC) guidelines for health care facilities?</p> <p><input type="checkbox"/> No, if yes, ask to see it. <input type="checkbox"/> Yes</p>
09.	<p>Has there been any IPC training offered to referral hospital staff?</p> <p><input type="checkbox"/> No <input type="checkbox"/> Yes</p>

Annex V: WHO/UNICEF Joint Monitoring Program (JMP) indicators

Source : <https://washdata.org/monitoring/health-care-facilities>

JMP monitoring of WASH in health care facilities includes tracking basic water, sanitation, hand hygiene and health care waste. Definitions of basic services have been developed by a global task team convened by the JMP and incorporated into new JMP service ladders for WASH in health care facilities. JMP estimates for WASH in health care facilities will be based on the new harmonised core indicators.

Water

Health care facilities with an improved water source on-premises, with water available at the time of the questionnaire or survey, will be classified as having basic service. Health care facilities with an improved water source, but without water available or that is off-premises, are classified as having limited service, and those with unimproved or no water source will be classified as no service. In countries where basic service is already the norm, a country-defined advanced service level may be appropriate based on the national context, priorities and resources. Criteria for an advanced level might include normative elements such as water quality and water quantity.

Service Level	Definitions
Advance	to be defined at national level.
Basic	Water from an improved source is available on-premises
Limited	Water from an improved source is available off-premises, or an improved source is on-site but no water is available.
No service	No water source or water source available but not improved source (e.g. Well/water from the ground, without protected on the ground)

Sanitation

Health care facilities with improved latrines or toilets which are usable, separated for patients and staff, separated for women with menstrual hygiene facilities, and meet the needs of people with limited mobility, are classified as having

basic service. The term usable here refers to toilets or latrines that are accessible to patients and staff (doors are unlocked or a key is available at all times), functional (the toilet is not broken, the toilet hole is not blocked, and water is available for flush/pour flush toilets), and private (there are closable doors that lock from the inside and no large gaps in the structure).

Health care facilities with improved latrines or toilets which do not meet all the criteria for basic service are classified as having **limited service**. Health care facilities with unimproved or no toilets are classified as having **no service**. In countries where an advanced service level is appropriate, elements might include toilet cleanliness, toilet lighting or patients per toilet ratios.

Service Level	Definitions
Advance	to be defined at national level.
Basic	improved facilities are usable, separated for patients and staff, separated for women and providing menstrual hygiene facilities, and meeting the needs of people with limited mobility.
Limited	improved sanitation facilities are present but are not usable, or do not meet the needs of specific groups (women, people with limited mobility, staff).
No service	pit latrines without a slab or platform, hanging latrines, or there are no toilets or latrines at the facility. No toilet or improved toilet (pit latrines without a slab or platform, hanging latrines, or there are no toilets or latrines at the facility)

Hand hygiene

Basic hand hygiene in health care facilities is defined by two main criteria: (1) either alcohol hand rub or a basin with water and soap are available at points of care, and (2) handwashing facilities with water and soap are available at the toilets. Points of care are defined here as any location in the outpatient setting where care or treatment is delivered (i.e. consultation/exam rooms).

Health care facilities with hand hygiene materials at either points of care or the toilets, but not both, are considered to have **limited service**, while those with no hand hygiene stations or with no cleansing materials are classified as having **no service**. An advanced level for hygiene might include availability of hand hygiene promotional

materials near hand hygiene stations and/or the patient waiting area, or if hand hygiene facilities are accessible to all staff and patients.

Service Level	Definitions
Advance	to be defined at national level.
Basic	hand hygiene materials, either a basin with water and soap or alcohol hand rub, are available at points of care and toilets
Limited	hand hygiene station at either points of care or toilets, but not both.
No hand hygiene material	hand hygiene stations are absent, or present but with no soap or water.

