WATER, SANITATION AND HYGIENE IN HEALTHCARE FACILITIES (HCFs)

REFERENCE GUIDE

September 2024

This reference guide was collaboratively developed with significant support and input from a variety of professionals on the World Vision WASH team. These include Samuel Diarra, Lindsay Lange, Ray Norman, Pamela Wamalwa, and Fungai Makoni. Many of the visual elements as well as the overall content editing and proofreading were provided by Stephanie Zito.

It is our desire this document serves as a valuable tool to help World Vision implement quality and inclusive WASH in healthcare facilities programming. If you have any feedback on the guidance included, please email washcop@wvi.org.

Reference Guide for Water, Sanitation, and Hygiene in Healthcare Facilities
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World Vision is a Christian humanitarian organisation dedicated to working with children, families, and their communities worldwide to reach their full potential by tackling the causes of poverty and injustice. We serve all people, regardless of religion, race, ethnicity or gender.

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1 Introduction

This reference guide is intended to put in place a uniform and harmonised approach to providing WASH services in healthcare facilities across the World Vision partnership. The guide offers practical direction for the effective and efficient provision of WASH services in HCFs to contribute to the prevention and control of healthcare-associated infections (HAIs) and improvement of the quality of healthcare services.

1.1 Purpose of the Guidance Document

The purpose of this document is to maximise the impact of World Vision's work on WASH in healthcare facilities by clearly defining uniform standards, raising awareness of World Vision's approach and strengthening fundraising for WASH improvements in healthcare facilities. The guide focuses on quality standards using the basic WASH service levels according to the World Health Organisation (WHO)/UNICEF Joint Monitoring Programme (JMP), along with additional best practices, and prioritises a research agenda with evidence building that can be leveraged to inform programming and the sector globally for the greatest impact.

Specifically, reference guide:

- Provides technical guidance on planning, budgeting, implementation and maintaining WASH services and infrastructures in HCFs.
- Provides basic information on technical designs and Operations and Maintenance (O&M) to guide implementation of WASH services for sustainable delivery.
- Establishes systems for monitoring and evaluation WASH services in HCFs for continuous quality improvement.

1.2 Background

The United Nations (U.N.) Sustainable Development Goals (SDGs) place a new emphasis on universal health coverage, including access to WASH services in healthcare facilities. The term "WASH in HCFs" refers to the provision of water, sanitation, hygiene, healthcare waste management and environmental cleaning infrastructure and services across all parts of a facility. Healthcare facilities encompass all formally recognised facilities that provide healthcare, including primary (health posts and clinics), secondary and tertiary (district or national hospitals), public and private (including faith-run) and temporary structures designed for emergency contexts (e.g., cholera treatment centres). They may be located in urban or rural areas.[1]

With the SDGs targeting universal access to WASH services and health coverage, far greater attention is needed on WASH in healthcare facilities. Universal health coverage can only be achieved when everyone has access to quality healthcare at facilities with basic WASH services. This is particularly important for safe childbirth and for preventing the spread of infections.

In March 2018, the U.N. Secretary-General made a global call to action for WASH in all healthcare facilities. This call noted that healthcare facilities are essential for reducing diseases, but also without basic WASH services, they can contribute to more infections and preventable deaths for mothers and babies. In May 2019, all WHO member states committed to improve standards, monitoring, training and financing for WASH in healthcare facilities through a unanimous World Health Assembly resolution. Since then, many organisations have committed to advance this work. World Vision is uniquely positioned to be a major contributor with robust WASH and health programmes and strong relationships with communities and governments.

[1] https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health-(wash)/health-care-facilities/wash-in-health-care-facilities

1.3 Evidence supporting WASH in Healthcare Facilities

WASH services are fundamental to providing quality care. Without such services, health outcomes, especially those for reducing maternal and neonatal mortality, reducing the spread of antimicrobial resistance and preventing and containing disease outbreaks will be not met.

Despite the fundamental need of WASH for quality health service delivery, access to WASH in healthcare facilities remains poor in many of the world's Least Developed Countries (LDCs). Availability of WASH services, especially in maternity and primary care settings is often absent, hence affecting universal healthcare aspects of quality, equity and dignity for all people. Globally, one in four healthcare facilities lacks basic water, one in five lacks sanitation facilities and one in six lacks hand hygiene facilities at points of care.[6]

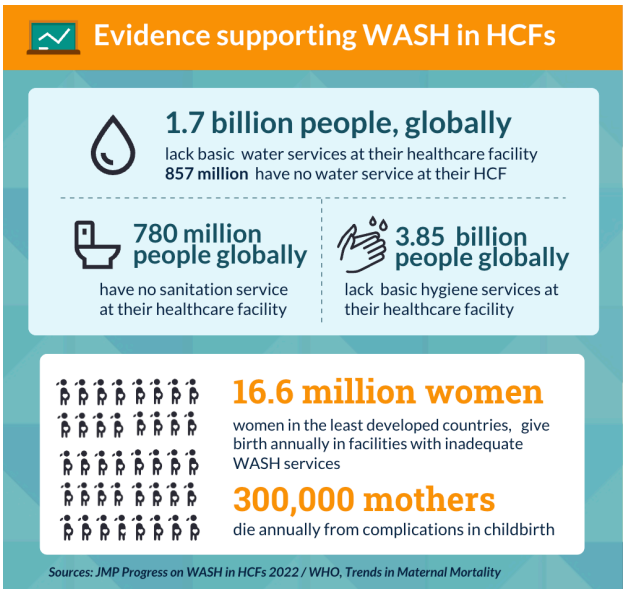

Figure 1: Evidence supporting WASH in HCFs

According to WHO, 16.6 million women in LDCs give birth each year in facilities with inadequate WASH services. Four million babies die before their first birthday and 300,000 mothers die from complications related to childbirth.[2] Many of these deaths are preventable, caused by poor conditions in healthcare facilities which lack basic WASH services and essential hygiene practices required for safe childbirth.

Approximately 15% of all neonatal deaths result from neonatal sepsis, a severe infection caused by poor hygienic practices.[3] With increasing facility-based deliveries in LDCs, the risk of healthcare-associated infections (HAIs) among neonates also has increased. Major risk factors include poor hand hygiene, inadequate environmental cleaning and disinfection and unhygienic bathing. Because most HAIs are caused by antimicrobial-resistant pathogens, it is critical to focus on prevention. Studies in Nepal documented handwashing by birth attendants and mothers reduced neonatal mortality 41%.[4]

WASH services are critical for proper infection prevention and control (IPC) and help reduce HAIs. Poor WASH conditions increase the risk of HAIs through contaminated water, food, hands, medical equipment and other fomites. HAIs in low and middle-income countries are two to 20 times higher than in developed countries, affecting between 2% and 15% of hospital patients, and 6% to 46% of surgical patients; and the cumulative incidence of surgical site infections ranges from 2.5% to 30.9%.[5] The 2014-2016 Ebola epidemic in West Africa highlighted the lethal consequences of the lack of handwashing facilities as a first line of defence for health workers.

Ensuring adequate WASH services at HCFs minimises the risk of infection for patients and their families, health workers and surrounding communities; and has shown to have a significant impact on maternal, newborn and child health. Clean and safe HCFs increase demand for and trust in services and can reinforce the role of healthcare services and staff in setting societal hygiene norms, increase the motivation and retention of health workers and result in cost savings from infections averted and more efficient service delivery.

This reference guide provides practical steps to improve and sustain WASH in HCFs (which include hospitals, health centres and dispensaries) as World Vision adapts the WASHFIT approach for

[2] WHO, UNICEF, UNFPA, World Bank Group, and the UN Population Division, 2019. Trends in Maternal Mortality: 2000 to 2017..
[3] Call for public consultation: Target product profile for tests of neonatal sepsis and possible serious bacterial infections in newborns and young infants, WHO, 2024.
[4] Rhee V, Mullany LC, Khatry SK, Katz J, LeClerq SC, Darmstadt GL, Tielsch JM. Maternal and birth attendant hand washing and neonatal mortality in southern Nepal. Arch Pediatr Adolesc Med. 2008.
[5] WHO, 2018; Velleman Y, et al, 2019

improving and sustaining WASH and healthcare waste management infrastructure and services in healthcare facilities in LDCs.

1.4 Linkages to SDGs and to Child Well-Being Objectives (CWBO)

World Vision's WASH Core Project Model (CPM) and Guidance on WASH in HCFs provide directives and practical steps to improve and sustain WASH in HCF interventions in World Vision operational areas in alignment with SDG 6 (clean water and sanitation) and measuring inputs associated with SDG 3 goals, including 3.1 (maternal mortality), 3.2 (newborn mortality) and 3.8 (universal healthcare).

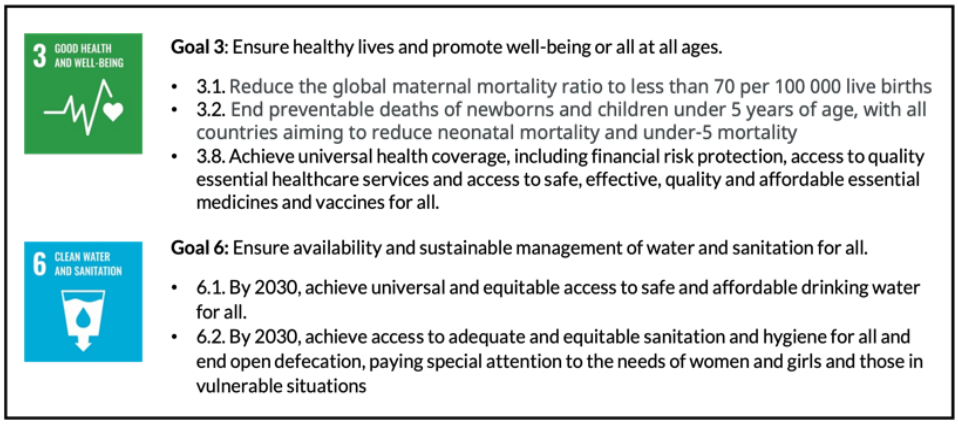

Figure 2: SDG goals aligned to WASH in HCFs interventions

WASH in HCFs is essential for the improvement of child well-being and is foundational to World Vision's mission that all children and their communities experience life in all its fullness. WASH in HCF interventions contribute to World Vision's child well-being objectives as outlined in Table 1.

Table 1: WASH in HCFs contribution to CWBOs

Child well-being aspirations	Child well-being objectives (2017-2030)
Children enjoy good health	Children are protected from infection, disease and injury
	Children and their caregivers access essential health services
Children are cared for, protected and participating	Children cared for in a loving, safe, family and community environment with safe places to play

1.5 World Vision Capacity

World Vision's WASH Core Project Model specifies that World Vision implements WASH programmes in communities and households, schools, healthcare facilities and emergency settings. World Vision is uniquely positioned to be a major contributor to address the critical gap of quality WASH services in HCFs because of our extensive expertise in both health and WASH, our expansive global reach and our long-term commitment to communities. *For more information about World Vision's unique positioning and comparative advantages in delivering WASH in HCFs, see Appendix 2.*

2 Evidence Building

2.1 Sector-wide Research Agenda

WASH and health technical experts and researchers have identified the following key areas where further research and evidence are required in relation to WASH in HCFs. These areas include **burden of disease, costing analysis, and qualitative research on hygiene behaviour change.**

The following areas have been identified where World Vision offices may have opportunity to contribute to this work:

- **Cost-effectiveness, financing and sustainability:** Innovative financing mechanisms for improvements are needed (i.e., business pay-for-performance models). In addition, innovative technologies should be considered (i.e., those that use less water or that use waste

as power for lighting). Communities need to be involved in managing services and helped to provide local, sustainable solutions.

- **Education and capacity building:** New approaches for education and staff capacity building are needed. Ideas include using formal education structures (e.g., degrees and diploma programmes) for professional health training, peer-to-peer learning and support tools for staff members (e.g., mobile learning apps). Finding ways to increase the standards of cleaners was also considered important.
- **Health systems and scaling up**: Health systems are complex and consist of many elements, all of which should be considered when making facility improvements. The taskforce team could work with other professional groups (e.g., behavioural economics) and use more accessible language and terminology to facilitate change.
- **Social behaviour change and empowerment:** Behaviour change needs to happen at many levels and should be enabled through incentives. Since behaviour is context-specific, it is important to document what does and does not work, so that tools and approaches can be translated to other contexts and settings. For example, placing a picture of a pair of eyes over hand hygiene stations to encourage handwashing demonstrated improved handwashing rates.
- **Accountability and rewards**: Healthcare professionals, patients and community members should be empowered to demand better services. There are standards for facilities, but there is still a lack of awareness that these exist. Improvements should be made within existing accountability mechanisms. In addition, including energy and building design experts would be useful for creating more efficient WASH designs.

For additional scientific literature and evidence, please reference Appendix 3.

2.2 World Vision Learning Agenda

World Vision is strategically positioned to contribute to many of the efforts around WASH in healthcare facility improvements described above, due to its diverse geographic footprint and large-scale implementation. While research organisations and funders might be able to pilot specific approaches limited to individual aspects of WASH in healthcare facilities (i.e., hand hygiene intervention in a few healthcare facilities), World Vision has major potential to form partnerships and leverage ongoing implementation. This allows for inexpensive pilots within existing programming, creating opportunities to generate revenue for the implementation and evaluation of scale-up initiatives.

2.3 Priority Research Questions

World Vision is strategically positioned to answer the research questions in the table that follows, relevant to World Vision-specific programmes or to directly inform the sector in general.

Many of the above research questions require expert consultation/support, such as health impacts of WASH in HCFs, developing costing methodologies or optimising behaviour-change approaches. However, because of the great expense to deliver WASH in HCF services, there is high potential for generating research funds through partnerships with academic institutions to address these topics.

Other questions are inexpensive to address given implementation funding is available, such as identifying health impacts by delivering WASH improvements to half of the healthcare facilities involved in a project (selected at random) and evaluating the changes seen in healthcare facilities receiving interventions compared to control healthcare facilities (which would later receive the intervention package following the initial data collection). Finally, some sustainability questions can be addressed simply by using easy-to collect data from past work, especially for understanding baseline rates associated with standard World Vision approaches such as CVA (*See Citizen Voice and Action guidance*). However, all research still requires funding so when designing projects for WASH in healthcare facilities, all design teams should prioritise some funding toward research to realise the above research potential.

Table 2: Priority research questions relevant to World Vision

Priority Research Questions	
Behaviour Change	What are the key determinants of WASH-related behaviours among healthcare workers, patient, and caregivers in different cultural and healthcare settings?
	What kinds of hygiene promotion initiatives can be effective in healthcare facilities?
	How can behavioural insights be leveraged to design effective WASH interventions in HCFs?
Technology	What kinds of infrastructure are required to facilitate high rates of hygiene compliance in HCFs?
	What kinds of technology (e.g., SafiStations and SE 200 Community Chlorine Makers) or supply chains are needed to provide regular access to cleaning materials?
	How can emerging technologies and innovative approaches be leveraged to improve WASH practices in HCFs?
Health Impacts	What are the health impacts of basic and enhanced levels of WASH in healthcare facilities and what should the priorities therefore be for sector investments?
	How are these health impacts mediated by the environmental hygiene conditions in the surrounding communities?
	What is the return on investment for WASH in HCF initiatives in terms of health, economic and social benefits?
Costing	What costs are associated with delivering basic and enhanced levels of WASH in HCFs?
	How can we compare and track costs across settings?
	What are the most effective community-based financing options for WASH services in HCFs?
Sustainability	What is the rate of sustainability for WASH interventions and how can this be improved?
	How can projects ensure adequate training, monitoring and accountability for sustainable hygienic behaviours and operations and maintenance?
	What role can private operators play in improving the quality and continuity of WASH services in both healthcare facilities and communities?
	How effective is local community/user advocacy/Citizen Voice and Action (CVA) for reinforcing accountability?
	What are the most effective methods to get actors from different ministries to align roles and responsibilities to ensure sustainable WASH in HCFs?
	What are the key considerations for effective WASH coordination and accountability at the district level to improve WASH service delivery?
	Which government structure is responsible for WASH service in healthcare facilities (i.e., Ministry of Health, Water Resources or both)?
	How can maintenance strategies, financing mechanisms and stakeholder engagement be optimised to ensure the long-term viability of WASH initiatives in HCFs?
	What is the rate of sustainability for WASH interventions and how can this be improved?
	How can projects ensure adequate training, monitoring and accountability for sustainable hygienic behaviours and operations and maintenance?
	What role can private operators play in improving the quality and continuity of WASH services in both healthcare facilities and communities?
	How effective is local community/user advocacy/Citizen Voice and Action (CVA) for reinforcing accountability?
	What are the most effective methods to get actors from different ministries to align roles and responsibilities to ensure sustainable WASH in HCFs?
	What are the key considerations for effective WASH coordination and accountability at the district level to improve WASH service delivery?

3 WASH in HCFs Approaches

Various promising approaches and tools can be used to implement WASH in HCF interventions. As there has been demonstrated a need for more evidence-based project models to address the critical gaps in providing WASH in healthcare facilities, the methodologies proposed are intended to be tested and validated to build evidence through each project's monitoring, evaluation and learning plan. A few approaches that World Vision may take for WASH in HCFs are summarised in Table 3.

Table 3: Promising approaches and tools for WASH in HCFs

Approach	Purpose	When to use	Expected outcome
WHO water and sanitation for health facility improvement tool (WASH FIT)	A risk-based assessment and continuous improvement framework with a set of tools for improving WASH and waste management infrastructure and services in healthcare facilities	WASH FIT should be used on a continuous basis to help healthcare facility staff and administrators prioritise and improve services	• An active and energised healthcare facility management team • Improved long-term upkeep of facility
	Links: https://iris.who.int/bitstream/handle/10665/353411/9789240043237-eng.pdf?sequence=1		
USAID Clean Clinic Approach (CCA)	An incentive-based approach that encourages healthcare facilities to establish WASH goals and make incremental improvements towards the end goal of achieving "clean clinic" status, as defined with the national Ministry of Health	CCA is used after target healthcare facilities have undergone assessment and national minimum WASH standards have been established or refined	• Action plan and timeline created for clinic improvement • Incentives created to accelerate healthcare facility progress
	Links: https://pdf.usaid.gov/pdf_docs/PA00VPN8.pdf		
World Vision BabyWASH	A wrap-around approach that integrates WASH with nutrition, early childhood development, and maternal, newborn and child health to improve health and survival of children in the first 1,000 days of life (conception to age 2)	BabyWASH should be used by programmes seeking to design and implement multi-sectoral interventions for greater impact on child health and survival	• Closer collaboration between WASH and health teams • Stronger connection between work at healthcare facilities and in the community
	Links: https://www.wvi.org/sites/default/files/2019-05/Baby%20WASH%20Toolkit-%20External.pdf		
Citizen Voice and Action (CVA)	CVA is an evidence-based, community-level advocacy model that operationalises and strengthens relationships of direct accountability among citizens, policymakers and service providers	CVA should be used as a mechanism for community engagement towards government accountability for WASH and other public services	• Community members empowered to demand improved WASH services • Government actively engaged in HCF upkeep and budgeting
	Links: https://wvi365.sharepoint.com/sites/Community-WASH/SitePages/WASH-Programme-Guidance.aspx#citizen-voice-and-action-in-wash		
Hygiene behaviour change for healthcare workers	There is no standardised guidance on changing staff behaviour in healthcare facilities, and so World Vision has prepared guidance around best	Behaviour change approaches should be a part of all WASH in HCF work, with a focus on understanding gaps remaining after	• Improved IPC practices by HCF workers • Fewer infections contracted by patients at HCFs

	practices drawn from existing literature	infrastructure is improved and regular monitoring conditions through HCF quality assurance practices	
	Links: See Appendix 4		
Operation and maintenance strategies for sustainability	There is no standardised guidance for ensuring the sustainability of WASH in HCFs, so World Vision has developed a guidance document compiling knowledge and best practices from within World Vision and the sector as a whole	O&M strategies for sustainability should be considered for all WASH in HCF work, with initial discussions with local staffs and community residents taking place at the outset of each project	• Improved cleanliness of sanitation facilities and surfaces at HCFs • Improved perceived quality of HCF by patients
	Links: See Appendix 5		

4 WASH in HCFs Project Design

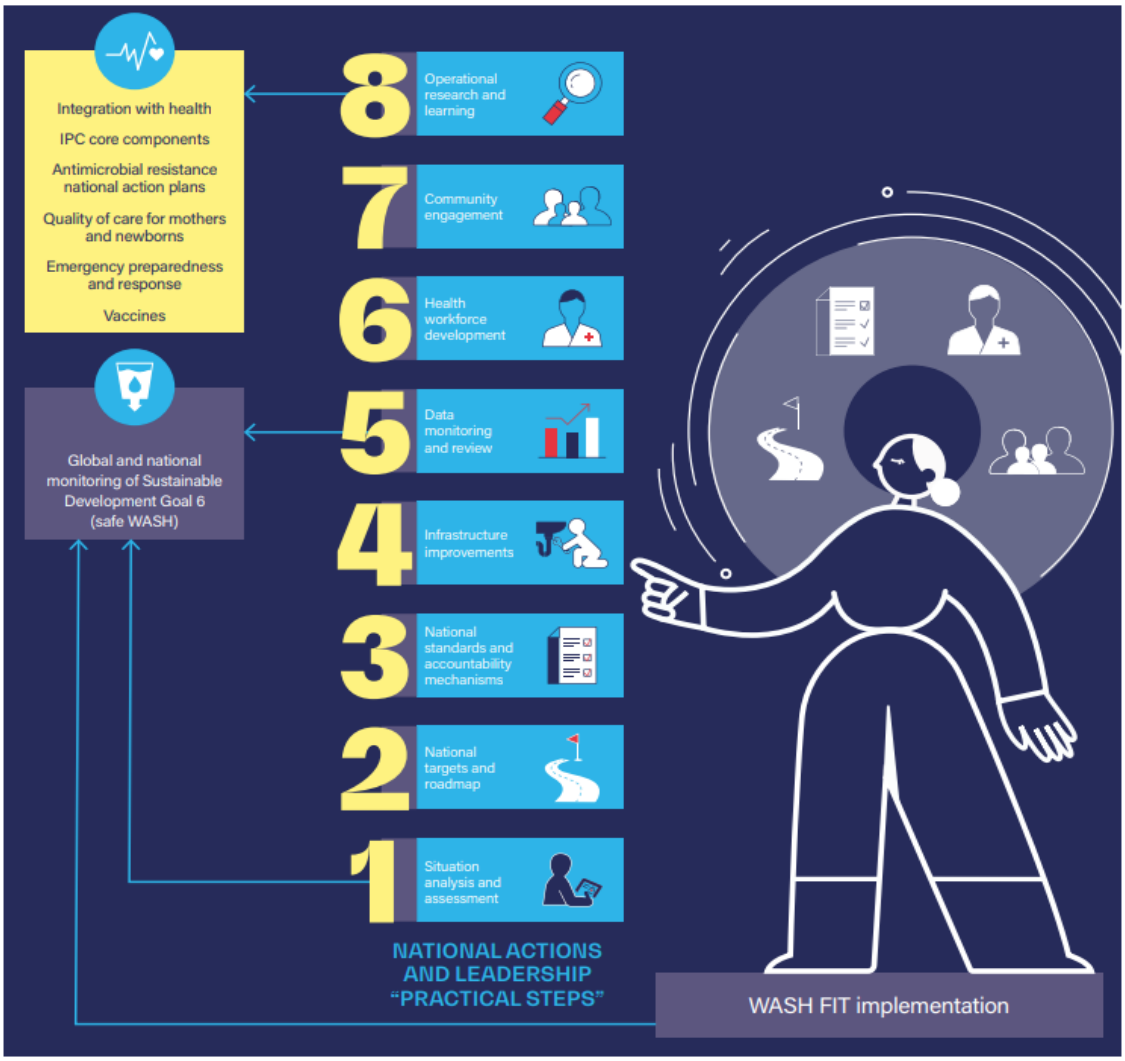

Figure 3: WASH Fit phases, linkages between WASH FIT, global monitoring indicators and national actions to improve WASH in healthcare facilities

World Vision's recommends adapting the design process of the WHO and UNICEF-developed 'Eight Practical Steps to Help Guide National Action' to improve and sustain WASH in healthcare facilities. The eight phases to achieve a comprehensive WASH in HCF project following these steps are outlined in detail this section.

4.1 Eight Steps for Designing WASH in HCF Projects

Step 1: Conduct situation analysis and assessment
An assessment compiles existing data on WASH in healthcare facilities coverage at the national and subnational levels, or if data does not exist, assessments need to be conducted.

The situation analysis should identify all existing standards, policies and strategies that include WASH in healthcare facilities, whether they are specific to WASH, quality care, maternal and child health, IPC, cholera or emergency preparedness and response. The analysis articulates the roles and responsibilities of different government entities, partners and accountability structures, such as accreditation or regulation facilities.

The situation analysis also identifies funding streams, budget allocations and indicators of performance. A good situation analysis should include facility visits to confirm the validity of monitoring information and obtain insight from staff, care seekers and WASH, health and other community groups.

WASH services in healthcare facilities need to include hygiene behaviour change; operation, maintenance and management systems; and government advocacy and capacity building to achieve the desired impact. These gaps provide an opportunity for World Vision to help build the evidence base.

Step 2: Set targets and define the roadmap
A joint WASH and health task force or technical working group with a formally defined terms of reference and membership can be an effective mechanism for developing a roadmap, setting targets, providing technical and political leadership and coordinating implementation efforts. Ideally, such a taskforce would be led by the local authority or appropriate stakeholders and would include decision-makers from relevant ministries (e.g., health, water, sanitation, infrastructure and public works, finance) and technical staff and partners engaged in WASH in HCF activities. The first job of the task force is to set targets and define a national roadmap for WASH in healthcare facilities based on the situation analysis and assessment, taking into consideration the special needs of vulnerable groups and underserved areas and facilities. Once the roadmap is in place, all partners must support and track progress toward agreed goals, giving priority to government-preferred tools and approaches over partner or donor preferences.

Step 3: Establish national standards and accountability mechanisms
National standards and policies for WASH in healthcare facilities are necessary for implementing, monitoring and regulating health services. Standards should be comprehensive (including items such as safe healthcare waste management), specific enough to provide actionable technical guidance, and relevant to the local context.

In addition, standards ought to meet the needs of vulnerable populations who, for example, might require gender-segregated toilets, menstrual hygiene facilities, or ramps, handrails and wide doorways for those with limited mobility. Once developed, WASH standards ought to be included in quality-of-care guidance (especially for mothers, neonates and children), IPC strategies, cholera prevention and control plans and national quality policies and strategies. One effective way to embed standards into health programmes is by identifying common goals (i.e., reducing maternal and newborn deaths, increasing uptake and satisfaction of care, improving adherence to recommended hand hygiene practices) and jointly monitoring and reviewing progress. Standards should also be accompanied by oversight and sufficient resources for implementation.

Once standards exist for WASH in healthcare facilities and are being implemented, countries can consider how to include WASH in regulatory processes, accreditation methodologies and national health insurance schemes. For example, measuring WASH within an accreditation system could be a prerequisite for health facilities to be linked to national insurance reimbursement schemes. Some countries use a combination of penalties and incentives to ensure that all facilities meet standards. In some cases, friendly competitions or national ranking systems can be effective. Alternatively,

facilities may receive financial (or other non-financial) incentives for meeting particular targets or standards. It may be necessary to consider potential bias among the groups responsible for inspecting and regulating facilities. Engaging users and communities to review and provide feedback on WASH services can be a useful way to triangulate data.

Step 4: Improve and maintain infrastructure

Infrastructure for WASH and healthcare waste management needs to be appropriate and suitable for the local context, the size of the facility and the services a facility provides. Most large infrastructure improvements require the engagement of finance institutions, government agencies and contractors.

An infrastructure plan can help define the scope of work and outline the costs in a particular facility (primary, secondary or tertiary) and location (urban or rural). A costing analysis can compare the benefits of new WASH infrastructure to the costs associated with the lack of WASH infrastructure. Even in healthcare facilities equipped with advanced WASH infrastructure, this can quickly fall into disrepair without sufficient staff, funds and systems to maintain it.

Ongoing operation and maintenance of advanced WASH infrastructure, particularly in rural areas, requires resources (e.g., for electricity), supply chains and trained staff. For this reason, healthcare facilities are encouraged to include costs and capacity for ongoing operation and maintenance in their infrastructure plans.

To finance large infrastructure projects, it may be possible to use existing WASH and health sector funds. The 2016–2017 GLAAS survey found that nearly 40% of countries used less than 75% of domestic capital commitments for WASH.[6] In other words, 25% or more of existing domestic funds allocated to WASH were not spent.

Another potential source of funding, particularly for ongoing maintenance, is local insurance schemes and community funds. In Mali, for example, community funds provide the means to cover small maintenance needs, such as replacing taps and cleaning toilets in primary and district healthcare centres.

Step 5: Monitor and review data

The best way to track the status or progress of WASH interventions is by monitoring and reviewing indicators on a regular basis. Appropriate data should be shared locally, nationally, and globally so that incremental progress can be documented, and priority investments can be made. Indicators for WASH in healthcare facilities are most easily tracked when they are embedded in existing health monitoring systems. In such cases, it can be helpful to harmonise WASH in healthcare facility indicators with water sector indicators to avoid the two sectors collecting the same data independently or using different definitions.

Indicators for WASH in healthcare facilities can also be embedded in externally supported, nationally representative surveys (e.g., Service Provision Assessments, Service Availability and Readiness Assessments and health facility assessments) and programme-specific surveys (e.g., HIV/AIDs surveys, maternity and obstetric services assessments and HeRAMS surveys for emergencies).

Monitoring data is also essential for tracking progress toward SDG 6 (clean water and sanitation) and measuring inputs associated with Goal 3.1 (maternal mortality), 3.2 (newborn mortality) and 3.8 (universal healthcare).

Step 6: Develop a health workforce

A well-trained, well-supported and dedicated health workforce enables health systems to perform well and respond appropriately to challenges. Health facility staff (both clinical and non-clinical) deserve to work in an environment that protects their occupational health and safety and allows them to perform their job to the best of their ability. For this reason, preservice and in-service training and mentoring must be provided for all levels of healthcare staff and must emphasise the importance of good WASH and IPC practices, including safe hand hygiene. Health facility cleaners

[6] WHO, 2015.

and healthcare waste operators need additional skills and competencies to safely and effectively conduct their work.

Processes and tools such as WASH FIT help staff identify and prioritise risks and develop improvement plans for WASH. Incremental improvements, such as the installation of simple hand hygiene stations, coloured waste bins and hygiene training are measures that are relatively inexpensive and quick to implement in healthcare facilities. Such improvements may also have positive ripple effects on WASH practices in communities.

Step 7: Engage communities
Community members and community organisations play an important role in ensuring that healthcare facilities provide the level of care citizens deserve and expect. In some countries rural healthcare facilities are directly managed by the community, giving local leaders and community member's agency in decision-making and management of WASH services and hygiene practices. Sometimes community members also provide technical expertise and ought to be consulted regarding preferences in the design and use of WASH facilities.

In communities where healthcare facilities and households share the same water source, they must work together to manage this common resource. SDG 6 aims for universal access to WASH and is based on a vision of community-wide WASH services in both households and institutions, including schools and healthcare facilities. Thus, there may be strategies and approaches used in improving WASH in schools and households, including tapping into community WASH and advocacy groups that can be applied to healthcare facilities. Since patients may feel uncomfortable speaking up about conditions in local healthcare facilities, it may be beneficial to explore anonymous or more discrete ways to provide feedback, using approaches that do not exclude low-literacy populations. Such mechanisms should be built into quality improvement cycles to help to design, improve and maintain WASH services that meet user needs.

Step 8: Conduct operational research and share learning
A stronger evidence base for WASH in healthcare facilities can drive continued action and investment. When learnings from every level (facility, sub-national, national, regional and global) are distilled and shared, they can spark ongoing improvements, spur innovation and scale-up proven approaches.

Operational research requires documenting not just what has been done but how it has been done, the associated challenges and how the challenges have been addressed. While the links between WASH and infection prevention are clear, measuring them is complicated and expensive. In many situations, it may be preferable to use indirect indicators such as uptake of services, patient and staff satisfaction and visual cleanliness rather than health outcomes to measure the effect of WASH interventions in healthcare facilities.

In countries where World Vision is working in consortium, it is traditionally most well-positioned to lead on the following steps:

1. Conducting a situational analysis: based on our experience with Emory University's WASH Conditions Assessment tool (WASHCon) and WHO's Water and Sanitation for health facility improvement tool (WASH FIT)
2. Improving infrastructure: based on our long track record of sustainable infrastructure improvement
3. Monitoring and collecting data: based on our long-term presence in communities and engagement with community health workers and health staff
4. Engaging communities: based on our high level of trust with communities built over many years of interaction.

4.2 Key Considerations when Designing WASH in HCF Interventions

Based on World Vision's WASH in HCFs implementation experience in Kenya, Uganda and Zambia and the Conrad N. Hilton-funded project in Mali, it is important to take the following learnings into consideration when designing WASH in HCF projects.

Consider an integrated multi-sectoral approach: World Vision is a complex organisation with multiple funding sources and multiple sectors, often implemented in a siloed approach. Work in healthcare facilities is inherently multi-sectoral as it requires buy-in from both the WASH and health sectors. Therefore, general principles of integration should be applied in programme design and implementation. *For more on integration related to WASH and maternal and child health, see the BabyWASH Programme Guidance Document.* [7]

The WASH team has expertise in WASH infrastructure construction/ maintenance and IPC, and the health team has expertise in core approaches such as the Community Health Worker model supporting the health facility catchment area. The health team also may have existing approaches to support the training of nurses and midwives, connections to gifts-in-kind to assist in equipping facilities and close relationships with the District Health Office and Ministry of Health. Therefore, both teams (at the Support Office, National Office and area programme level) should be included in project planning as well as implementation.

Consider multiple funding sources to fill project gaps: As often as possible, World Vision should strive for a high level of service at healthcare facilities. However, the goals and scope of a grant may limit allowable activities. If the health centre is in an area programme, then sponsorship or other private funding can be used to strengthen the overall programme and improve healthcare facility conditions to the higher standards we are striving for.

Committing to a regular monitoring tool (such as WHO WASH FIT) and setting up a competition for the best facility (USAID Clean Clinic Approach) are good ways to motivate healthcare facilities to put some of their own funding toward WASH in HCF improvements and can help to fill additional funding gaps as well.

Connect to the larger community: Healthcare facilities do not operate in a vacuum; they represent the supply side of health service delivery. The larger community is the demand side of health service delivery and plays a critical role in what services and capacity are needed at a healthcare facility. When selecting interventions, consider the household environment that will keep people healthy along with the key models and approaches that are addressing the barriers families face for accessing healthcare at the facilities. Where possible, WASH in HCF projects should be connected to ongoing health and WASH interventions in communities.

For example, in the Hilton project in Mali, World Vision found that healthcare settings are the best place to educate community members on sanitation and hygiene practices. So, connecting the healthcare facility work to the community can also help improve our overall community work.

Leverage government relationships: World Vision is a known presence in its local operational areas, and often has strong relationships with local, regional and national government stakeholders. To ensure sustainability, it is important that government eventually pay for long-term funding of health centres and therefore should be included from the beginning. Early inclusion of government helps to ensure buy-in, coordination with other implementing organisations and the facilitation of ongoing local and national advocacy efforts to address broader system challenges. Local advocacy through CVA has shown success in creating this accountability with government.

Collaborate for synergy and complementarity: In areas where World Vision lacks experience and expertise, other organisations should be brought in to collaborate. We have found that while WASH infrastructure improves the motivation of health staff and improves overall patient attendance, it is not enough to change behaviour.

5 Standards for WASH in HCFs

According to the WHO, a strong health system is based on six building blocks, which include service delivery, health workforce, health information systems, access to essential medicines, financing, and leadership/governance.[16] As WASH services are a critical part of quality health service delivery, this section outlines how World Vision addresses basic WASH standards in HCFs.

[7] https://www.wvi.org/sites/default/files/2019-05/Baby%20WASH%20Toolkit-%20External.pdf

World Vision's approach is aligned with SDG standards and promotes best practices that improve quality of care, including higher standards in delivery rooms, connecting WASH with health sector programming and planning for long-term operation and maintenance of facilities. This approach has replaced infrastructure-only approaches more common in the past.

5.1 Quality Standards

Millennium Development Goal WASH standards (2000-2015) focused on access to safe water and basic sanitation, measured by access to improved water and sanitation facilities; while SDG standards (2015-2030) have shifted WASH away from an infrastructure-based approach toward a people-centred, systemic approach.

Global WASH standards include universal water, sanitation and hygiene coverage in all settings and for all people, placing greater emphasis on full WASH coverage in settings outside the home, such as schools and healthcare facilities, in both development contexts and fragile contexts. This includes access for everyone, including men, women, girls and boys of all ages, including people living with disabilities. Access means WASH services are available and affordable, water is safe to drink and sanitation facilities are accessible, functional and private. Critical to the prevention of infections, guidance for WASH in healthcare facilities establishes standards for handwashing facilities with soap at points of care and near toilets, segregated waste management and environmental cleaning.

5.2 Basic Service Definitions

World Vision's minimum standards for WASH in HCFs follow the basic WASH service levels detailed in the first WHO/UNICEF JMP Global Report on WASH in HCFs[17] that introduced new service ladders and establishes baselines to help with monitoring SDG targets for universal access to WASH and healthcare coverage. For the purposes of this strategy, "healthcare facility" includes all facilities — rural hospitals, health centres, dispensaries and health posts. Row 2 in Figure 3 below (JMP service ladders for WASH in HCFs) summarises the JMP basic service levels.

Table 4: JMP service ladders for WASH services in healthcare facilities[18]

	WATER	SANITATION	HYGIENE	WASTE MANAGEMENT	ENVIRONMENTAL CLEANING
ADVANCED SERVICE	To be defined at the national level	To be defined at the national level	To be defined at the national level	To be defined at the national level	To be defined at the national level
BASIC SERVICE	Water is available from an improved source on the premises[8]	Improved sanitation facilities[9] are usable, with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities and at least one toilet accessible for people with limited mobility	Functional hand hygiene facilities (with water and soap and/ or alcohol-based hand rub) are available[10] at points of care and within five metres of toilets	Waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely[11]	Basic protocols for cleaning are available, and staff with cleaning responsibilities have all received training[12]

[8] Availability - functionality, Accessibility - on premises, Quality - improved water source.
[9] Availability – usability, for men and women and for staff, Accessibility - to those with limited mobility, Acceptability - affording privacy and menstrual hygiene, Quality - improved toilets or latrines
[10] Availability -functionality of hand hygiene facilities at points of care and functionality of handwashing facilities at toilets
[11] Quality - segregation of healthcare waste, treatment and disposal
[12] Availability - protocols in place, Quality - staff trained

LIMITED SERVICE	An improved water source is within 500 metres of the premises, but not all requirements for basic service are met	At least one improved sanitation facility is available, but not all requirements for basic service are met	Functional hand hygiene facilities are available either at points of care or toilets but not both	There is limited separation and/ or treatment and disposal of sharps and infectious waste, but not all requirements for basic service are met	There are cleaning protocols and/or at least some staff have received training on cleaning
NO SERVICE	Water is taken from unprotected dug wells or springs, or surface water sources; or an improved source that is more than 500 metres from the premises; or there is no water source	Toilet facilities are unimproved (e.g., pit latrines without a slab or platform, hanging latrines, bucket latrines), or there are no toilets	No functional hand hygiene facilities are available either at points of care or toilets	There are no separate bins for sharps or infectious waste, and sharps and/or infectious waste are not treated/disposed of safely	No cleaning protocols are available, and no staff have received training on cleaning

5.3 Programme Essential Standards

HCFs require adequate quantity and quality of water to maintain a hygienic environment. Improved sanitation, appropriate waste disposal and personal hygiene are all crucial. HCFs are recognised by the WHO as 'environments with a high prevalence of infectious disease agents where patients, staff, careers and neighbours of the healthcare setting face unacceptable risks of infection if environmental health is inadequate.' A systematic review of HAIs in low- and middle-income countries concluded that inadequate environmental hygienic conditions were a substantial determinant of endemic HAIs infections.[13]

5.4 Programme Minimum Standards

Ensuring minimum standards are met is critical for successful implementation. For example, overcrowding and substandard infrastructure in HCFs in Africa compounds risks for HAIs and may deter patients from coming to the HCF, particularly when hospitalisation is required.

WHO guidelines recommend that 'health centres and hospitals should have consistent, or at least predictable, running water, clean toilets, safe refuse disposal, clean beds and areas for birthing.'

Guidelines for healthcare in emergency settings recommends that HCFs provide 40–60 litres of water per patient per day. In non-emergency settings guidelines for environmental health in HCFs recommend five litres of water per outpatient per day. *(See Section 6, Table 5 for complete list of recommended water quantities.)*

Actions for improving WASH for maternal and newborn health, emphasise that improved WASH should be:

1. Integrated into budget priorities for infrastructure and supplies
2. Emphasised in campaigns for maternal and child health
3. Embedded into national and global targets and monitoring frameworks

5.5 Reaching for a Higher Standard

As healthcare facilities improve WASH services, care-seeking by the surrounding communities is likely to increase. When designing facilities, it is recommended to plan for growth in the patient population. When funding for WASH in healthcare facilities is limited, focus on the JMP basic WASH service standards. For grant-funded programmes, or when more funds are available, World Vision

[13] Say, L, et al, 2014.

recommends implementing best practices beyond the basic service level. *(See advanced levels highlighted under each intervention in Section 6.)*

5.6 Essential WASH Services in Delivery Rooms

To ensure quality service and improved dignity for pregnant women, and to minimise risk of infection for mothers and babies, including sepsis (a leading cause of maternal and neonatal mortality), a higher WASH service standard should be provided in delivery wards.

These standards include:

- a private room for delivery or a curtain surrounding each bed with enough room for at least one family member to attend the birth
- running water
- a usable flushing toilet with grab bars accessible to women during labour
- handwashing facilities
- sterile equipment
- an overhead shower
- waste segregation and placenta disposal
- a birth kit
- protocols and training for cleaning the delivery room

World Vision recommends health professionals are trained on clean childbirth practices according to the WHO Six Cleans: 1) clean hands of the attendant, 2) clean surface, 3) clean blade for cutting the umbilical cord, 4) clean cord tie, 5) clean towels to dry the baby and then wrap the baby and 6) clean cloth to wrap the mother.

6 Implementing WASH in HCFs

World Vision has adapted the WASHFIT approach for improving and sustaining water, sanitation and hygiene services, healthcare waste management infrastructure and services in HCFs (which includes hospitals, health centres and dispensaries).

After the assessments are conducted and the planning of WASH services are complete, the project should first focus on addressing any immediate needs where basic WASH services are lacking. Depending on the needs of the HCF, this may involve the immediate placement of handwashing and drinking water stations, a starter supply of chlorine, or patient teachings on water, sanitation and hygiene.

Below is a description of each intervention area for WASH In HCFs. (*For JMP standards related to these intervention areas, see Section 5, Table 4.)*

6.1 Access to Water Facilities

Healthcare facilities must be equipped with an improved flowing water source on the premises (i.e., on the facility property) to meet basic standards. World Vision strives to meet this standard through the provision of piped drinking-water systems. If circumstances do not allow for a piped water-system, constructing a borehole on the premises is the recommendation for HCFs that are lacking a basic water source. Piped-water systems are preferred as they ensure that water points are close to end users in the HCF, and water can also be piped to sanitation facilities and handwashing stations.

See Table 5 below for required water quantities for HCFs.

Healthcare setting	Minimum water quantity requirement
Outpatients	5 litres per consultation
Inpatients	40-60 litres per patient/day
Inpatient therapeutic feeding centre	60 litres per patient/day
Cholera treatment centre	60 litres per patient/day
Severe acute respiratory diseases isolation centre	100 litres per patient/day
Operating theatre or maternity unit	100 litre per intervention
Viral haemorrhagic fever isolation centre	300-400 litres per patient/day

Table 5: Required water quantities for HCFs

Installing a solar-powered pump reduces operational costs, and a storage tank can provide a 24-hour reserve of water for the HCF. Water facility supplies including overhead tanks, solar panels, submersible pump and pipe network necessary to mechanise the boreholes and to convey water into the taps are installed for safe water stations.

An advanced level for water access might include:

- Piped water: Ideally, all healthcare facilities, especially hospitals, should have a continuous supply of water piped into the building to all points of care to meet quantity demands for quality care.
- Safe quality: Water available in healthcare facilities should meet appropriate national water quality standards or WHO guidelines.[22]
- Adequate water quantity, available all the time: Compared to household use, large quantities of water are required in healthcare facilities for drinking, cooking, hand hygiene, showering and bathing, and for cleaning rooms, beds, floors, toilets, sheets and laundry.[23]

6.1.1 Water quality

As water quality can be compromised, even when using an improved water source, it is important that all water systems be regularly tested for biological and physical contamination. To ensure only the safest water is used, point-of-use treatment devices should be provided, such as filter or electro-chlorinators which produce chlorine. The project can plan to provide each of the HCFs with an SE200 Community Chlorine Maker (which functions the same as the WATA electro-chlorinator but produces chlorine faster and is easier to use) or ceramic-type filter like Kohler Clarity filter or membrane-type filter. The treatment device should be selected depending on water quality characteristics, together with the desire and interest of the staff. If chlorine is chosen, the staff will be trained by the district technical team on the use of the device, the production and storage of the chlorine, testing for residual chlorine, chlorine used for water treatment, surface disinfection and tool cleaning. Water treatment devices will be verified by the designated technical service to meet the water treatment technology standards under the WHO International Scheme.

6.2 Access to Sanitation Facilities

To meet basic standards, healthcare facilities must have improved sanitation that are both available and usable.[19] There should be at least three toilets: one dedicated for staff, one for female patients that has menstrual hygiene facilities[20] and is accessible for people with limited mobility (included people with disabilities and pregnant women) and one for males that is accessible for people with limited mobility. The facility must also be equipped with designated facilities for male and female HCF staff. For HCFs which have existing latrines, sanitation facilities must be rehabilitated if they do not already meet these standards. Upgrading existing latrines includes refurbishing the walls, doors and roof, and tiling the floor.

World Vision's preferred sanitation facility option is the gender-segregated latrine including pour-flush toilets, septic tanks and walls, a door with a lock and a tiled floor. In HCFs where a piping system is installed, sanitation facilities can be upgraded from ventilated pit systems to pour-flush Turkish latrines or equivalent. The selected latrines should be low-consumption flush toilets, easy to clean and maintain with a constructed access path for people with disabilities. The project should facilitate regular cleaning and disinfection of surfaces that can hold microbes which could be a source of infections.

An advanced level for sanitation might include:

- Menstrual hygiene management: While a basic level of sanitation service includes having a bin with a lid for disposable menstrual materials and a private space with soap and water for washing, additional aspects may be required based on local needs and priorities (i.e., provision of sanitary pads, etc.).
- Number of toilets: Depending on the size of the healthcare facility, three toilets might not be enough. WHO recommends one toilet for every 20 users for inpatient settings.
- Faecal sludge management: Healthcare facilities without sewer connections must safely manage excreta from septic tanks and pit latrines. On-site wastewater treatment plants can provide an effective treatment. Wastewater and faecal sludge from healthcare facilities is prone to contain high levels of contaminants and should never be reused.[24]

6.3 Access to Hygiene Facilities

Basic hygiene service standards in HCFs include functional hand hygiene facilities at points of care and within five metres of toilets. Points of care refers to any location in the outpatient setting where care or treatment is delivered (i.e., exam rooms).

Each improved latrine must have a handwashing facility installed outside the latrine that is connected to the water source and have a soap holder provided. Mechanised-water systems also enable the installation of handwashing stations in consulting rooms, birth rooms, injection rooms and entrance of each HCF. A bucket handwashing station will be considered as an alternative solution for places hard to reach with tap water. All the handwashing stations will be equipped with soap.

An advanced level for hygiene might include:

- Handwashing at key moments: The existence of facilities does not mean health workers will wash their hands at the five critical moments.[25] Training on when to wash hands is necessary for health workers.
- Handwashing promotion: Placement of handwashing promotional materials along with behaviour-change strategies help to improve hand hygiene when handwashing facilities are available.

6.4 Waste-Management Facilities and Practices

Basic service standards for waste management in HCFs include the segregation of waste into at least three bins (sharps, infectious and non-infectious) in the consultation area, and the safe treatment and disposal of sharps and infectious waste.

An advanced level for healthcare waste management might include:

- Sharps disposal: Functional needle cutters or hub cutters available near sharps bins, and waste bins — particularly sharps bins — placed out of reach of patients, particularly children
- Wastewater disposal: Safe treatment and disposal of wastewater from the toilets to prevent contamination of surrounding community.

- Infectious waste: Infectious waste and sharps should be disposed of in an incinerator or be collected and disposed of safely by a reliable third-party vendor. Incinerators constructed with local materials (bricks) must include a burning chamber to bear up to 800°C and exhaust pipe. Open burning is not considered safe treatment.
- Placenta disposal: For facilities that perform deliveries, safe burial or safe burning are recommended to dispose of placentas. Where appropriate, a placenta pit[26] can be made and should be kept locked when not in use.

6.5 Environmental Cleaning Practices

To meet basic standards for environment cleaning practices, HCFs should have basic protocols defined for cleaning, and healthcare staff members should be trained for and assigned to cleaning responsibilities. Policies should clearly identify who is responsible for which types of cleaning (surfaces, equipment, floors and bathrooms, and management of blood and bodily fluids) and establish requirements for training all staff members with cleaning responsibilities. Materials used for cleaning the HCFs should be available including buckets, brooms, gloves, soap and waste-collecting equipment.

An advanced level of environmental cleaning might include:

- Surface cleaning: All horizontal surfaces in healthcare facilities should be cleaned with detergent whenever they are dirty, and at least once a day.
- Toilet cleaning: Toilets should be cleaned whenever they are dirty. Depending on the number of people using each toilet, they should be cleaned at least once daily using disinfectant and a brush.
- Availability of supplies: An ongoing supply of cleaning supplies, including detergent and disinfectant, is required for routine cleaning. It is especially important to ensure consistent access to disinfectant, which often is unavailable. This will require an ongoing funding mechanism to pay for cleaning supplies.
- Personnel: When needed, World Vision should advocate with the government for additional personnel, especially cleaners and nurses.
- Cleaning schedules clearly posted: Procedures for cleaning should be clearly posted, and frequency of cleaning should be available for viewing by patients to increase confidence in cleanliness of the facility.

7 Intervention Best Practices

Additional best practices for WASH services in healthcare facilities are promoted by World Vision for greatest impact and long-term sustainability. These include partnering closely with government services, cross-sectoral coordination between WASH and health, partnering with other organisations for the strongest impact, behaviour-change programming for healthcare workers for infection prevention and control, and establishing or strengthening operation and maintenance systems for long-term sustainability.

7.1 Partnering with Government

While government ultimately is responsible for improved WASH services in healthcare facilities, there often is a significant gap between existing need and government capacity to ensure quality services are available and maintained. For long-term sustainability and building upon existing relationships, World Vision works closely with the government at all levels to help ensure it has the skills and resources necessary to carry out its role and responsibilities.

Areas for government capacity building, advocacy, and accountability:

- Providing guidance on roles and responsibilities to provide quality WASH services in HCFs
- Establishing mechanisms for cross-sectoral coordination between WASH and health
- Strengthening and disseminating national policies and standards for WASH in HCFs

- Establishing a specific budget line each year for HCF cleaning supplies, maintenance and improvements
- Developing and implementing improvement action plans for each HCF
- Developing a reliable and sustainable O&M system for WASH in each HCF
- Monitoring key indicators on WASH service quality standards in each HCF
- Establishing mechanisms for effective governance and accountability, including building community advocacy capabilities and user feedback mechanisms

For sustainability purposes, it is recommended to set up joint project funding arrangements that encourage the government to help pay for infrastructure improvements and fully pay for ongoing sustainability measures. Often, the government can pay for items such as equipment and cleaners—an expenditure that will need to be maintained over the long term for best results, while an infusion of NGO funding can help pay for more expensive infrastructure improvements such as water systems and sanitation facilities, which have a larger up-front cost.

7.2 Partnering with Other Organisations

With the way funding is allocated in the development sector, it may not be possible to implement all best practices in a healthcare facility due to limited budget or scope. Therefore, it is essential for implementers to conduct a partner and stakeholder analysis to see who else is working in the area. By partnering with other sectors in one's own organisation, or with other organisations all together, gaps in grant programming can be filled through joint effort. This consortium-style approach will enhance local relationships for sustainability and ensure all best practice interventions are considered as often as possible.

7.3 Cross-sector and Intra-sector Coordination

In addition to engaging primary beneficiaries and local businesses, it is important for WASH in HCF project design, implementation and sustainability planning that the WASH and health sectors work together. This means that whenever possible, World Vision's WASH and health teams plan projects jointly and collaboratively. Within government, it is common to see an absence of effective coordination and communication between the WASH and health sectors at both the national and local levels, and there may not be a clear strategy to ensure quality WASH service as part of the overall healthcare system. World Vision can play a helpful role in bringing stakeholders together to clarify the role each sector plays in providing continuous, sustainable and high-quality WASH services in HCFs, and ensure key IPC measures don't fail due to poor communication between relevant government ministries. One successful approach has been to establish a national-level WASH in HCFs working group or task force with other national and international partners that meets regularly to discuss projects and learnings, best practices and challenges.

Further, intra-sectoral coordination is essential not only to ensure that World Vision is not duplicating efforts, but also to effectively leverage NGO and government efforts, and help address gaps that include those left by other large donor-funded projects. Participation and leadership in national WASH-sector working groups is helpful, along with a quality landscape analysis.

7.4 Hygiene Behaviour Change for Healthcare Workers and Patients

Infrastructure development in HCFs alone is not enough for achieving the goal of quality WASH services. Behaviour change is also a critical component as improving the hygiene behaviour of health workers, along with patients and visitors, can tremendously improve overall health outcomes. Behavioural change interventions and strategies should be guided by sound research and evidence-based data.

Ensuring adequate hygiene at healthcare facilities minimises the risk of infection for patients and their families, health workers and surrounding communities. Thus, healthcare workers need to be

trained in safe hygiene, including IPC standards and practices. Handwashing promotion is also necessary to ensure staff use handwashing facilities appropriately.

WHO recommends using a varied approach to improving hand hygiene, centred on evaluation and feedback, workplace reminders and developing an institutional safety climate. The five key moments for handwashing in healthcare facilities are:

1. Before touching a patient
2. Before clean/aseptic procedures
3. After body fluid exposure/risk
4. After touching a patient
5. After touching patient surroundings

For further guidance on Behaviour Change for WASH in HCFs, see Appendix 4.

As the healthcare facility is often the key touchpoint for community health workers and the pregnant women with whom they work, hygiene messages for a WASH-safe birth should be included in prenatal care visits to ensure mothers understand their options for delivery and are prepared to reduce risk of infection during birth. Hygienic messages around handwashing, baby faeces management and clean play spaces should be inserted into post-natal care visit curricula to ensure both mothers and babies have the proper hygienic environment to grow and thrive.

Capacity Building of Healthcare Staff and Partners

The capacity building of healthcare staff and partners is a core component to improving WASH in healthcare settings, and ensures frontline health staff, planners, funders, managers and policymakers including the healthcare management team, health workers, cleaners and local decision makers) have the right skills and training in WASH-related responsibilities and behaviours.

Capacity building efforts include staff training, supervision, coaching, mentoring and ongoing support for frontline staff members and cleaners on IPC, hand hygiene, waste disposal and on responding to gender-specific needs. The benefits of capacity building include:

- Improvement of the quality of care, addressing human needs, financial and social issues.
- Supports staff to better manage resources available in their health system for improving its service delivery and universal access at a large scale, with emphasis on women and youth.
- Facilitates the implementation of interventions and best practices.
- Supports the District Health Office and HCF staff in regularly generating timely WASH data for monitoring WASH services and for systemising the process of managing WASH services.
- Promotes WASH services in HCFs, including sanitation and hygiene behavioural change education among health workers and visitors; the management of healthcare facility cleanliness; and the management of medical waste in the premise.

Capacity building should also include participants with other responsibilities within the healthcare system (e.g., programme improvement, team formation, assessment, planning and implementation). Additionally, the community(ies) should be engaged in capacity building strategies, with an emphasis on including women, girls and vulnerable groups. This benefits community members to better understand their rights to WASH in HCFs and to advocate for health systems improvements through efforts like CVA and hold duty bearers accountable.

7.5 Operation and Maintenance Systems for Sustainability

Beyond ensuring that improved infrastructure is available and usable, and that staff members receive training to develop appropriate WASH-related behaviours, quality WASH in HCFs requires establishing reliable O&M systems to ensure the sustainability of health-related benefits. Country-specific dynamics must be considered when planning how to address long-term O&M, since government structures and cultural contexts differ by country. The government ministries responsible for WASH and for health should both be involved and with clear roles and responsibilities established.

Essential O&M components that must be in place for continuous provision of quality WASH services in healthcare facilities include:

- Adequate budget for staff, cleaning supplies and system repairs when needed (including government funding and community cost sharing)
- Sufficient human resources, including health workers and cleaners
- Management structure to ensure maintenance and prompt repair of infrastructure as needed
- Supervision that includes regular monitoring of quality standards[29] (e.g., quality checklist), including consistent and documented cleaning according to protocols
- Reliable supply chain for cleaning supplies, such as soap for handwashing, and disinfectant and detergent for environmental cleaning

Community accountability is essential to help ensure systems remain functional. Monitoring of WASH quality standards must be incorporated into regular healthcare facility monitoring, which generally focuses on direct health service delivery and cost/inventory management. *See Appendix 5 for suggested mechanisms for ensuring systems function adequately.*

7.6 Creating Demand for WASH Services in HCFs

WASH in HCFs facilitates the integrated, participatory approach in collaboration with HCF management, community members, local government and health/WASH partners operating in the same locations. While this document articulates the standards and goals for World Vision's collaboration with governments to address the WASH-related gaps in healthcare facilities, World Vision also strengthens community systems to promote social and behavioural norms, improve health and nutrition practices, accountability, governance and address barriers that families are facing to access healthcare.

Maternal, newborn and child health programmes are a central element of World Vision's global health strategy to build government and community capacity in health promotion and prevention. The life-cycle approach promotes care for mothers and children from pregnancy to delivery, the immediate postnatal period and throughout childhood, with attention focused on the 1,000 days after conception.

World Vision uses community health worker-centred approaches to improve the health and reduce mortality rates of children 0 to 59 months of age by improving health worker skills, strengthening health systems and improving family and community practices. World Vision strengthens community approaches to supporting mothers and children by establishing community health committees, mother support groups and "peer mothers" who help with breastfeeding and early infant nutrition. The strengthened community structures equip families to overcome the barriers and delays they face in deciding to seek and reach care at local healthcare facilities. These demand barriers must be overcome alongside supply-side health system improvements.

7.7 WASH and Energy in HCFs

This guidance is mindful of the climate change effects and the fragility of the contexts being experienced in the countries where World Vision is implementing WASH in HCFs programming. As WASH and energy is a newer area for World Vision globally, we are currently focused on learning and exploring best practices of National Offices already operating in this space.

Many healthcare facilities, especially in rural and low-income countries lack regular electricity access —either from the existing grid distribution or generated locally using fossil combustible systems or solar panels —as access increases functioning costs. Climate change can further limit access to energy as extreme weather events, such as storms, may destroy power lines or solar panels; floods may affect generators or battery storage; and heat waves may lead to rationing or outages due to increased electricity use in more densely populated areas.

Access to electricity in HCFs is essential to WASH services, including the development of mechanised pumping systems for water, lightening the centre, the use of electro-chlorinators, the

sterilisation of healthcare equipment, communications, refrigeration, diagnostics and the medical devices required for health services. Linking WASH, environment and energy, therefore, is one of the best and easier ways to improve maternal health, reduce child mortality and prevent disease.

As WASH and energy is an emerging area for World Vision, the following activities are recommended to appropriately identify and address the issues at the initial stage of WASH in HCF interventions:

1. Monitor and assess information regarding energy services, to select those considered to be efficient, climate resilient and environmentally sustainable.
2. Strengthen the capacity of healthcare facilities to select and manage energy-related risks to workers, patients and served communities, especially when it comes to operate under, or respond to hazards with the aim to reduce exposures and vulnerabilities.
3. Advocate and participate in developing regulations on energy use and access, and ensure they are implemented while taking into consideration climate variability and change, and environmental sustainability.

A healthcare facility can reduce its greenhouse gas emissions and become more resilient to electricity grid disruptions and unreliability. When on-grid energy is unavailable or unreliable, healthcare facilities can develop and use off-grid systems and other technical solutions to improve energy reliability. Suggested solutions on climate resilience energy include:

- **Multiple use of solar panels:** Solar energy can be harnessed through the installed mechanised water pumping photovoltaic cells to heat water or generate electricity (which can be stored in batteries).
- **Use other renewable energy:** Energy can also be produced on site through other renewable sources, **such as wind, biomass or hydroelectricity** to pump water and to satisfy the electricity needs of HCFs. Renewable energies can be deployed using both centralised and decentralised approaches in places already connected to the grid (such as facilities in urban areas) and those not connected to the grid (such as in rural areas). As renewable energies are clean, both centralised and decentralised approaches contribute to environmental sustainability. Decentralised renewable energy systems play a crucial role in climate resilience, such as during extreme weather events if the national grid gets damaged or if on-site diesel generators have issues due to problems in the fuel supply chain.
- **Correct HCFs siting:** The setting and scale of the HCF as well as the availability of energy resources can influence the selection of the most appropriate sustainable energy solutions.

8 Programme Monitoring and Evaluation

JMP monitoring of WASH in healthcare facilities includes tracking basic water, sanitation, hand hygiene, healthcare waste management and environmental cleaning services. Healthcare facilities need to be adequately equipped with WASH services, which must be available at every stage during labour, delivery and postnatal care to meet the needs of the woman and her newborn child and enable a clean and safe birth. (*See Section 5, Table 4 for JMP service ladders used for monitoring basic WASH services in HCFs.)*

8.1 Measuring Progress and Impact

The WASH-related SDG targets and indicators are foundational to measuring the progress and impact of World Vision's WASH interventions in HCFs. Consequently, the indicators used by World Vision are designed and aligned to capture SDG targets by ensuring that the most current (and official) SDG indicator methodologies are employed and take precedence. These indicators build on and complement the core set of general WASH in healthcare facility questions and the questions in the WHO Infection Prevention and Control Assessment Framework (IPCAF) and are designed to be measured in tandem with the assessment of WASH and IPC in general service areas. This is done to ensure increased harmonisation, easy aggregation and utilisation of World Vision WASH health facility data with that of other key WASH sector stakeholders across countries and regions.

For full monitoring, the following requisites are critical:

- Guidelines and indicators for regularly monitoring water supply, sanitation and hygiene facilities in HCFs in low- and middle-income countries are needed.
- Monitoring indicators should include not only quantitative criteria, but also qualitative criteria, (e.g., indicators on proper operation and maintenance of WASH facilities).
- Globally, the results of piloting WASH indicators and monitoring processes/protocols should be shared among low- and middle-income countries.
- Nationally, guidelines and indicators for WASH in HCFs should be regulated to ensure enforceability.
- Essential safety standards must be developed and reached as a first goal.

8.2 Standard Logic Model for WASH in HCFs

The standard logical model for WASH in HCFs is extracted from the WASH Core Project Model. It includes the reference, goal, outcomes, outputs and indicators of basic WASH in HCFs programming. (See Table 6A in Appendix 6)

8.3 Mobile Survey Applications

The digital monitoring applications and platforms represented should be integrated into the daily workstream of WASH staff to support longitudinal monitoring. Further, such tools must also facilitate data sharing with government partners and other sector stakeholders. New data collection tools are not meant to replace current platforms, but rather supplement existing system capacities. The exponential growth of smartphone use worldwide means a host of digital survey applications available to humanitarian organisations such as World Vision.

8.4 mWater and Survey Use

World Vision has partnered with mWater, a digital geospatial data collection and analysis platform, to create a custom mobile application version. This version includes all the helpful features of the standard version while adding several unique features to World Vision. For example, the custom version includes several fields for internal tracking, including Area Programme Name, Horizon Asset ID Number and the assigned donor. Staff are encouraged to use mWater to monitor WASH interventions.

mWater is a free, open-source data management platform used in over 180 countries. mWater includes both a user-friendly mobile application for data collection and a sophisticated online portal where it is possible to create customised SDG-aligned surveys, analyse the collected data and create powerful data visualisations, maps, charts, tables and dashboards.

Data is collected quarterly by World Vision staff members and/or a designated local monitoring partner. Data is primarily gathered through field observation by the JMP core questions for WASH in HCFs. Enumerators visit each healthcare facility and obtain informed consent from the head of the healthcare facility to conduct a standardised WASH survey. In most cases, enumerators use mWater to connect mobile survey data to mapped HCF water systems and sanitation facilities. The WASH in HCFs survey is designed to collect standardised data across multiple countries and contexts to track progress towards indicators at the output/outcome level. *For additional guidance on the use of the World Vision custom version of mWater, contact* mwateradmin@worldvision.org

9 Conclusion

As a child-focused organisation with a global aspiration to ensure all children enjoy good health, WASH in HCFs should be a critical intervention for World Vision projects and programmes everywhere we work. This guidance document has been developed for WASH managers and field staff to highlight the importance of WASH services in healthcare facilities and provide a framework to best achieve the desired impact on children's health and well-being.

Appendix 1: Programme Resources

Overview of Technologies for the Treatment of Infectious and Sharp Waste from Healthcare Facilities
This document provides criteria for selecting technologies to facilitate decision-making for improved healthcare waste management in healthcare facilities and gives an overview of specific healthcare-waste technologies for the treatment of solid infectious and sharp waste.

Washinhcf.org
This website serves as a knowledge portal for all stakeholders involved in the work of WASH in healthcare facilities, to exchange the latest standards, tools, approaches, achievements and learnings. It also enables making and tracking commitments.

Safe Management of Wastes from Healthcare Activities, a Summary
This document highlights the key aspects of safe healthcare waste management to guide policymakers, practitioners and facility managers to improve such services in healthcare facilities. It is based on a comprehensive WHO handbook, *Safe Management of Wastes from Healthcare Activities* (2014).

WASH in Healthcare Facilities Global Baseline Report, 2019
This report introduces and explains service ladders and establishes baselines to help with monitoring SDG targets for universal access to WASH and healthcare coverage.

WASH in Healthcare Facilities Practical Steps to Achieve Universal Access to Quality Care
This document outlines a global workplan and sets out eight steps countries can take to improve WASH in HCFs. *See page 9.*

Water, Sanitation, Hygiene and Waste Management for the COVID-19 Virus
This WHO guide outlines the importance of WASH for the prevention of COVID-19 and the needed steps to ensure safety of patients and the health workforce at healthcare facilities.

WASH Fit

WASH Fit portal
A range of WASH Fit related resources and information available in multiple languages.

WASH Fit course
Online course that covers the foundational concepts of WASH Fit, the methodology and examples of its application from a wide range of settings. Includes six technical modules on water, sanitation, hand hygiene, healthcare waste, environmental cleaning and GEDSI.

Appendix 2: World Vision Comparative Advantages

Some key World Vision comparative advantages for WASH in HCFs include:

- **Extensive experience**: For more than 30 years, World Vision has provided sustainable WASH services and life-saving health programmes for mothers and children, relying on a highly effective team of technical experts worldwide.
- **Diversified funding**: World Vision has a diversified funding approach and pools resources to implement WASH programming for greatest impact, including government, multilateral and private foundation grants, child sponsorship, mass market funding, etc.
- **Global scale**: World Vision's WASH global footprint covers more than 50 countries, supporting a network of more than 220,000 community health workers who are trained and equipped to focus on prevention, providing key messages at the household level and essential care to new mothers and infants.
- **WASH in HCFs accomplishments:** In 2024 alone, World Vision provided 387 healthcare facilities with an improved water source, 343 with sex-separated sanitation facilities, and 840 with handwashing facilities. (*See our current impact numbers here.)*
- **Community WASH accomplishments:** In 2024, World Vision helped provide access to clean water for 3.12 million people, improved sanitation for 2.4 million, and improved hygiene for 2.9 million in urban and rural areas. Since 2016, World Vision has provided 31 million people with sustainable access to clean water.
- **Multisectoral approach:** World Vision implements WASH in healthcare facilities alongside long-term multisectoral community development through our Area Programme model. For example, our work in communities providing prenatal visits and counselling from community health workers and alongside creating a hygienic environment through Community-Led Total Sanitation linked with Sanitation Marketing, helps ensure that babies and parents return home to live and thrive in a more hygienic environment.
- **Government partnerships:** World Vision partners with local governments through capacity building, joint implementation and joint monitoring, from national ministries down to the district and local levels, to strengthen their WASH and health systems for sustainable services. World Vision also builds community capacity to advocate with their local governments for dedicated budgets to HCFs and improved services.
- **Private sector engagement:** World Vision recognises the vital role the private sector plays in developing resilient WASH services, including development of public-private partnership models to improve water service delivery. For example, World Vision in Kenya partnered with Borel Light, Sweet Sense and Acacia Water to improve access to clean water.
- **Long-term commitment:** World Vision works alongside communities for 10 to 15 years. This helps ensure communities have the knowledge and resources to keep their facilities working for many years to come.
- **Learning agenda:** World Vision partners with local and international universities to learn from its experience and enhance its impact. Partnerships with the University of North Carolina, Johns Hopkins University, Stanford University, and Emory University provide expertise in programme evaluation, operational research, statistical analysis and dissemination of data.

Appendix 3: Additional Scientific Literature and Evidence

The following section summarises additional evidence from scientific publications, including footnoted references with links, useful for background reading, understanding existing evidence and adding to customised background sections for proposals. Generally, only assessments and tools with a wide geographic scope have been included here. A search of locally relevant literature is recommended when developing proposals.

Conditions and infrastructure assessments:

Global healthcare facility service coverage and gaps (source JMP 2022: Progress on WASH in Healthcare Facilities 2000-2021):[14]

- Half (51%) of healthcare facilities globally had a basic hygiene service, meaning that functional hand hygiene facilities were available at points of care, and within five metres of toilets.
- In sub-Saharan Africa, 26% of rural healthcare facilities had a basic environmental cleaning service. 45% had cleaning protocols and 32% had staff trained on environment cleaning.
- One out of three healthcare facilities in both fragile contexts (32%) and in LDCs (34%) had a basic healthcare waste management service.
- 78% of healthcare facilities globally had a basic water service, meaning water was available from an improved source on the premises.
- 21% of healthcare facilities in LDCs had a basic sanitation service and 10% of healthcare facilities globally had no service, meaning they had unimproved toilets or no toilets at all.

World Vision 10-country evaluation in 2014, Healthcare facility coverage study:

- Fewer than 50% of rural healthcare facilities had access to improved water sources on premises, improved sanitation and consistent access to water and soap for handwashing (Ethiopia 7%, Kenya 30%, Mozambique 29%, Rwanda 50%, Uganda 30 and Zambia 21%).[15]

World Vision 14-country evaluation in 2017, Healthcare facility water quality:

- This study found that 52% of healthcare facilities used a basic water service, but 63% had water that did not meet WHO guideline values. Improved water sources, water treatment, management by a person with medical training and the presence of a protocol for operation and maintenance showed associations with better water quality.[16]

WASH coverage during childbirth: PLOS journal, August 2016:[17]

Fewer than 15% of women who delivered at home in sub-Saharan Africa had access to water and sanitation infrastructure (range 0.1% to 37%). This was worse among the poorest, the less educated and those living in rural areas. In Eastern Africa, the study looked at both the home and facility childbirth environment. A third of women delivered in an environment with improved water in Uganda and Rwanda; whereas 18% of women in Kenya and 7% in Tanzania delivered with improved water and sanitation.[18]

Implementation

- *WASH FIT impact on WASH improvements:* On average, pilot facilities improved from 18% of total indicators meeting standards at baseline to 44% after seven months. Examples included improved drinking water supply, medical waste segregation and increased soap at handwashing stations. Participants reported improvements in staff and patient satisfaction, hand hygiene and occupational

[14] https://washdata.org/reports/jmp-2022-wash-hcf
[15] Guo, Amy, et al., 2017. Water, Sanitation, and Hygiene in Rural Health-Care Facilities: A Cross-Sectional Study in Ethiopia, Kenya, Mozambique, Rwanda, Uganda, and Zambia. Am. J. Trop. Med. Hyg. 97(4), 1033–1042.
[16] Guo, A. Z., & Bartram, J. K., 2019. Predictors of water quality in rural healthcare facilities in 14 low-and middle-income countries. *Journal of Cleaner Production*, *237*, 117836.
[17] Who Delivers without Water? A Multi Country Analysis of Water and Sanitation in the Childbirth Environment | PLOS ONE
[18] Gon, Giorgia, et al., 2016. Who Delivers without Water? A Multi Country Analysis of Water and Sanitation in the Childbirth Environment. PLoS ONE 11(8), e0160572.

safety. Findings suggest that WASH FIT, coupled with training and supervision, can help facilities improve WASH services and practices.[19]

Behaviour change

- *Evaluation of infection prevention and control implementation in healthcare facility labour and delivery:* Usable handwashing facilities with water, functioning taps and soap were present in the delivery units of all six facilities but were present in only one postnatal ward. All facilities were visibly clean, and staff demonstrated a strong will to comply with protocol. Areas of concern included effectiveness of training, inadequate availability of personal protective equipment, inadequate hand hygiene practices and outdated procedures to reprocess reusable medical equipment.[20]
- *Observational study of infection risk during childbirth at healthcare facilities:* Hands were washed with soap and sterile gloves applied with no observed recontamination before only 3% of all observed procedures requiring aseptic technique. This study highlights that hand hygiene remains a barrier to delivering high-quality and safe care in health facilities. Improving hygiene practices during labour and delivery will require strategies that extend beyond infrastructure provision.[21]
- *The important role of cleaners for safe maternity units*: The paper proposes that provision of and improved training can improve recognition of the valuable role cleaning staff members play, as well as equipping these staff members with the tools required to perform their job to the highest standard. In addition to training, wider systems changes are necessary to establish improvements in environmental hygiene and the role of cleaning staff members, including addressing resource availability, supportive supervision and an increased emphasis on preventative healthcare.[22]
- *Gender-sensitive assessment and monitoring:* To be effective, WASH monitoring strategies in healthcare facilities must include gender-sensitive measures. The study presents a novel strategy, showing that applied gender-sensitive multitool assessments are highly productive in assessing WASH services and facilities from user and provider perspectives.[23]

Health systems approaches

- *WASH in healthcare facility policy implementation:* Qualitative study of the successes and shortcomings of implementing WASH in healthcare facility policies at all levels of government identifies insufficient financial support, lack of human resources, incomplete reporting, poor stakeholder coordination, and insufficient training as key barriers to policy uptake.[24]

Sustainability

- *Evaluation of small water enterprise in healthcare facilities:* Of nine enterprises, one small water enterprise (SWE) ran at a loss, four had profit margins of ≤10% and four had profit margins of 45% to 75%. Factors influencing SWE performance were intermittent water supply, consumer demand, price sensitivity and production cost. Sustainability was more favourable in circumstances in which recovery of capital expenditures was not expected, and the demand for treated water was sufficient to fund operational expenditures.[25]

[19] Weber, Nicole, et al., 2018. Strengthening Healthcare Facilities Through Water, Sanitation, and Hygiene (WASH) Improvements: A Pilot Evaluation of "WASH FIT" in Togo. J Health Security 16(S1), S54-S65.
[20] Buxton, H., Flynn, E., Oluyinka, O., Cumming, O., EstevesMills, J., Shiras, T., ... & Dreibelbis, R., 2019. Barriers and opportunities experienced by staff when implementing infection prevention and control guidelines during labour and delivery in healthcare facilities in Nigeria. *Journal of Hospital Infection*.
[21] Buxton, H., Flynn, E., Oluyinka, O., Cumming, O., Esteves Mills, J., Shiras, T., ... & Dreibelbis, R., 2019. Hygiene During Childbirth: An Observational Study to Understand Infection Risk in Healthcare Facilities in Kogi and Ebonyi States, Nigeria. *International journal of environmental research and public health*, *16*(7), 1301.
[22] Cross, Suzanne, et al., 2019. An invisible workforce: the neglected role of cleaners in patient safety on maternity units. Global Health Action, 12(1), 1480085.
[23] Kohler, Petra, et al., 2017. WASH and gender in healthcare facilities: The uncharted territory. Healthcare for Women Int. 40(1), 3-12.
[24] McCord, R., Cronk, R., Tomaro, J., Reuland, F., Behnke, N., Tseka, J. M., ... & Bartram, J. (2019). The implementation of environmental health policies in healthcare facilities: The case of Malawi. *International journal of hygiene and environmental health*, *222*(4), 705-716.
[25] Huttinger, Alexandra, et al., 2017. Small Water Enterprise in Rural Rwanda: Business Development and Year-One Performance Evaluation of Nine Water Kiosks at Healthcare Facilities. Int J. Environ. Res. Public Health 14, 1584.

- *Tool to assess sustainability of safe water in healthcare facilities:* Data from surveys, water quality testing and observations are summarised into scores across four domains: technical feasibility; onsite capacity; financial and operational accountability; and institutional engagement. Over time, sustainability improved in most studied hospitals through targeted improvements based on the tool's results. Given the vulnerability of populations in healthcare facilities and greater investment in healthcare facility water infrastructure as part of SDG 6, systematic sustainability assessment and an evidence-based response is critical.[26]
- *Evaluating sustainability of water treatment and handwashing in healthcare facilities:* Six years after programme implementation, most healthcare facilities had water stations and most clients could demonstrate proper handwashing technique, but water stored in most clinics and homes was not treated.[27]

Costing

- *Cost analysis of handwashing and safe drinking water in healthcare facilities:* A cost analysis was adjusted for incremental gains from baseline to follow-up in access to improved handwashing and safe drinking water stations. The cost of improved access to handwashing with soap was $1,527/healthcare facility, $217/health worker and $0.17/individual, and to safe drinking water was $720/healthcare facility, $103/health worker and $0.08/individual.[28]

Health impacts

- *Impact of improved WASH on HCAIs:* Although there is a lack of evidence on the outcomes of WASH in healthcare facilities, studies consistently found hygiene interventions were protective against HCAIs in low- and middle-income countries. Additional and higher quality research is urgently needed to fill this gap to understand how WASH services in healthcare facilities can support broader efforts to reduce HCAIs in these countries.[29]

Care-seeking behaviours and patient satisfaction

- *Impact of WASH in healthcare facilities on patient satisfaction:* Poor WASH provision was associated with significant patient dissatisfaction with infrastructure and quality of care. With specific regard to maternal health services, poor WASH provision was the reason for women choosing home delivery, although providers' attitudes and interpersonal behaviours also were drivers of patient dissatisfaction with maternal health services. Patient satisfaction also was found to be significantly affected by expectation, which was strongly influenced by patients' socioeconomic status and education.[30]
- *Evaluation of integrated programming on increased maternal care seeking:* The study surveyed a sample of 201 pregnant women in Kenya who participated in a clinic-based intervention to increase maternal health service use and improve household hygiene and nutrition through the distribution of water treatment products, soap, protein-fortified flour and clean delivery kits. This evaluation suggested that hygiene, nutrition, clean delivery incentives, higher education level and geographical contiguity to a health facility were associated with increased use of maternal health services by pregnant women.[31]

[26] Robb, Katharine, et al., 2019. A systematic tool to assess sustainability of safe water provision in healthcare facilities in low-resource settings. Waterlines 38(3), 197–216
[27] Rajasingham, Anu, et al., 2018. Water treatment and handwashing practices in rural Kenyan healthcare facilities and households six years after the installation of portable water stations and hygiene training. J Water Health 16(2), 263-274.
[28] Freedman, Michael, et al., 2017. Cost analysis of the implementation of portable handwashing and drinking water stations in rural Kenyan health facilities. J Water, San, Hyg. for Dev. 7(4), 659-664
[29] Watson, Julie, et al., 2019. Interventions to improve water supply and quality, sanitation and handwashing facilities in healthcare facilities, and their effect on healthcare-associated infections in low-income and middle-income countries: a systematic review and supplementary scoping review. BMJ Global Health 4, e001632.
[30] Bouzid, Maha, et al., 2019. What is the impact of water sanitation and hygiene in healthcare facilities on care seeking behaviour and patient satisfaction? A systematic review of the evidence from low-income and middle- income countries. BMJ Global Health 3, e000648.
[31] Fagerli, K, et al., 2017. Impact of the Integration of Water Treatment, Hygiene, Nutrition, and Clean Delivery Interventions on Maternal Health Service Use. Am J Trop Med Hyg 96(5), 1253-1260.

Appendix 4: Guidance Note — Behaviour Change

This guidance note addresses healthcare worker behaviours essential for achieving high levels of environmental cleanliness and reducing healthcare-associated infections. The primary behaviours covered in this note are:

- Performing adequate hand hygiene by clinical staff members
- Proper waste disposal at the point of patient care or use of disposable materials

A separate guidance note on operation and maintenance strategies is available that addresses regular cleaning behaviours by staff members specifically tasked with these activities (such as disinfecting surfaces, cleaning toilets or ensuring waste is transported from bins to appropriate disposal sites).

Hand hygiene remains a significant barrier to delivering high-quality and safe care in healthcare facilities. A national assessment in Bangladesh found that while 69% of hospitals had hand hygiene facilities at points of care, only 17% of healthcare workers washed their hands with soap after touching patients or wounds, and only 2% washed their hands with soap before patient contact or aseptic procedures.[32] Another study in Nigeria on infection risk during childbirth at healthcare facilities showed that hands were washed with soap and sterile gloves applied with no observed recontamination before only 3% of procedures requiring aseptic technique.[33]

Both hand hygiene and proper waste disposal are prompted, routine behaviours—that is, they occur regularly and are performed at specific times (e.g., before or after a patient interaction or after using materials in an exam room).

There are four main ways these routine behaviours can be increased:

1. Training and building health worker skills
2. Using tools to make the behaviour easy
3. Ensuring accountability
4. Increasing personal motivation

Training and building health worker skills

Some aspects of hand hygiene and waste disposal may benefit from appropriate training to build knowledge and skills and to establish expectations. For example, it may be unclear into which bin certain materials may be disposed of, or the steps to take to ensure adequate hygiene, or management expectations of when hand hygiene should be performed. Even if this training is already built into staff training programmes located at facilities or as a part of the broader education system—it is still important to ensure such training and skill building has occurred for all healthcare workers or is occurring sufficiently regularly.

Using tools that make the behaviour easy

A key to encouraging habitual behaviour in fixed settings is to make the behaviour easier to perform. The following can serve as tools to ensure higher rates of compliance:

- Providing cues to action (such audio/visual cues and reminders to perform hand hygiene)
- Reducing barriers to access (such as having handwashing stations close to the point where they are needed or having divided bins everywhere waste sorting is necessary)
- Making the behaviour itself easier (such as providing alcohol-based hand rub instead of soap and water, where appropriate)

[32] International Centre for Diarrheal Diseases Research, Bangladesh; WaterAid Bangladesh; and Policy Support Unit, Ministry of Local Government, Rural Development and Cooperatives, Dhaka Bangladesh; 2014. Bangladesh National Hygiene Baseline Survey, Preliminary Report.

[33] Buxton, H., Flynn, E., Oluyinka, O., Cumming, O., EstevesMills, J., Shiras, T., ... & Dreibelbis, R., 2019. Barriers and opportunities experienced by staff when implementing infection prevention and control guidelines during labour and delivery in healthcare facilities in Nigeria. *Journal of Hospital Infection.*

Ensuring accountability

Ensuring that desired behaviours in healthcare facilities are observable, and staff members are held accountable is essential for promoting high rates of compliance. When responsibility is unclear (such as aggregate monitoring of appropriate waste sorting in a facility) or accountability impossible (such as handwashing needing to take place in rooms where staff members aren't observed by another person), encouraging proper behaviours will be challenging. Some effective activities to promote accountability include:

- Regular, electronic monitoring of hand hygiene
- Promoting a culture of accountability to other staff members, especially across different levels
- Disaggregated monitoring (such as individuals observing behaviour at irregular intervals or through monitoring disposal behaviour at a bin-specific level when only a small number of people use the bin)

In addition, some graduated punishment for failure to comply with standards is necessary to ensure that there is true accountability for observed compliance failures.

Increasing personal motivation

Encouraging staff to perform appropriate behaviours may have some impact on performance. Some behaviours may produce personal benefits, such as performing hand hygiene after coming into contact with a visibly dirty surface or bodily fluids. However, staff members can be encouraged to perform behaviours to benefit others (such as performing hand hygiene before coming into contact with a patient) by encouraging them to reflect on doing the appropriate behaviour and providing accountability or making it easier until it becomes a habit. In addition, staff members can be rewarded for being observed performing appropriate behaviours, linking personal motivations related to their own material or reputational gain to behaviours that will benefit others.

Appendix 5: Guidance Note — Operation and Maintenance Strategies

This guidance note addresses essential programmatic considerations for ensuring the sustainability of WASH services and infrastructure in healthcare facilities. The primary behaviours covered are related to operation and maintenance of equipment as well as cleanliness and functionality of infrastructure. For behaviours of health workers focused on duties other than O&M, such as handwashing with soap or proper waste disposal, refer to the guidance note on behaviour-change approaches (*see Appendix 4*).

While WASH expertise is certainly needed to ensure that high-quality WASH services are available in healthcare facilities, the individual-level behaviour-change strategies most often used in the WASH sector do not adequately address the context of WASH in institutions. Existing mechanisms for ensuring proper staffing, training, material provision and monitoring should be embedded into existing healthcare facility systems, rather than creating standalone systems for WASH services.

This guidance fits within the Framework for Sustainability of WASH in Institutions* that considers drivers of institutional sustainability of the required behaviours for O&M at the individual, setting, organisational and community levels.

The following areas (explained in more detail below) should be considered when developing an O&M strategy for WASH in healthcare facilities:

1. Budget and staff allocations
2. Material availability
3. Staff training and capacity building
4. Staff motivation
5. Monitoring systems
6. Organisational change
7. Outsourcing and insuring against catastrophic failures

Budget and staff allocations

Dedicated government budget for WASH service provision and maintenance as well as adequate staffing are essential for ensuring that all the following other considerations can be achieved. Dedicated line items for infection prevention and control, maintenance staff, and materials should be included in all budgets, and the presence of such line items should be monitored as an essential facilitator of sustainable WASH in healthcare facilities.[34]

Material availability

Adequate cleaning and maintenance supplies must be available. Thus, programmes should develop a list of necessary materials based on the services provided in the healthcare facility to allow for ongoing procurement, monitoring of supply levels and adequate storage space. The programme also needs to ensure an adequate supply chain exists for local or centralised procurement based on Ministry of Health policies. Providing these materials is often a challenge, with only 57% of facilities globally having hand hygiene facilities at points of care.[35]

Staff training and capability building

Sufficient training for staff is necessary to ensure that staff members can carry out their necessary duties. While much more than just knowledge is necessary, understanding procedures for proper use of different chemicals, cleaning and disinfection procedures and proper storage procedures should be part of regular training for maintenance staff. Beyond simply education, systems can be implemented that make the work itself easier, such as providing better tools or simple checklists that

* Currently in draft in 2024.
[34] Storr et al., 2017.
[35] CDC Enviornmental Cleaning Procdures

can improve efficiency. Checklists have been demonstrated as effective for everything from cleaning hotel rooms to reducing healthcare-associated infections.[36]

Staff motivation

Beyond simply providing knowledge, ensuring that staff are motivated to do their jobs properly is essential to ensuring regular O&M duties are performed. One popular framework, the Job Characteristics Model,[37] describes the following characteristics as key considerations for motivation:

Table 4A: Job Characteristics Model

Job characteristic	Description
Skill variety	How much a job requires a variety of skills and talents of the individual
Task identity	How much a job requires the completion of a whole task, instead of a piece of a task
Task significance	How much a job has a substantial impact on the lives of other people
Autonomy	How much the job provides freedom, independence and discretion to the individual in scheduling the work and determining how to do it
Feedback	How much activities required by the job provide direct and clear information about the effectiveness of the individual

Each of these areas are ripe for interventions, including:

- Providing regular positive feedback to staff members who perform their jobs well
- Communicating the importance of the role compared to other roles more traditionally seen as "high-status" (such as medical professionals)
- Empowering employees to improve their own processes and be rewarded by the organisation for doing so

Monitoring systems

Humans learn through the kind of feedback they receive. Generally, positive feedback encourages better behaviour, negative feedback reduces behavioural performance, and a lack of feedback makes an employee unlikely to learn to do a new behaviour. Monitoring systems in healthcare facilities may take the form of regular checklists demonstrating that tasks have been completed or spot-checks examining the quality of work performed, with the possibility of both reward and punishment essential for encouraging improved performance. Regular monitoring and reporting of routine behaviours has been one of the most effective tools in driving high rates of behavioural compliance in areas like hand hygiene.[38]

Organisational change

Change may be necessary at two levels to ensure sustainability of WASH services in HCFs: Within the organisation and outside the organisation. Within the organisation, Kurt Lewin's Force Field Model of Change suggests that managers must unfreeze an organisation from its current situation, drive change and then refreeze the organisation in the new situation,[39] while Kotter identified eight steps that can be used by managers to accomplish this:[40]

[36] Gawande, A. (2010). *Checklist manifesto, the (HB)*: Penguin Books India.
[37] Source: Oldham, G. R., Hackman, J. R., & Pearce, J. L. (1976). Conditions under which employees respond positively to enriched work. *Journal of applied psychology*, *61*(4), 395.
[38] Lenglet, A., van Deursen, B., Viana, R., Abubakar, N., Hoare, S., Murtala, A., . . . Hopman, J. (2019). Inclusion of Real-Time Hand Hygiene Observation and Feedback in a Multimodal Hand Hygiene Improvement Strategy in Low-Resource Settings. *JAMA Network Open*, *2*(8), e199118-e199118. doi:10.1001/jamanetworkopen.2019.9118
[39] Borkowski, N., & Allen, W. (2002). Using organizational behavior theories to manage clinical practice guideline implementation. *The Journal of American Academy of Business*, *1*(2), 365-370.
[40] Kotter, J. P., & Cohen, D. S. (2002). Creative ways to empower action to change the organization: Cases in point. *Journal of Organizational Excellence*, *22*(1), 73-82.

Steps for change management
1. Establish a sense of urgency
2. Create a powerful guiding coalition
3. Develop a vision
4. Communicate the vision
5. Empower others to act on the vision
6. Plan for and create short-term WASH in healthcare facilities
7. Consolidate improvements and produce more change
8. Institutionalise new approaches

Table 4B: Kotter's Eight Steps for Change Management

Outside the organisation, opportunities for change come through a process of feedback between the organisation and other stakeholders. Information must be made available to interested parties about the performance of WASH systems in healthcare facilities (whether government officials or community advocacy organisations). These entities need to give feedback to the organisation, and successful or unsuccessful attempts at improvement need to be rewarded or punished by the parties holding the organisation accountable.[41] Such processes could be guided by an organisation's board, local government committees or interested residents mobilised to action through community-based approaches such as CVA.

Outsourcing and insuring against catastrophic failures

One major concern that must be addressed is what happens if there is a failure of a system that is beyond the capabilities of the organisation to address, either in terms of staff skill levels or resources available. O&M strategies should include considerations for risk-sharing across organisations through government budgeting allocations or insurance products to allow the repairs to be conducted by private contractors through a single facility's operating budget. Such approaches are being piloted for institutions ranging from healthcare facilities to mechanised water systems.[42]

[41] Mettler, S., & SoRelle, M. (2014). Policy feedback theory. *Theories of the policy process*, *3*, 151-181.
[42] Correspondent. (2019). World Vision, Britam launch water insurance service. Retrieved from https://www.capitalfm.co.ke/business/2019/11/world-vision-britam-launch-water-insurance-service/

Appendix 6: Standard Logic Model for WASH in HCFs

Table 6A: Standard integrated logic model for WASH in HCFs

	Hierarchy of Objectives	Recommended Standard Indicators	Essential / Optional	Horizon Code	Means of Verification
Outcome 1	Universal access to safe and clean drinking water services	Proportion of HCFs using basic drinking water services	Essential	C1C.23176	WASH in HCF Evaluation Survey
Output 1.1	HCFs have increased access to basic drinking water services	Number of HCFs gaining access to basic drinking water services	Essential/ OIOS131	C3B.027550	WASH in HCFs Monitoring Tool; secondary data
Outcome 2	Universal access to hygienic and dignified sanitation services	Proportion of HCFs with basic sanitation services	Essential	C1C.23177	WASH in HCFs Evaluation Survey
		Proportion HCFs practicing basic healthcare waste management	Optional	C1C.23179	
Output 2.1	HCFs have increased access to basic sanitation services	Number of HCFs gaining access to basic sanitation services	Essential/ OIOS 130	C3B.027553	WASH in HCFs Monitoring Tool
		Number of improved, sex-separated latrine stalls on premises of HCFs	Optional	C1B.22826	
Outcome 3	Universal access to basic hand and menstrual hygiene services	Proportion of HCFs with basic hand hygiene services	Essential	C1C.23178	WASH in HCFs Evaluation Survey
Output 3.1	Access to basic hand hygiene services in HCFs increased	Number HCFs gaining access to basic hand hygiene services	Essential	C1C.19359	WASH in HCFs Monitoring Tool
		Number of functional bathing or shower rooms with water available for women in postnatal-care area	Optional	C1B.25988	WASH in HCFs Monitoring Tool