

One of the most serious issues facing health systems in low- and middle-income countries is also one of the most solvable. **Healthcare facilities in developing countries are compromised in their ability to provide safe, quality care because they lack the basic essentials: water, sanitation, hygiene, and healthcare waste management.** 1 in 4 healthcare facilities lack basic water, globally, 1 in 5 lack sanitation facilities, and 2 in 5 lack hand hygiene facilities at points of care. Additionally, every year in the Least Developed Countries, 17 million women give birth in facilities with inadequate WaSH (JMP, 2019).

The alarm was sounded in 2015 when WHO and UNICEF release their first report on this neglected crisis. Between 2015 and 2018, the agencies and their partners raised awareness of the issue and action began to move ahead. Since 2018, momentum around WaSH in healthcare facilities advocacy and implementation has increased dramatically:

- **March 2018:** UN Secretary General issues a global call to action to ensure sustainable WASH in all healthcare facilities. WHO and UNICEF are leading the follow-up.
- **April 2019:** JMP releases the first baseline report on WaSH in Healthcare Facilities. WHO and UNICEF also publish a complementary document outlining the practical steps countries should take, in response to the Call to Action.
- **May 2019:** Member States at the 72nd World Health Assembly unanimously pass a resolution calling for action on WASH in healthcare facilities, based on the practical steps.
- **June 2019:** Global Health Council and Global Water 2020 host a WaSH in Healthcare Facilities Stakeholder Commitments Gathering, where over 80 commitments are announced on advocacy, implementation, technical guidance, research, and funding. Twenty-five of the commitments include a research and learning component.
- **September 2019:** WHO and UNICEF organize a meeting of national governments, UN officials, and external partners in order to generate pathways to 100% WaSH coverage in healthcare facilities, hosted by the government of Zambia.

In 2016, experts from the WASH and health sectors met to discuss the WASH in healthcare facilities [research agenda](#). Key areas requiring further research were identified, including burden of disease, costing analysis, qualitative research on hygiene behavior change, and evaluation of tools and training. While the broad WaSH in Healthcare Facilities agenda has propelled forward in the past year, the discussion around the research agenda has not been revisited for revision and reorientation. Since 2016, most WaSH in HCF research efforts have been ad-hoc – and lacking a comprehensive strategy.

The goal of this lunch session is to appraise the “state of the evidence” on WASH in HCF since the initial agenda was set and revisit which research topics which should be prioritized moving forward, including issues of costing, sustainability, implementation science and best practices. Ideas generated from this session will start to take the shape of a “working” research agenda, which will be shared for further feedback.

Summary of research topics identified during 2016 meeting in London on WaSH in HCFs

- *Cost-effectiveness, financing, sustainability:* Innovative financing mechanisms for improvements are needed, for example business pay for performance models. In addition, innovative technologies, for example those that use less water, or that use waste as power (e.g. for lighting) should be considered. 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 included using formal education structures (e.g. degrees, diploma programs) for professional health training, peer-to-peer learning and support tools (e.g. apps) for staff. 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 task team could work with other professional groups (for example behavioral economics) and use more accessible language and terminology to facilitate change.
- *Behavior change and empowerment:* Behavioral change needs to happen at many levels. Behavior is context specific and it is important to document what works and what does not so that tools and approaches can be translated to other contexts and settings. Behavioral change needs to be enabled and incentivized. An example was shared where a picture of a pair of eyes were put over hand hygiene stations to encourage hand washing in a facility which improved hand washing rates.
- *Accountability and rewards:* Health care 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 for more efficient WaSH designs.

Summary of research progress since 2015 **Conditions & Infrastructure Assessments**

Cronk, Ryan, Bartram, Jamie, 2018. Environmental conditions in health care facilities in low- and middle-income countries: Coverage and inequalities. *Int J. Hyg. Environ. Health* 221 (3), 409-422.

Chawla, Sagar S., et al., 2016. Water availability at hospitals low- and middle-income countries: implications for improving access to safe surgical care. *J. Surg Research* 205, 169-178.

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.

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.

Huttinger, Alexandria, et al., 2017. Water, sanitation and hygiene infrastructure and quality in rural healthcare facilities in Rwanda. *BMC Health Serv. Res.* 517.

Khader, Yousef Saleh, 2017. Water, sanitation and hygiene in Jordan's healthcare facilities. *Int J. Health Care Qual. Assur.* 30 (7), 645-655.

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.

Monitoring

Chatterley, Christie, et al., 2018. Institutional WASH in the SDGs: data gaps and opportunities for national monitoring. *J Water, San, Hyg. for Dev.* 8(4): 595-606.

Odagiri, M, et al., 2018. Water, Sanitation, and Hygiene Services in Public Health-Care Facilities in Indonesia: Adoption of World Health Organization/United Nations Children's Fund Service Ladders to National Data Sets for a Sustainable Development Goal Baseline Assessment. *Am J Trop Med Hyg.* 99(2), 546-551.

Implementation

Rajasingham, Anu, et al., 2018. Water treatment and handwashing practices in rural Kenyan health care facilities and households six years after the installation of portable water stations and hygiene training. *J Water Health* 16(2), 263-274.

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.

Weber, Nicole, et al., 2019. A conceptual evaluation framework for the water and sanitation for health facility improvement tool (WASH FIT). *J Water, San, Hyg. for Dev.* 9(2), 380-391.

Maina, Michuki, et al., 2019. Evaluating the foundations that help avert antimicrobial resistance: Performance of essential water sanitation and hygiene functions in hospitals and requirements for action in Kenya. *PLoS ONE* 14(10): e0222922.

Sustainability

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

Costing

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

Behaviors

Buxton, H., Flynn, E., Oluyinka, O., Cumming, O., Esteves Mills, J., Shiras, T., ... & Dreibelbis, R. (2019). Barriers and opportunities experienced by staff when implementing infection prevention and control guidelines during labour and delivery in health care facilities in Nigeria. *Journal of Hospital Infection*.

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.

Gon, Giorgia, et al., 2019. Hand washing glove use, and avoiding recontamination before aseptic procedures at birth: A multicenter time-and-motion study conducted in Zanzibar. *Am J Inf. Control* 47(2), 149-156.

Gon, Giorgia, et al., 2017. Unpacking the enabling factors for hand, cord and birth-surface hygiene in Zanzibar maternity units. *Health Policy Plan* 32(8), 1220–1228.

Care Seeking Behaviors & Patient Satisfaction

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.

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.

Health Impacts

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.

Cleaners

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.

Gender

Kohler, Petra, et al., 2017. WASH and gender in health care facilities: The uncharted territory. *Health Care for Women Int.* 40(1), 3-12.

Enterprise

Huttinger, Alexandra, et al., 2017. Small Water Enterprise in Rural Rwanda: Business Development and Year-One Performance Evaluation of Nine Water Kiosks at Health Care Facilities. *Int J. Environ. Res. Public Health* 14, 1584.

Health systems & enabling environment

McCord, R., Cronk, R., Tomaro, J., Reuland, F., Behnke, N., Tseka, J. M., ... & Bartram, J. (2019). The implementation of environmental health policies in health care facilities: The case of Malawi. *International journal of hygiene and environmental health*, 222(4), 705-716.

Research for action continuum for WaSH in HCFs



- Demonstrating **salience**: clearly describing the extent of WaSH in HCF challenges, and impacts on health, economic, social welfare, and other relevant outcomes.
- Identifying **solutions**: identifying the hardware (e.g. interventions) and software (e.g. management and regulatory changes) enablers that improve, and barriers that prevent adequate WaSH in HCF
- Enhancing **implementation**: demonstrating solutions and linking them to salient outcomes through implementation science, efficacy studies, and impact evaluations.
- Increasing **adoption**: working with local and national governments, NGOs, and external support partners to identify and minimize barriers to adoption of strategies and solutions at scale.

Domain topics

- Water
- Sanitation
- Hygiene
- Waste management
- Infection prevention and control (IPC)/cleaning
- Etc.

Hardware and software components of each domain topic

- Technology
- Sustainability
- Behavior change
- Costing
- Etc.

Levels of assessment

- Health systems / enabling environment (international, national, subnational/local)
- Facility
 - o Size/type
 - o Wards within facilities
- Individual (health care worker, patient, etc.)

Research methods to explore domain topics and components

- Systematic reviews
- Case studies
- Qualitative research
- Operational research/Implementation science

- Quality improvement
 - Impact evaluations
 - Etc.

Group work

Select a WaSH in HCF domain topic for your group (water, sanitation, hygiene, waste management etc.). Below are some guiding question to consider as you identify key research needs for your domain topic.

- What are the hardware and software research questions that need to be addressed for your topic?

- What are some of the key challenges that need to be addressed at the health systems level, facility level, ward level, and individual level?

- What are some of the research methods you might deploy to address these challenges?

- Which research questions and methods are appropriate for practitioners to use vs. academic researchers? Where might there be opportunities for academic / practitioner collaboration?