Below is a literature review compiled of 110 published articles, reports, and case studies from both scientific journals and grey literature that specifically focus on water, sanitation, hygiene, cleaning, and waste management in healthcare facilities in low- and middle-income countries. They are organized by prevailing theme -- conditions & infrastructure, monitoring, implementation, health systems & enabling environment, sustainability, costing, behaviors, care-seeking behaviors & patient satisfaction, healthcare-associated infections & antimicrobial resistance, cleaners, accessibility, gender, and enterprise. Each section has published articles by first author’s last name and then grey literature by title. The majority of grey literature was drawn from the ‘Resources’ section of WASHinHCF.org. We encourage the community to share any resource missing from this review that furthers the community’s knowledge of WASH in HCF.

Because of the breadth of literature on hand hygiene and infection prevention and control (IPC), we have not included them in this review. In 2020, we plan to identify resources which provide a comprehensive look at both of these issues, as well as complementary issues that may be useful to the community of practice, like research on quality of care. We will also look into articles from high-income countries to see where there may be lessons to draw upon.

The USAID Water Currents issue on WASH in Healthcare Facilities is also a key compilation of resources.

### Conditions & Infrastructure


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<tr>
<td>10. <strong>Formative research for the design of a scalable water, sanitation, and hygiene mobile health program: CHoBI7 mobile health program.</strong> George et al. 2019. BMC public health, 19(1), 1028.</td>
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### Conditions & Infrastructure Cont.


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28. Achieving quality universal health coverage through better water, sanitation and hygiene services in health care facilities: A focus on Ethiopia WHO, 2017

29. Achieving quality universal health coverage through better water, sanitation and hygiene services in health care facilities. A focus on Cambodia and Ethiopia WHO, 2017

30. Afghanistan WASH in healthcare facilities assessment summary World Vision, 2019


32. Findings from SNV baseline on health care facilities in 5 countries SNV, 2019

33. Framework for water, sanitation and hygiene in health care facilities country case study WaterAid, 2017

34. Inadequate WASH in healthcare facilities: Realities in Senegal ICAN, 2016

35. Motivating improvements: Learning from health care facilities study in India and Bangladesh IIPH-G, 2016

36. Report on the deployment of the WASHCon Tool in Hoima District, Uganda Emory/World Vision, 2017
### Conditions & Infrastructure Cont.

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<tr>
<td>37.</td>
<td><a href="#">Safer health care facilities in Cambodia</a> WaterAid, 2015</td>
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<td>38.</td>
<td><a href="#">Situational analysis of WASH and quality in Ethiopia</a> Ministry of Health Ethiopia/WHO, 2019</td>
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<td>39.</td>
<td><a href="#">Situational analysis of WASH in HCF, Sierra Leone</a> WHO Sierra Leone, 2016</td>
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<td>40.</td>
<td><a href="#">Situational analysis of WASH in health care facilities, Mali</a> WHO, 2015</td>
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<td>41.</td>
<td><a href="#">Synopsis of WASH situational analysis in HCF in 7 UNICEF program districts in Tanzania</a> Ministry of Health, Tanzania, 2016</td>
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<td>42.</td>
<td><a href="#">The status of water, sanitation and hygiene in health care facilities in the WHO European region</a> Joca, 2018</td>
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<td>43.</td>
<td><a href="#">Towards safer and better quality health care services in Cambodia</a> WaterAid, 2015</td>
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<td>44.</td>
<td><a href="#">WASH in health care facilities in Bhutan – A scoping study</a> Ministry of Health, Bhutan, 2015</td>
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<td>45.</td>
<td><a href="#">WASH in health care facilities: UNICEF Scoping Study in Eastern and Southern Africa</a> UNICEF, 2019</td>
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<td>46.</td>
<td><a href="#">Water, Sanitation, and Hygiene at the Health Center: The Health System’s Unaccounted for Responsibility</a> Maternal and Child Survival Program, 2017</td>
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### Monitoring

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<td>5.</td>
<td><a href="#">Are data available to monitor the SDGs for WASH in schools and health care facilities in the Latin America and Caribbean Region?</a> JMP, 2017</td>
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### Monitoring Cont.

6. **Facilitating evidence-based solutions for WASH in HCF** Emory, 2016

7. **Preparing for SDG reporting of WASH in health care facilities in the East Asia and Pacific region** JMP, 2017

### Implementation


4. **Randomized Controlled Trial of Hospital-Based Hygiene and Water Treatment Intervention (CHoBI7) to Reduce Cholera**. George et al. 2016. Emerging infectious diseases, 22(2), 233–241.


**Implementation Cont.**

12. Developing and implementing revised tool box for assessment of water sanitation and hygiene (WASH) in urban healthcare facilities beyond labour room IIPH-G, 2017

13. Ensuring mother and child health at the hospital with WASH in health care facilities: focus on autonomous chlorine production in Zambia Voillat et al., 2018


15. From outbreak to ABHR production: experience from Cameroon ICAN, 2019

16. From the frontlines: Christian health associations tackle WASH in healthcare facilities Christian Health Associations, 2019

17. Improving maternal health in Zanzibar through improved WASH SHARE, 2015

18. Lessons Learned Initiating WASH FIT in Malawi Emory University, 2017

19. MDGI_ER2: The Zambian experience, from pilot to scale up Ministry of Health, Zambia, 2016

20. Portable Sinks for Healthcare Worker Hand Hygiene in Cambodia Emory University, 2017

21. The “Clean Clinic Approach” for WASH in the Democratic Republic of Congo Maternal and Child Survival Program, 2019


23. WHO/UNICEF water and sanitation for health facilities improvement tool: A case study in Cambodia WaterAid/WHO/UNICEF, 2018

**Health Systems & Enabling Environment**


----Grey Literature Below-----

2. Creating enabling environment for basic water, sanitation and waste management facilities in a primary health care facility in Bangladesh. UNICEF, 2017

**Sustainability**

**Sustainability**


3. [Case study of water, sanitation, and hygiene (WASH) in healthcare facilities in Ethiopia and Keya: Key findings and recommendations](#) Millennium Water Alliance, 2018


**Costing**


---Grey Literature Below-----

2. [Cost analysis for Clean Clinic Approach Activities in Guatemala and implications for scale-up.](#) Maternal and Child Survival Program, 2019

3. [Improving WASH facilities: The case of return on investment (ROI) analysis](#) University of East Anglia, 2016

**Behaviors**


**Care-Seeking Behaviors & Patient Satisfaction**


## Care-Seeking Behaviors & Patient Satisfaction Cont.


5. **Availability and satisfactoriness of latrines and hand washing stations in health facilities, and role in health seeking behavior of women: evidence from rural Pune district, India.** Steinmann et al. 2015. Journal of Water, Sanitation and Hygiene for Development. 5 (3): 474-482.

## Healthcare-Associated Infections & Antimicrobial Resistance


3. **What are the threats from antimicrobial resistance for maternity units in low- and middle-income countries?** Graham et al.2016. Global health action. 9, 33381.


----Grey Literature Below-----

7. **Preventing health-care acquired infections in lower-level healthcare facilities (maternities, health centers, health posts, MCH centers): the role of WASH (Water, Sanitation and Hygiene) in Low- and Middle-Income Countries** Hai-Ryung, 2019
## Cleaners


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4. **WASH & Clean: A situational analysis of hygiene on maternity units in India** IIPH-G, 2015

5. **The Gambia: Soapbox Collaborative basic environmental hygiene training package pilot** Soapbox Collaborative, 2017

## Accessibility

**Developing a participatory management tool for user-friendly water sanitation and hygiene facilities** WaterAid Cambodia, 2018

## Gender


---Grey Literature Below-----

2. **Water, sanitation, hygiene, and reproductive health access barriers in rural Cambodia: Issues in gender and disability** Gelbard, 2018

## Enterprise
