Moving WASH in HCF from Assessment to Action: What are the Solutions?

Side Event Meeting Report
2017 Water and Health Conference: Where Science Meets Policy
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SIDE EVENT DESCRIPTION

In 2015, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) released a landscape report on the status of water, sanitation, and hygiene (WASH) in healthcare facilities (HCF) in 54 low- and middle-income countries (LMIC). The report highlighted major gaps in WASH coverage for healthcare facilities such that nearly 40% of facilities lack access "to even rudimentary levels of WASH" (1). However, many practitioners and researchers know that the situation is actually far worse than what was captured in this initial report. First-hand experience from WASH in HCF research and program implementation in low-income countries indicate that water shortages, poor water quality, deteriorating water infrastructure, poorly-maintained sanitation and inadequate hygiene are very common, and comprehensive assessments specifically of WASH infrastructure and services are rarely conducted.

Despite the limited data on the true status of WASH conditions in HCF and the recent efforts to refine JMP indicators for WASH in HCF and build the evidence base, it is necessary to immediately address the health risks for vulnerable groups in HCF. Challenges with environmental hygiene and appropriate infection control are exacerbated by poor WASH infrastructure and services and can have significant consequences for pregnant women, newborns, sick children, and immunocompromised patients. Poor WASH conditions within an environment that cares for highly susceptible populations are likely to have a negative impact on health outcomes. The links between WASH in HCF to healthcare-acquired infections and anti-microbial resistance create an urgent need to move the global conversation about WASH in HCF from assessment to action.

Organized by Emory University's Center for Global Safe Water, Sanitation and Hygiene (CGSW), this side event brought together research and practice leaders in global WASH who are working on solutions to address the gaps in WASH coverage in HCF. Presentations from diverse speakers highlighted best practices in using assessments to guide infrastructure improvements, implementing behavioral and training interventions for cleaners, and using the WHO WASH Facility Improvement Tool (WASH FIT). The presenters emphasized the importance of program implementation components, such as multi-sectoral coordination, and hospital management engagement and accountability. Building on discussions from the WASH in HCF Global Learning Event organized by WHO and UNICEF in Nepal (March 2017), actionable solutions were considered in terms of cost and feasibility of scale-up. Group discussions explored the challenges and lessons learned during WASH program implementation in diverse contexts and different types of HCFs.

OBJECTIVES:

1. Showcase examples of organizations that are moving WASH in HCF from the assessment phase into action.
2. Identify best practices and discuss challenges and lessons learned when moving WASH in HCF into action.
3. Consider the costs and feasibility of scaling WASH in HCF interventions.

SUMMARY OF PRESENTATIONS

The three-hour side event included presentations from the Center for Global Safe Water, Sanitation and Hygiene at Emory University (CGSW), WHO, World Vision, WaterAid, CDC, Save the Children and General Electric. Below are summaries of the presentations:

1. "**WASH in Healthcare Facilities: It's worse than you think"**
   Dr. Christine Moe, Director, Center for Global Safe WASH at Emory University (CGSW)

   Dr. Christine Moe opened the event by reflecting on the progress made since the last CGSW WASH in HCF side event at UNC's Water and Health conference in 2014, which described the situation as a "neglected crisis". In the past three years, WHO and UNICEF have incorporated WASH in HCF in their SDG targets, a global action plan has been developed, WHO and UNICEF WASH in HCF tasks teams have been formed, and new data has become available. As more stakeholders become involved in WASH in HCF, the goal is now to use the data from HCF assessments to stimulate and inform action, implement solutions, and evaluate impact and sustainability.

   The 2015 landscape report from WHO and UNICEF was an important first step in understanding the global status of WASH in HCF. The report compiled existing data from 54 low- and middle-income countries and indicated that 61% of surveyed HCF had access to an improved water source within 500 meters, 82% had improved sanitation facilities, 65% had soap for handwashing, 57% had adequate disposal systems for hazardous waste, and 55% had adequate sterilization equipment.

   Dr. Moe explained, however, that the data from the landscape report does not tell the full story. Instead, the CGSW's primary data collection in HCFs in seven countries in Africa, Latin America and Asia reveals many more profound gaps in WASH infrastructure and serious impediments to the provision of safe WASH. Many of these challenges are not captured in the landscape report and include problematic issues such as lack of functional sinks and toilets, lack of access to water and toilets for patients and/or family caregivers, poor water quality, water shortages and outages, unhygienic toilets, inappropriate placement and infrequent use of handwashing stations, lack of soap/alcohol hand rub, and inadequate environmental cleanliness. Sharing photographs of the poor WASH conditions observed in various countries, Dr. Moe asked, "How do we change this situation?"

   As a community of practice, she recommended the need to recognize the central role and complexity of WASH in HCF. WASH is central to almost every aspect of healthcare provision – from provision and treatment water for drinking and hygiene to safe management of the many different type of waste generated at a HCF. CGSW research and assessments have found that water quantity and quality considerations within a HCF are complicated by the diverse needs and uses of water by different HCF populations (patients, staff, caregivers) and the varying quality of water that is needed for different tasks such as drinking, cleaning, disinfection, bathing, etc., including use in medical devices. Dr. Moe illustrated this issue by describing an incident at a Level IV Health Center in Uganda where five newborns died of sepsis that was linked to an oxygen concentrator that had been filled with surface water from a swamp across the road during a water shortage.

To improve WASH in HCF globally, Dr. Moe pointed to the need for in-depth evidence to understand the nuances of WASH problems in HCF, determine the best strategies to address these problems, and evaluate the effectiveness and sustainability of interventions.

Finally, Dr. Moe described a multi-step framework for WASH in HCF improvement:

1. Assess WASH infrastructure and practices
2. Share/examine assessment results with HCR leadership and staff; prioritize risk, and determine action
3. Implement "hardware" and "software" interventions
4. Monitor and evaluate use, sustainability and impact of interventions
5. Learn what works and doesn't work and why
6. Revise intervention and/or implementation approach
7. Scale

Throughout the process, advocacy, multi-sectoral coordination, engagement with leadership, capacity building, and accountability are all required to support and sustain implementation.

2. "WASH in Health Care Facilities – actions, impact and future outlook"
Maggie Montgomery, Technical Officer, Water, Sanitation, Hygiene and Health Section, WHO

Dr. Maggie Montgomery began with an overview of the WHO and UNICEF Global Action Plan on WASH in HCF. The vision states, "by 2030, to ensure that every health care facility, in every setting, has safely managed, reliable water, sanitation and hygiene facilities and practices to meet staff and patient needs in order to provide quality, safe, people-centered care with particular attention to the needs of women, girls and children."

Achieving this vision will require:

- Integration of WASH into key health initiatives, frameworks, monitoring mechanisms and budgets
- Technical inputs in four key focus areas (Advocacy, Action and Leadership; Monitoring; Evidence and Operational Research; and Policies, Standards and Facility-based Improvements)
- Government commitment and leadership
- External support
- Facility improvement and community engagement
- Advocacy from all partners

Dr. Montgomery summarized the WHO and UNICEF efforts undertaken thus far with a timeline. The timeline showed activities and achievements since the first global meeting on WASH in HCF in Madrid in 2014. The timeline highlights the formation of the task teams, release of the landscape report, the establishment of the learning portal (www.WASHinHCF.org), the implementation of the WASH Facility Improvement Tool (WASH FIT), the development of monitoring indicators, and additional stakeholder meetings and monitoring activity scheduled through 2018. While acknowledging the progress made over the last three years, Dr. Montgomery emphasized that our collective efforts will not be successful until members of the health sector take up the same level of leadership and engagement in improving WASH in HCF

as the WASH sector.

Dr. Montgomery also discussed WHO and UNICEF's WASH FIT as "a management tool aimed at providing a holistic approach to protecting public health through the assessment and management of risks from insufficient or unsafe water supply, inadequate sanitation and poor hygiene practices". WASH FIT includes a five-step process that focuses on four domains: water, sanitation, hygiene, and management. The tool was initially tested in 2015 and 'pre-launched' in March 2017 at the Global Learning Event in Nepal. Although it is still being finalized, the tool has already been tested and used in 15 countries, with plans to rigorously evaluate the impact of the tool in improving and sustaining WASH services and hygiene practices. There is also a WASH FIT mobile app (beta version) in development to allow for digital data collection in partnership with mWater.

Commenting on the links to the health sector, Dr. Montgomery explained that WASH in HCF is closely related to many Quality Improvement initiatives at WHO, including: strengthening guidelines for infection prevention and control (IPC), quality of care standards for maternal and newborn care, and supporting countries to achieve health system resilience and combat antimicrobial resistance. The next step is to determine how best to harmonize the WASH FIT tool with existing guidelines and toolkits in use within the health sector.

Going forward, Dr. Montgomery emphasized the importance of capturing feedback from various user groups on what has and has not worked with WASH FIT. So far, key lessons learned include: the need for hands-on and culturally-appropriate training; the need for ownership of the improvement process by senior staff at the HCF; the importance of linking WASH FIT training and use to national health policies and financing mechanisms; and the need to support ongoing HCF improvements through peer-to-peer exchanges, competitions, and auditing.

More broadly, the next steps for the global WASH in HCF initiative include: 1) develop innovative funding for the improvement of WASH in HCF; 2) strengthen monitoring and accountability to support sustainable changes; and 3) elevate and embed WASH in HCF in core health systems strengthening and quality improvement efforts. Examples of how countries are working to address the challenges of WASH in HCF can be found in the report from the March 2017 Global Learning Event in Nepal (2).

3. **"Moving WASH in Health Care Facilities from Assessment to Action: World Vision Field Experience"**
   Samuel Diarra, Technical Director of WASH Operations, World Vision

Samuel Diarra presented on the work of World Vision (WV) in 40 HCF in two regions of Mali (Koro and Kolokani). In partnership with CDC, WHO, and in collaboration with WaterAid, World Vision has implemented WASH in HCF interventions that are focused on four key objectives: 1) stakeholder capacity building for the management, improvement, and sustainability of WASH services in HCFs (targeting staff, hospital leadership, decision-makers, and NGO partners); 2) provision and construction of short-term and long-term WASH facilities in HCFs; 3) strengthening policies, procedures, and funding for WASH improvements, and 4) close monitoring and evaluation using WASH FIT and BabyWASH tools, to demonstrate "proof of concept" of current interventions and ways to scale up.

With support from the Hilton Foundation, World Vision has made WASH in HCF improvements in 40 HCF in two phases, spanning three years. Before the implementation phase began in September 2016, project partners completed a WASH baseline assessment at each HCF. In the preliminary assessment report prepared by the CDC, recommendations for WASH interventions ranged from "provide standardized water storage tanks for each HCF sufficient for a two-day back-up supply" to "establish district-wide standards for HCF cleanliness." While the CDC recommendations were straightforward, Mr. Diarra noted the inherent difficulty in implementing some of these in a short time. However, given the urgent need for water in these HCF, World Vision and partners were motivated to enact the immediate provision of water storage tanks with capacity to support HCF for at least 48 hours without power.

Other important WASH in HCF interventions included:

- *Building sustainable water supply structures such as boreholes and mechanized systems*
- *Producing chlorine "in house" with electro-chlorinators (MSR's SE 200 and MSR/PATH's SE Flow) for water treatment and surface cleaning. Staff designated to make chlorine and perform other cleaning activities were also supplied with coats, gloves, brooms, and bleach bottles.*
- *Upgrading sanitation facilities to meet standards related to accessibility, gender segregation and disability.*
- *Making water available for flushing, surface cleaning, and handwashing near these sanitation facilities.*
- *Installing handwashing facilities or wash basins with soap in the vicinity of latrines and in critical locations within the HCF for health staff and visitors. For example, sink taps are now provided in all consulting and delivery rooms where handwashing is required.*
- *Promoting healthcare waste management protocols, including proper segregation and disposal into colored bins.*
- *Distributing environmental cleaning supplies to HCF as "seed" input for cleaning consulting rooms, treatment rooms, the yard and living places. The understanding is that after the "seed" inputs run out, the HCF management will take over providing these supplies to ensure sustainability.*

World Vision also met with district and regional health teams, as well as local mayors, to educate them about WASH in HCF and garner their support for long-term sustainability. In Mali, mayors at the commune-level are responsible for the operation of rural health centers, including budgeting and prioritizing activities. In this context, it was important to include these individuals among the stakeholders who are working to ensure the sustainability and success of the program.

By the end of September 2017, World Vision had completed improvements in 22 of the 40 HCFs targeted for the first year of the program. Mr. Diarra said that the current focus of the program, the simplicity of the interventions, the partnerships, and the progress made thus far were very encouraging. The long-term plan is for World Vision to take lessons learned from this program into consideration when developing plans to address 3,400 HCF globally through partnerships.

4. **"WASH in HCF – A Perspective from Implementation: Process, Players & Strategies – Experience from Mali"**
   Mamadou Diallo, Director, WaterAid Mali

Mamadou D. Diallo presented work by WaterAid Mali in 23 HCF, in partnership with WHO and CDC and supported by the Hilton Foundation. To begin, Mr. Diallo explained the necessity of understanding the problem. WaterAid asked themselves what tools were needed for what purpose and who should validate them? They decided to undertake three assessments:

1) a situational analysis which looked at the policy frameworks, identifying key actors and policy gaps,
2) a comprehensive assessment developed with WHO and the Ministry of Health to understand the WASH problems in more depth. Initially, government officials in the Mali Ministry of Health had only been using data from a previous rapid assessment tool (RAT) to make decisions. However, WaterAid and its partners convinced the Ministry of the necessity to conduct a WASH-specific assessment for HCF using this new comprehensive assessment tool (CAT), and
3) impact research, led by CDC, looking at the use and the impact of portable handwashing and drinking water stations and waterpoints installed in HCF in Mali.

The next consideration was how to develop and maintain a safe, collaborative, and competitive space for different Ministry personnel and members of various sectors. WaterAid organized an inception workshop and invited the Minister of Health to chair the meeting. During the course of the workshop, the representative of the Ministry of Health made an interesting comment that highlighted the general lack of coordination between relevant ministries in responding to needs of WASH in HCF. The MOH asked "Why doesn't the Ministry of Water join when a cholera outbreak occurs?".

After reaching consensus about the major problems and needs, a national task force was organized to create a minimum WASH package for HCF. Important compromises were made on "frontier issues" such as the amount of environmental health that should be included in the package. For example, is an incinerator considered a WASH issue that WaterAid should address?

Mr. Diallo provided lessons learned from the experiences in Mali:

- In addition to developing the WASH package, national policy and facility-level practice need to be linked. At the national level, the development of policies, standards, and guidelines are necessary. Further, field visits for government officials to hospital sites, as well as work with the local media, could assist with enforcement of standards.
- The "critical friendship" with the government needed to be maintained to maximize sustainability. However, it is important not to overlook subnational needs. Commitment from the district/commune level via local development plans is critical. Notably, the financial viability of the HCF in Mali, which is owned and run by the community, may make the WASH package and interventions challenging to sustain.
- Leadership for WASH in HCF should be led by Ministry of Health, and not by WASH specialists. Also, leadership is the key to ownership, not "buy-in".
- Data (not just monitoring and evaluation) is critical to integration of accountability, responsibility, and decision-making mechanisms.
- At the facility level, WASH FIT can serve as a practical guide for planning and implementation activities.

Reflecting on the program, Mr. Diallo highlighted three areas where more work is needed to support the advancement of WASH in HCF:

1. Costing: to inform sustainability and larger discussions on the health financing agenda and budget advocacy
2. Behavior change: recognizing the hospital as an institution with unique interactions among different personnel
3. Private sector: Understanding the potential role of the private sector and how to leverage their presence and support

5. "WASH in Health Facilities: Let's Get Practical"
Dr. Rob Quick, Medical Epidemiologist, CDC
Maggie Person, Health Scientist, CDC

Dr. Rob Quick introduced a two-phase approach to WASH in HCF interventions, using an example from the CDC Waterborne Disease Prevention Branch's work in Kenya. Phase 1 of the approach involves rapid, low cost interventions that focus on "quick wins". The steps include:

1. Conducting a rapid assessment of target HCFs to identify WASH deficiencies
2. Addressing technology gaps rapidly at low-cost
3. Demonstrating "visible" early improvements with a small fraction of a budget ("quick wins")

Examples of Phase 1 interventions include portable handwashing and drinking water stations; receptacles for sharps, infectious and non-infectious waste; and the containment of waste (e.g., fencing). These interventions are generally low-cost, but can be high impact (average cost is $200-$500 USD per small HCF, including training and transport costs). Dr. Quick presented a visual schematic of a HCF to show that the placement of handwashing stations needs to be in all patient care areas, laboratories, pharmacies, and near latrines; drinking water stations should be located near the places where patients spend the most time and receive oral medicines; and waste receptacles are required in patient care areas. His newly published article entitled, "Cost analysis of the implementation of portable handwashing and drinking water stations in rural Kenyan health facilities" highlights the details of Phase 1 implementation and financial requirements (3).

In Phase 2 of the approach, HCFs are upgraded, receiving traditional WASH infrastructure. These interventions include water supply, on-site water storage, handwashing facilities (sinks), improved sanitation facilities, and waste management (e.g., incinerator). The average cost for these improvements can range from $10,000 to $100,000 per HCF.

Maggie Person continued the presentation with a description of the CDC's approach to WASH in HCF in five countries: Mali, Cameroon, Kenya, Uganda, and Tanzania. The CDC's primary role has been to provide technical assistance to implementing partners, including needs assessments and monitoring and program evaluation. The CDC has designed a survey tool that covers five domains: water supply, handwashing, drinking water, sanitation, and waste management. Data from the assessment are then compiled into summary reports that are provided to the HCF. In addition, the CDC disseminates relevant data to other partners at the district, regional, and national level to help promote the improvement of WASH in HCF.

Ms. Person explained that the CDC's next step is to engage with ministries in order to promote

government ownership of Phase 1 interventions and encourage scale up. They plan to focus their research on innovative interventions and building the evidence base for WASH in HCF.

6. **"WASH within global health security: WASH renovations in hospitals in Liberia"**
Dr. Rick Gelting, Environmental Engineer, Global WASH Team, Center for Global Health, CDC

Dr. Rick Gelting began his presentation by explaining how WASH fits within the Global Health Security (GHS) Agenda activities. Infectious disease threats are shared global risks that require vigilant surveillance and prevention strategies to detect, prevent, and respond at the point of emergence. GHS incorporates 11 Action Packages, and WASH is included within the Anti-Microbial Resistance (AMR) Package because WASH supports infection prevention and control (IPC), which, in turn, helps prevent the proliferation of AMR.

Dr. Gelting described the WASH in HCF activities conducted as part of the GHS program in Liberia. After the Ebola outbreak, WASH renovations were completed in Liberian county-level hospitals. The renovations were comprehensive and addressed improvements in water sources, plumbing, sanitation, hygiene, and medical waste disposal. The three-step process for implementing these renovations included:

1. Training on tools such as WASH FIT (global) and the Liberian WASH and Environmental Health Package in Health Facilities (national)
2. Assessment of HCF, including soliciting stakeholder input
3. Development of renovation plans, using existing MOH infrastructure standards and implementing with NGO oversight before handing over to Ministry of Health after the 90-day warranty period

Dr. Gelting described lessons learned on moving from assessment to action during his experience in Liberia, including:

- The Health and WASH sectors should come together to work on WASH in HCF. The Ministry of Health should be consulted on infrastructure upgrades and changes.
- Stakeholder input is critical when developing renovation plans; key HCF personnel will know their facility best and the most important needs.
- WASH in HCF takes different forms depending on the context and resources available. The one-size-fits-all model is not suitable for WASH in HCF, so interventions will need to be tailored to each facility.
- Staff must be appropriately trained on WASH equipment to ensure proper use and maintenance.

Finally, Dr. Gelting asked: Is Liberia a special case given its GHS funding and the active participation from the Ministry of Health? Dr. Gelting argued that the Liberia experience could be seen as a potential model for other large-scale WASH in HCF projects. Meaning, one way of improving WASH in HCF is to incorporate it into larger initiatives, such as GHS.

There is also a need for institutionalizing WASH planning, construction, and maintenance in HCF. Efforts are needed to not only identify viable funding streams for projects, but also to change the mindsets of the healthcare community regarding the prioritization of WASH in HCF.

7. "WASH Training for Healthcare Facility Cleaners"
Lindsay Denny, Sr. Program Associate, Center for Global Safe WASH at Emory University

Lindsay Denny began her presentation by describing the entry point of WASH training initiatives for HCF staff. Because WASH has considerable overlap with infection prevention and control (IPC) and IPC is a clinical standard in most HCF, IPC serves as a natural entry point for the integration of WASH training with other activities. Topics for potential WASH training in HCF include hand hygiene, environmental cleanliness, medical equipment processing (like sterilization), healthcare waste management, and WASH for health (which encompasses all other relevant WASH issues such as water quality and toilet hygiene). In addition, there are may be five different target populations for WASH training, each with various subpopulations, including: healthcare workers, auxiliary staff, facility management, local and regional health authorities, municipal and/or regional government representatives, and implementation/program staff. Each population has a different role at the HCF and therefore requires different information and training modalities.

In collaboration with the Cambodian Ministry of Health, the CGSW developed and implemented a training program on WASH knowledge and practices for HCF cleaners using an existing national IPC curriculum as a starting point. Initial trainings were conducted on-site by the CGSW and the Ministry of Health, supported by hospital Infection Control Committees (ICC). Refresher trainings were subsequently held by the ICC alone. The steps of developing and conducting the training included:

1. Literature review of best practices
2. Organization of a national WASH/IPC Expert Panel
3. Design and administration of a training needs assessment
4. Curriculum development with input from adult education specialists
5. Training in both IPC concepts and practice
6. Evaluation and follow-up coaching

Prior to curriculum development, the training needs assessment survey was administered to 40 cleaners and included questions on knowledge, attitudes and practices with regard to IPC and WASH. In addition, cleaners participated in focus groups to provide a more in-depth understanding of their experiences as cleaners in different HCF. Ms. Denny explained that the roles and responsibilities of the cleaners varied by hospital, and even by ward. Sixty to 80% of cleaners had never received IPC training. All cleaners (100%) agreed that cleaning staff were important for IPC at the hospital, and 97% reported they wanted to receive IPC/WASH training. While the cleaners demonstrated favorable attitudes about IPC and WASH, their knowledge scores indicate low understanding of infectious disease transmission, IPC protocols and cleanliness standards for HCF.

Following this assessment, the expert panel agreed that the cleaners needed a hands-on training program focused on WASH for Health, hand hygiene, and environmental cleanliness. Eighty cleaners participated in one-day trainings at nine hospitals. Specific activities included: proper personal protective equipment (PPE) for cleaning, handwashing, mixing chlorine solution, routine cleaning of wards and toilets, and the cleaning of bodily fluid spills. Monitoring and evaluation mechanisms were developed with the Ministry of Health and shared with the HCF to facilitate self-evaluation.

Directly following the trainings, knowledge scores among cleaners increased from an average of 70% to an average of 89%. Follow-up visits at three- and six-months found marked improvement in practice from scores of 77% to 91%. After each of these visits, evaluators reviewed results with the facility management and provided recommendations. Ms. Denny noted that the knowledge and practice scores of clinicians, who were also trained and evaluated during this same period, decreased between the three- and six-month follow-up visits.

Ms. Denny concluded her presentation by providing recommendations for trainings with cleaning staff at HCF:

1. Determine cleaners' scope of work and the HCF chain of command
2. Form a steering committee to drive decision-making regarding training implementation and monitoring activities
3. Conduct a training needs assessment prior to curriculum development
4. Adapt existing curriculum for cleaners (as often there are little or no guidelines for this role)
5. Ensure training is practical and hands-on
6. Link monitoring and evaluation to national standards when possible
7. Allow sufficient time for the full process (>6 months)

7. "Strengthening WASH at the Health Facility: Accountability and Management" Ian Moise, WASH Advisor, Maternal and Child Survival Program (MCSP), Save the Children

Ian Moise began by summarizing the seven main challenges of integrating WASH into the healthcare system: (1) It is often unclear whether we are discussing WASH or infection prevention and control (IPC); (2) Solutions for WASH in HCF are often viewed as infrastructure improvements; (3) Many countries lack an institutional home for both policy and accountability for WASH in HCF; (4) The crucial coordination between engineers who build HCF infrastructure and doctors who treat disease and manage HCF is lacking; (5) The leadership to implement or sustain WASH interventions is absent; (6) Healthcare workers are disempowered to support WASH interventions; and (7) Vertical financing is a barrier to funding the necessary WASH interventions and recurring costs.

Mr. Moise provided possible solutions to the problems he listed. First, he recommended we define the problem and solution in terms that the health sector uses, beginning with IPC and WASH. He described IPC as having a "micro" focus with a more clinical approach, while WASH in HCF has a macro focus with an engineering approach. Both are concerned with the reduction of infections and sustained positive behaviors.

Secondly, he explained that we need to redefine the paradigm and consider identifying WASH in HCF challenges as related to management, rather than a lack of infrastructure. With this shift in mind, he recommended that partners:

- Empower Ministries of Health with a focus on policy
- Develop leadership and management at the HCF
- Invest in healthcare worker capacity
- Integrate WASH in HCF issues with other health platforms such as maternal, newborn and child health, quality improvement, and health system strengthening
- Improve measurement tools for WASH in HCF

Mr. Moise provided an example of these solutions, through the Maternal and Child Survival Program's (MCSP) Clean Clinic Approach (CCA). The CCA has been implemented in Haiti, Mali, Democratic Republic of Congo, Mozambique, and Guatemala. The elements of this approach include doable actions, government ownership at national and subnational levels, integration of a WASH action plan into existing systems, leadership training, competitions and social recognition-based awards. He noted that supervision and inspection are necessary for sustainability. Meanwhile, social recognition is a strong motivational tool.

The CCA 10-step process begins at the policy level, before it moves into the HCF at Step 5:

1. Assess HCF
2. Establish or refine national minimum WASH standards for HCF
3. Develop program parameters with government
4. Train district and HCF leaders
5. Introduce CCA program in target HCF
6. Integrate WASH actions into annual action/work plans
7. Monitor progress and coach
8. Inspect, score, and share results
9. Reward HCF progress
10. Refine priorities, action plans, and continue improvements within HCF

Mr. Moise proposed that the next steps for advancing WASH in HCF globally is to engage with healthcare quality improvement sectors, learn the health system strengthening language, and lobby USAID missions to invest the Paul Simon Water for the Poor and Water for the World funds into WASH in HCF.

More information about the Clean Clinic Approach and WASH in HCF can be found at: http://washforhealthcare.mcsprogram.org/

8. "Crafting multisector coordination mechanisms to sustain national level action" Alison Macintyre, Health Advisor, WaterAid

Alison Macintyre began by describing WASH in HCF as a systems issue. A seldom-used graph from the 2015 WHO/UNICEF landscape report illustrates that only 18-25% of 88 surveyed countries had plans for drinking water, sanitation, hygiene in HCF being fully implemented, with funding and regularly reviewed. Further, the 2015 WHO/UNICEF WASH in HCF landscape report notes that in countries that had national plans for WASH in HCF "drinking water coverage in HCF was high (at 87% or greater)".[1] It is reasonable to propose that the existence, implementation and regular review of country plans may be linked to the observed high access to drinking water in these countries.[1]

To begin the process of implementing WASH in HCF, Ms. Macintyre suggested we work upstream to understand the national health system and political economy before conducting needs assessments or developing an action plan. To achieve this, a health system scoping and analysis can be conducted to determine the health service delivery model, priorities and policy environment, policy milestones, roles of key actors, health priorities, and the political economy. The next step of the analysis should look specifically at WASH in HCF issues such as representation in health and WASH policy, guidelines, existing assessments and monitoring

mechanisms, roles of existing and potential actors, bottlenecks, and again the political economy. After these analyses, a working group should be established with the Ministry of Health (MOH) as the lead and supported by a secretariat that brings together relevant stakeholders in regular meetings.

Ms. Macintyre explained that it takes time to gather critical actors and drive political will, but it is time worth taking to support ministry leadership for sustainable and system-wide change. The stakeholders involved include those from different health focus areas such as health service delivery, antimicrobial resistance, maternal and newborn health, health security, quality universal health coverage, and health financing and WASH actors. These stakeholders may represent a range of groups, such as government, UN agencies, donor and development partners, academia and local research institutes, health-focused NGOs, and private sector providers.

In Cambodia, Quality of Care was the "hook" to drive political will, while in Myanmar antimicrobial resistance was of critical importance to the Ministry of Health and Sports. In both Cambodia and Myanmar, the process was led by their respective ministries of health and supported by WHO, UNICEF, MoH research institutes and NGOs. Government public health research institutes were involved in the large-scale assessments in both countries, which helped the ministries of health provide input on the design of the assessments, recognize the validity of the data, and build capacity on WASH among health academics and ministry staff.

Ms. Macintyre used Cambodia to describe the outcomes of this "policy-first" process. ***Tangible*** outcomes from the WASH in HCF initiative in Cambodia included:

- Inclusion of WASH in HCF indicators and targets in the national Health Strategic Plan 2016-2020
- Completion of the national baseline assessment, using the new JMP indicators
- Inclusion of WASH in the Minimum Package of Activities for health centers
- Inclusion of WASH in the Quality Improvement Mechanisms and as a measure of performance
- Piloting of WASH FIT to drive facility improvements within MoH-led quality of care mechanisms
- Inclusion of WASH in HCF in IPC standards and the development of WASH guidelines to complement other standards

Meanwhile, ***intangible*** outcomes included:

- Adopting an evaluation method that includes retrospective reflection, the most significant change for WASH in HCF in Cambodia over the first three years was the recognition by the MoH that they are primarily responsible for WASH in HCF. Currently, the MoH are leading the strategy, system strengthening, resource mobilization and capacity building for WASH in HCF

Other considerations for success:

- Collaboration across actors, MoH departments and ministries – requires ongoing drive and persistence
- Advocacy and technical support is continually required, particularly in the early stages of the project
- Flexible funding so that project timing can align with the pace of policy change

- Development and expansion of local initiatives, build on existing health system functions rather than develop something new

Finally, Ms. Macintyre emphasized what she called the "Three P's": Patience, Persistence and Pragmatism for WASH in HCF. Proposed next steps include maintaining and strengthening existing activities, exploring opportunities for engaging private sector service providers and developing accreditation and regulation systems, documenting lessons learned, gaining a better understanding of costing and resource allocation, ensuring strategic alignment, and continuing to influence and engage other actors. Ms. Macintyre challenged the WASH community to work in such a way that over the next few years it will be the MoH officials and healthcare providers who will present on WASH in HCF work (as opposed to, or alongside, WASH sector leaders).

9. "'Packaging Projects: Our pilots are successful, what's next?"
Gabriella Napier, Lead Sourcing Initiative Specialist, General Electric

Ms. Gabriella Napier presented on experiences with the General Electric (GE) Foundation's program of installing and evaluating water treatment systems in hospitals in LMIC with implementation partner, Assist International, and research partner, the Center for Global Safe Water, Sanitation and Hygiene at Emory. After funding implementation projects in Honduras, Ghana, Rwanda, Cambodia, and Uganda, the GE Foundation would like to expand their program concept into a "HCF Water Package", which includes water filtration technology, HCF-specific design and installation, training of maintenance personnel, water quality monitoring, and WASH advocacy. The end goal is to present this safe water package in terms of a "per facility cost" that philanthropic groups can use to estimate their investment and impact.

Ms. Napier summarized the three kinds of costs included in the "per-facility" price analysis:

1. Development: for example, the "consulting fee" for background assessment work by GE partners independent of whether implementation occurs; includes meetings with potential partners, feasibility studies, travel, and personnel
2. Installation: one-time cost associated with the implementation of the Water Package and includes: equipment, supporting infrastructure, initial training, travel, personnel efforts
3. Operation: recurring costs to maintain, monitor, and evaluate the water system and includes spare parts, water quality test kits, and recurring training. These costs could be covered via a separate service contract that is not necessarily paid for by a donor and could be part of a matching government financial commitment.

Using an example project budget, Ms. Napier recommended being clear about what each cost (or line) item reflects, such as the number of installations, time scale, units, currency, and the elements that inform the cost. To facilitate this process, Ms. Napier also strongly recommended documenting actual costs (vs. budgeted costs) from the beginning of a pilot project and noting changes over time.

Because this type of package is likely to be implemented in more than one HCF at a given time, Ms. Napier discussed how economies of scale would factor into a per facility cost. There is a lower per unit cost when installing a larger number of packages because some costs can be shared across multiple HCF. However, at some point the economy of scale no longer functions,

and there will be increasing costs for increased outputs (known as diseconomies of scale). Therefore, it is important to determine the limiting factor in an implementation project and understand how it will impact the per-facility cost. For example, if personnel are the limiting factor in a program, and a program manager can effectively manage implementation in 10 HCF, then the per-facility cost would be based on the economy of scale for 10 HCF.

PANEL DISCUSSION HIGHLIGHTS

Panel members: Samuel Diarra (World Vision), Mamadou Diallo (WaterAid), Lizette Burgers (UNICEF), Ian Moise (Save the Children), Alison Macintyre (WaterAid), Rob Quick (CDC), Rick Gelting (CDC), Sandra Virgo (SoapBox Collaborative), Marielle Snel (World Vision), Margaret Person (CDC), Gaby Napier (GE)

COMMENTS FROM PANEL MEMBERS

Lizette Burgers from UNICEF opened the panel discussion by emphasizing the need to understand the health sector strengthening language to better understand the health sector. Meanwhile, WASH sector expertise for HCF is still needed, which will likely require additional capacity building because it is not easy to find such specific expertise (e.g. healthcare waste management). As a multi-disciplinary agency, UNICEF will focus on maternal and newborn care settings and work to mirror the priorities and actions of the ministerial departments involved. She described this "mirroring" as a "comparative advantage in strengthening the system" and ensuring sustainability of desired results. The convener can also influence norms and policies.

Ms. Burgers agreed with Ms. Macintyre and encouraged WASH in HCF implementers to not start with interventions or even HCF assessments. Understanding the legal and regulatory frameworks for WASH and IPC is a crucial first step. An analysis of the national and local healthcare system and potential bottlenecks is needed before beginning HCF assessments. The process of forming a working group with government, including multiple ministries, academia, and practitioners is also crucial. Through this working group, stakeholders and implementers can develop a common understanding as well as boundaries of what is feasible vs. what they want to achieve. Such clarity of vision at the national and/or subnational level can lead to more productive use of the findings of subsequent assessments of HCF findings. When forming the working group, it is important to gauge how agencies work together. One example is WaterSHED's inter-organizational networking in Cambodia (including coordination, trust, and communication) and understanding which part of the budget is under each partner's influence. Without these preliminary steps, it is possible to overlook an important component that will subsequently require a different approach and different cost.

Commenting on CDC's two-phase approach, Ms. Burgers supported the costing and outline process, but recommended clarity around which specific interventions occur in the two phases and whether this is presented as a package or scale-up approach. The learning presented by WaterAid and World Vision in Mali demonstrated that this work needs to be with and for governments and requires a good understanding of the context in which an implementer operates.

Dr. Sandra Virgo from the Soapbox Collaborative drew attention to the importance of the quality of care framework. Soapbox started at the local level, interviewing mothers about their experiences. By encouraging and understanding the consumer perspective, mothers were empowered. For example, they would not recommend their sisters to give birth in a HCF if the conditions are poor.

Ms. Marielle Snel from World Vision continued the panel discussion with a list of recommendations based on her experiences in WASH in non-household institutions:

1. Maintain consistent monitoring efforts
2. Promote good management, accountability and transparency
3. Build partnerships with the local community
4. Increase the focus on quick wins, innovative monitoring tools, and developing the evidence base while integrating and coordinating research
5. Learn from and build on these experiences to grow a stronger community of practice

Based on Save the Children's Clean Clinic Approach (CCA) and WHO and UNICEF's WASHFIT tool, she noted that many of us are aligning our work without realizing it. Ms. Snel also shared a slide on WASH away from the home, noting the intent to have an online library on WASH in non-household settings by the end of 2017 (www.wvi.org/cleanwater).

QUESTIONS FROM AUDIENCE

Question: Channa Sam Ol from WaterAid Cambodia opened the question session by addressing Mr. Moise and Ms. Montgomery, asking if there were plans to bring WASHFIT and CCA together, even if it were just integrating lessons learned?

Reply: Ms. Montgomery responded that there is not a one-size fits all model for improvements in WASH in HCF, and WHO is not concerned about branding. Rather, it is more important to share experiences such as those Mr. Moise shared about management.

Question: A representative from Simavi raised the question about the challenges of management. When HCFs are connected to community water systems that already have issues, how do you maintain the water supply?

Reply: Mr. Diarra responded that due to the risk of community management, it is preferable to move to privately managed water supply that would allow for collecting and storing the required 48 hours of water supply. Dr. Gelting recommended bringing the water utility into the stakeholder group to understand limitations and how to manage them.

Comment: Dr. John Tomaro from UNC stated that we are interested in WASH and IPC because we want to achieve health improvements, especially amongst babies. He noted the importance of community involvement. Collaboration is challenging because there may be competition for resources and authority, but we have a joint goal.

Reply: Mr. Diallo explained that WaterAid worked with the surrounding communities to develop the demand side and focus on WASH in HCF as a human right. Mr. Diarra agreed that we must engage the community during the HCF improvement process so that they own it. This is important for sustainability.

Question: Agnes Makanyi from UNICEF Kenya reemphasized the importance of community as well as government involvement. She asked how groups are addressing sustainability and how they are scaling up?

Reply: Ms. Macintyre explained that WASH in HCF is a new issue, which is an opportunity because it is not a crowded space. From the outset, there is a need for government and community involvement. A focus should be on groups coming together rather than small scale uncoordinated efforts.

Mr. Diallo recommended engaging the government from the beginning so that the government has a central role and the health sector owns the issue.

Ms. Burgers recommended using the data from the baseline SDG assessment collected by WHO as an advocacy tool. It is necessary also to increase our understanding of WASH in HCFs on a subnational level, taking into consideration local context.

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