

# Effective Interventions to Strengthen Health Systems after the Epidemic

## MCSP's Response to Ebola in Guinea, Liberia, and Ghana

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### Background

The 2014–2016 epidemic of the Ebola virus disease (EVD) was the largest ever seen and resulted in over 28,000 cases of illness (suspected, probable, and confirmed) and over 11,000 deaths—the overwhelming majority of which were in Guinea, Liberia, and Sierra Leone.<sup>1</sup> The epidemic weakened already-fragile health systems in the three countries and highlighted the absence of basic infection prevention and control (IPC) infrastructure and practices within the health system and community—the consequences of which exacerbated the EVD outbreak. The public's fear of contracting EVD led to distrust in the health system and to not seeking care in health facilities. As a result, numerous health facilities closed or ceased to function because of the drop in attendance, a shortage of health workers after many died from EVD and others stopped working for fear of contracting the disease, and facilities' inability to safely provide routine services due to poor IPC practices.



Nurse Stanley Amos Seyonkon (41), an Ebola survivor, is in a government hospital in Buchanan, Liberia. Stanley became infected with EVD after treating a patient in the holding center but recovered; he has now been trained in IPC practices through the Maternal and Child Survival Program (MCSP). Photo by Kate Holt, MCSP.

In response to the epidemic, the United States Agency for International Development (USAID) developed a four-pillar strategy to address EVD:

- Pillar I: Control the outbreak
- Pillar II: Recover from second-order impacts from EVD
- Pillar III: Build coherent leadership and operations
- Pillar IV: Strengthen global health security in sub-Saharan Africa

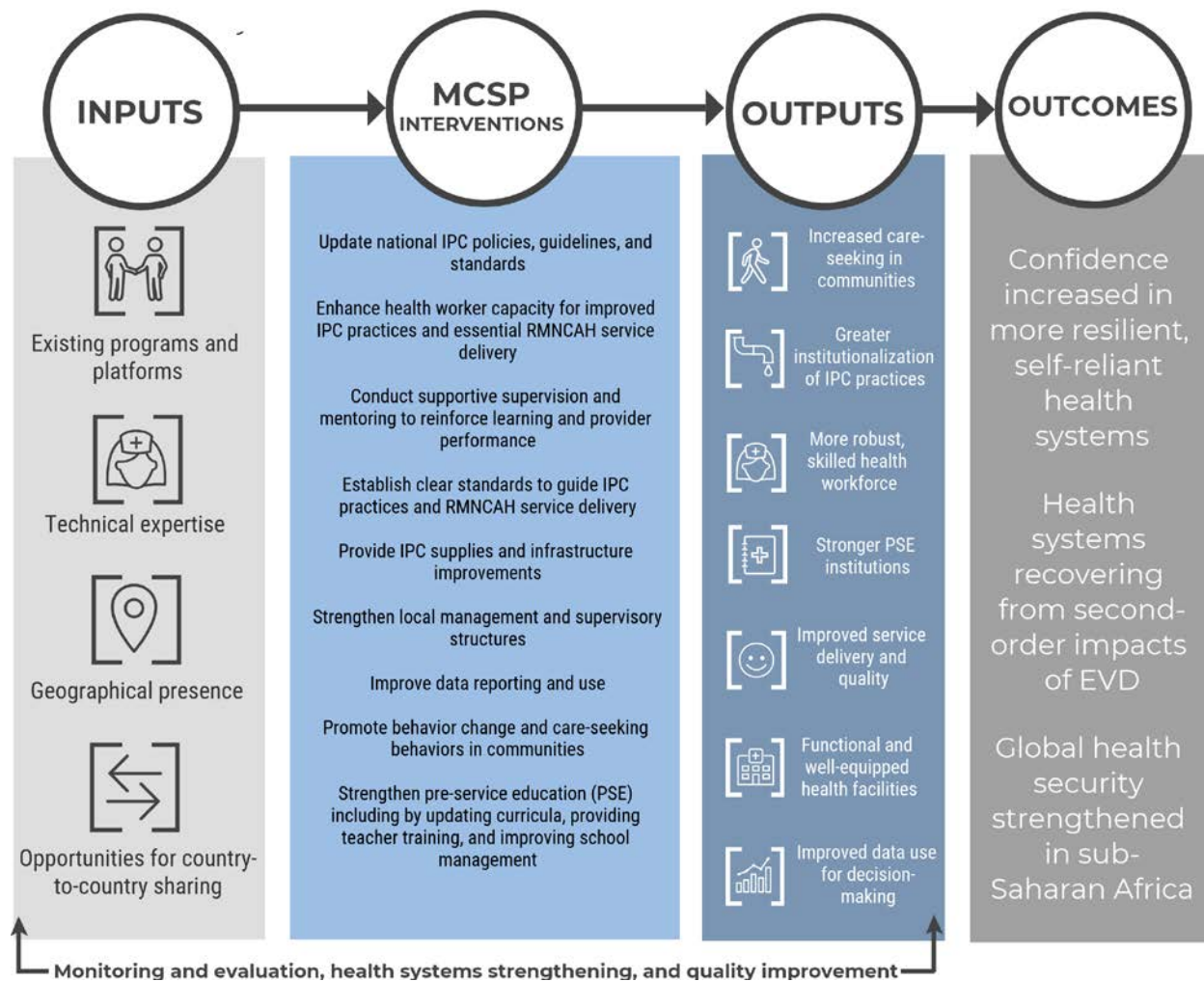
<sup>1</sup> Centers for Disease Control and Prevention (CDC). Number of cases and deaths in Guinea, Liberia, and Sierra Leone during the 2014–2016 West Africa Ebola outbreak. CDC website. <https://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html>. Accessed July 18, 2018.

The Maternal and Child Survival Program (MCSP), awarded by USAID in March 2014, is a global cooperative agreement that focuses on 25 high-priority countries and has the ultimate goal of preventing child and maternal deaths. Because of its geographic scope and technical expertise, MCSP was well placed to rapidly respond to the EVD epidemic, particularly with interventions related to Pillars II and IV. This brief outlines MCSP’s approach to EVD prevention, response, and recovery in Guinea, Liberia, and Ghana (Ghana did not have any active cases of EVD but was classified as a high-risk country due to its geographical proximity to the epidemic). MCSP’s interventions were intended to build resilience and self-reliance in each country so that it could respond more effectively to future epidemics and emergencies. The brief also presents MCSP’s learning on effective interventions for strengthening the health system to stop the spread of EVD, restore essential non-EVD health services and revitalize health systems that struggled to respond, and better prepare for potential future epidemics. Finally, the brief discusses MCSP’s experience in integrating EVD response and preparedness funds into its global health award to inform planning for future epidemic-response interventions.

## MCSP’s Approach and Country-Specific Interventions

MCSP’s approach in each country was determined in coordination with the Ministries of Health (MOHs), USAID, and partners. Figure 1 shows MCSP’s strategic framework for EVD interventions. Through MCSP, countries shared and adapted IPC standards, approaches, indicators, and training materials.

**Figure 1: MCSP’s strategic framework for EVD response and recovery (2014–2018)**



Notes: Ebola virus disease (EVD); infection prevention and control (IPC); Maternal and Child Survival Program (MCSP); pre-service education (PSE); reproductive, maternal, child, and adolescent health (RMNCAH)

## Guinea

MCSP supported Guinea through four separate projects. Two were implemented with USAID Guinea Mission's field funds and the Office of US Foreign Disaster Assistance funds during the height of the epidemic, and they were followed by two projects implemented under Pillar II funds.

### *EVD Response Projects*

From November 2014 to August 2015, USAID asked MCSP to contribute to the government of Guinea's response to the EVD epidemic by supporting routine health services and halting transmission in communities. This project set out to improve providers' performance on IPC measures by training all providers—55 facilities in Conakry and three rural prefectures, including the three national hospitals—on IPC knowledge and skills. MCSP ensured that after the training, providers received multiple, supportive-supervision visits to establish correct and consistent implementation of IPC practices. The competency-based training<sup>2</sup> course and follow-up supervision were guided by a nationally-validated set of IPC performance standards for facilities. MCSP also provided each facility with an initial 1-month stock of IPC materials. At the community level, MCSP supported the application of social and behavior change communication (SBCC) strategies to prevent EVD by using a range of communication channels estimated to reach more than 75,000 people. MCSP also provided training on contact tracing in three prefectures and supported the local district health office in supervising community health workers (CHWs) engaged in EVD surveillance.

From June 2015 to May 2016, MCSP received funding for a second project to extend IPC training events and supportive supervision to five additional prefectures. This project also purchased and installed autoclaves and incinerators to improve instrument sterilization and waste management practices at facilities that see a high volume of clients. By the end of these two short-term projects, MCSP had helped reinforce the importance of IPC practices to more than 5,000 providers and auxiliary staff in 34% of the country's health districts and 25% of all health facilities, including the largest teaching hospitals in the country. Because MCSP worked closely with the IPC Cluster of the National Ebola Response Coordination, the MOH preferred MCSP's IPC training and supervision materials for use by its health partners.

### *Guinea Restoration of Health Services (RHS) Project*

From July 2015 to December 2016, MCSP implemented the Restoration of Health Services (RHS) Project, intended to support the MOH in focusing at the health facility level to restore and improve health services as the EVD epidemic was coming to an end. Through the project, MCSP supported all health facilities in the 20 prefectures most affected by EVD (covering 72% of the country's population) to meet minimum IPC standards through coaching and periodic evaluations, competency-based training and orientation of new staff, and rehabilitation of water and waste management systems. It also provided training, materials for service provision (e.g., instrument kits), and supportive supervision to increase health facilities' capacities to offer reproductive, maternal, newborn, and child health (RMNCH) services. MCSP supported 34 health facilities to reinvigorate and maintain the Standards-Based Management and Recognition (SBM-R<sup>®</sup>) approach, the quality improvement process adopted by the MOH to improve the quality of services provided. In addition, MCSP supported CHWs to provide the package of community-based services and increased community ownership and capacity to act for improved RMNCH outcomes through the introduction of the Community Action Cycle.<sup>3</sup> As a result of the project, performance rates improved in almost all health facilities, with 46% of health facilities meeting the desired minimum performance of achieving 75% of IPC standards, compared to achieving only 5% at baseline. The percentage of health facilities achieving less than 50% of the performance standards decreased from 70 to 19.

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<sup>2</sup> Competency-based training (CBT) is "learning by doing," rather than learning by simply acquiring new information, and focuses on developing the specific set of competencies needed for quality job performance. CBT emphasizes practical application of new knowledge, skills, and attitudes and requires the clinical trainer to "facilitate learning" as a mentor/coach, rather than function solely as an instructor or lecturer.

<sup>3</sup> The Community Action Cycle is a multiphase process where community leaders, community-based groups and organizations, CHWs, and community members identify health priorities; design interventions according to MOH policies, strategies, and objectives; implement the intervention; and then monitor and evaluate the results.

## Health Systems Strengthening (HSS) Project

From April 2016 to June 2018, MCSP implemented the Health Systems Strengthening (HSS) Project, which was intended to support the MOH in implementing systems-level approaches to improving health services at the subnational level. Through the project, MCSP assisted the MOH in developing, validating, and disseminating the National Policy and Program for IPC and in updating the pre-service education (PSE) curricula accordingly. MCSP also introduced the Comprehensive Approach to Health Systems Management<sup>4</sup> in the same 20 prefectures in which the RHS Project focused its efforts. As part of the Comprehensive Approach, MCSP conducted a series of workshops and quarterly mentoring visits with the 20 prefectures to identify root causes of their health system challenges and holistically plan for and implement activities to mitigate these challenges. MCSP conducted a training for the 20 prefectures in stakeholder communication, engagement, and resource mobilization; as a result, prefectures have developed funding requests to mobilize local resources to realize their activities. In addition, the project assisted the MOH to conduct a nationwide inventory of incinerators and waste management to guide partner actions in ensuring safe and proper disposal of medical waste. The project also supported the rollout of the DHIS2, a new electronic health management information system (HMIS), by facilitating training workshops on the new database and on data use for decision-making and by supporting the revision of data collection tools and user manuals.

## Liberia

MCSP supported Liberia through two separate projects, each implemented under Pillar II funds.

### Liberia Restoration of Health Services (RHS) Project

MCSP implemented the RHS Project in Liberia from August 2015 to June 2018 in 77 facilities in three counties (covering 20% of the country's population). The project's goals were to strengthen IPC practices, improve the quality of reproductive, maternal, newborn, child, and adolescent health (RMNCAH) services provided, and restore confidence in the health system following the EVD epidemic. The project improved IPC practices in facilities by introducing and promoting concrete IPC standards set by the MOH; providing whole-site, competency-based trainings for IPC, supportive supervision, and mentoring; supporting the development and implementation of Liberia's Ring Approach<sup>5</sup> to contain new EVD cases; establishing and strengthening IPC committees and focal persons; providing a constant supply of IPC consumables; building capacity through training and mentorship for supply chain management; constructing triage and isolation units, wells, incinerators, and pits for waste management; and distributing job aids to support health workers mentor on site for implementing IPC practices. In all MCSP-supported health facilities, the project also provided competency-based training events in topics including safe quality services (SQS),<sup>6</sup> integrated RMNCAH care, and data quality and use—and on a monthly basis, provided supportive supervision and mentoring, based on standards set by the MOH, through county and district health teams and partners. The SQS training included a component on psychological care and coping mechanisms to guide health workers in caring for themselves and clients



Janet Tavies, a traditional birth attendant, washes her hands in the health center before helping with a delivery in Grand Bassa County, Liberia. Janet participated in IPC trainings with MCSP. Photo: Kate Holt/MCSP.

<sup>4</sup> The Comprehensive Approach to Health Systems Management is an MCSP-developed bottom-up action and planning process in which subnational managers leverage, mobilize, and coordinate local health system resources to increase coverage, utilization, quality, equity, and sustainability of health services.

<sup>5</sup> The Ring Approach is a focused IPC rapid-response effort for a 5-km diameter around a detected EVD case. It provides rapid, intensive, and short-term IPC support to facilities, including through daily mentoring and coaching.

<sup>6</sup> SQS is training developed in collaboration with the World Health Organization to teach safe IPC practices in nonoutbreak contexts following the EVD epidemic. The training targets both clinicians and nonclinicians and has five components: IPC standard precautions; psychosocial support; EVD disease surveillance; and fundamentals for clinical emergency management.

following the trauma of the EVD epidemic. As a result of project interventions, the median facility score on the MOH clinical standards assessment was 75% at endline (October–December 2017), compared to 24% at baseline (December 2015–January 2016). In addition, there has been a dramatic increase in the use of RMNCAH services at MCSP-supported health facilities. For example, the number of women receiving skilled delivery services and the number of children receiving the Penta3 vaccination, and proper diagnosis and treatment for pneumonia, doubled between baseline and endline.

### ***Human Resources for Health (HRH) Project***

Through MCSP's HRH Project, which ran from April 2016 to September 2018, MCSP worked with regulatory bodies for midwifery and medical laboratory technicians to build the capacity of PSE instructors and clinical preceptors and to strengthen the PSE learning environment in order to prepare a stronger, more qualified health workforce to prevent and tackle future epidemics. The project focused on the country's five midwifery and three medical laboratory technician institutions and started by updating the curricula for each group, emphasizing competency-based trainings. MCSP delivered workshops—including on effective teaching skills, student performance assessment, and technical updates—to build faculty capacity and placed mentors in schools to provide follow-up support. The project collaborated with schools to establish or improve simulation centers and computer laboratories in all institutions and ensured coordination between the schools and clinical settings. The project also conducted a leadership and management development program to support institutional staff in those roles and improved the policy environment to strengthen PSE by supporting efforts that included updates to the National HRH Policy. Although sustained impact of MCSP's efforts is difficult to gauge at this time, data show that these interventions may be leading toward lasting results. Ninety-seven percent of midwifery students passed their state board exams at endline, compared to 81% at baseline. In addition, the proportion of prospective midwifery graduates passing the observed structural clinical examination, which tests skills in action, was 85% at baseline, but 100% at endline.

## **Ghana**

Through Pillar IV funding, MCSP supported the Ghana Health Service (GHS) from October 2015 to February 2018 to contribute to the development of the country's National IPC Policy and Guidelines, IPC facilitator's guide, and checklists for IPC procedures. Based on these IPC standards, MCSP implemented whole-site IPC training events in all regional hospitals and 77% of the district hospitals across five MCSP-supported regions. MCSP worked in close collaboration with the GHS and partners to develop a competency-based training model appropriate for Ghana. Trainers used an MCSP-designed dashboard to determine the specific topics on which participants scored low in their pre-tests so that additional time and practice could be provided in those areas, which greatly improved post-test scores. In addition, MCSP assisted the GHS to design a training-cascade approach, and MCSP administered grants to each region with clear targets and milestones for implementing the training and effectively allowing regions to take control of implementation, thereby facilitating the sustainability of the approach. Finally, MCSP supported regions to conduct follow-up supportive-supervision visits to facilities. In total, MCSP improved the knowledge and skills of more than 10,000 frontline clinical staff and nearly 4,000 frontline nonclinical staff, reaching 99% of all staff at targeted hospitals. A World Health Organization standards assessment also showed that after project implementation, MCSP-supported facilities scored over 90% in four of the eight standards.

## **Interventions to Strengthen Epidemic-Affected Health Systems**

MCSP's experience in implementing interventions to support epidemic response and recovery and to build health systems that are more prepared for future challenges allowed the MCSP to work through various approaches and adapt them to differing country systems and contexts. Through this experience, MCSP learned what elements are key to address challenges faced during and after epidemics and ensure that changes are sustainable and effective. An analysis of MCSP's experience has produced the following list of 10 program elements that have proven effective and should be integrated into future epidemic-response programs:

### ***1. Define and use standards as a pathway to quality improvement and self-reliance for epidemic response.***

Using standards adapted from global recommendations and validated by MOHs as a basis for quality improvement is beneficial for several reasons. First, standards help define a project's scope, which can be

challenging in both emergency response and in postepidemic restoration efforts. They define measures to assess service delivery and determine areas of weakness to focus on during epidemic-response and postepidemic efforts. Second, they establish the basis for supportive supervision checklists, job aids, and other materials developed to support improvements in service delivery. Finally, standards provide concrete and measurable goals for health workers, health facilities, and health systems; when standards are used with supporting tools and documentation, they can help define a pathway to attain those goals, thereby leading to quality services.

## ***2. Provide capacity development for more effective epidemic responses and to promote resilience against future epidemics.***

Training events are essential to improving IPC and other practices in health facilities, but training events alone are not sufficient; several other capacity-building elements are vital for changing behaviors in health workers so that they retain the information and are more prepared to respond to epidemics and emergencies. First, capacity development must be competency based and include significant elements of demonstration and practice. Second, capacity-building on IPC practices and standards must reach all health facility staff—including janitors, security staff, and registrars—who each play a key role in the application of IPC. Third, follow-up supportive supervision and mentorship is essential for reinforcing training messages and helping trainees apply their learning in their own clinical settings. Finally, a motivated onsite focal person should be present to ensure continued adherence to best practices and advocate for the availability of required supplies. In addition to these essential elements, MCSP found integrated training events to be effective in demonstrating how to implement IPC practices while delivering RMNCAH services. MCSP also found onsite trainings to work well since they were easier to attend and allowed health workers to learn in their own facility contexts. The training dashboard used in Ghana to target training to areas in which participants had performed poorly on in the pre-test was another effective practice.



Health providers participate in a handwashing activity in Guinea using paint as part of infection prevention and control (IPC) training. Photo by Jacqueline Aribot, MCSP.

## ***3. Provide consumables, supplies, and infrastructure for epidemic management, and build capacity to manage appropriate supplies for routine services and future emergencies and epidemics.***

Health care providers are not able to practice effective IPC activities without the necessary consumables, supplies, and infrastructure (especially infrastructure for clean water supply). These materials and structures must be in place during an epidemic response, and a plan must be in place to ensure their continued supply and functionality. Partner coordination in providing these materials and conducting construction projects is key, and the MOH should take the lead in identifying partners best placed to address immediate needs. Projects should also plan to provide technical assistance and capacity-building for national and regional supply chain management and build the capacity of facilities to request and manage supplies. Staff capacity must also be built to ensure that IPC infrastructure is used and maintained appropriately.

## ***4. Support the MOH and other government structures to lead and coordinate epidemic-response activities.***

Coordination among partners is often an issue in development aid contexts but in epidemic-response contexts, when funding is increased and activities are occurring rapidly, weaknesses in coordination and country ownership of interventions are highlighted—and addressing these issues is critical. Epidemic-response programs must include a component to support the MOH at the national, regional, and district levels to manage partner coordination (a common development aid principle that is often underemphasized). In addition, all interventions should be implemented in close coordination with the government to ensure their buy-in and ability to continue interventions after partner-funded projects end. MCSP's support for the

MOH in all three countries—including the embedding of staff among county health teams in Liberia, training and mentoring subnational managers in Guinea, and granting directly to regional health teams for trainings in Ghana—contributed to the MCSP’s success.

#### ***5. Address policy-level changes needed, and integrate administrative and service-provision interventions.***

In postepidemic-response situations, it is essential to examine the policy and planning environment to ensure that it supports the required interventions. For example, policies and plans must support human resource (HR) systems, establish national guidelines for IPC and other best practices, set standards on which to base training and supportive supervision, and effectively mobilize resources (e.g., funding, supplies) to support epidemic responses. In addition, MCSP’s experience shows that administrative-system interventions should be integrated with interventions to restore services at the facility and provider levels. For example, MCSP supported the MOH to strengthen HR policies while providing improvements in PSE institutions during the Liberia HRH project; and in Guinea, RHS continued to engage with MOH on policy development, such as IPC and RMNCH strategy and guidelines, until HSS was in place to focus on health-systems-level needs. Restoration of services following an epidemic or emergency can only go so far without system improvements, and system interventions are often hollow without helping managers link these improvements to health care services.

#### ***6. Strengthen the PSE system to produce health workers who can respond to emergencies and epidemics.***

The EVD epidemic highlighted a major gap in health worker skills, requiring an enormous investment in in-service training. As part of rebuilding country health systems and to prevent these gaps in future, PSE systems need to be addressed, both in schools and in teaching hospitals, so they can produce a fit-for-purpose, productive, and motivated health workforce prepared to respond to emergencies and epidemics without extensive in-service training events. Curricula must reflect updated practices; teaching must include significant demonstration and practice components; and faculty and preceptors must be trained in current technical knowledge and practice, effective teaching skills, and student performance assessment.

#### ***7. Support health facilities and larger health systems in data reporting and use to monitor epidemic response.***

Improving capacity for reporting and using high-quality data is an essential part of any health intervention, and rapid data collection and analysis is especially essential in epidemic-response and recovery situations. The elevated emphasis placed on daily reporting and facility-level analysis during an epidemic sets the stage for expanding the importance and application of high-quality routine data. Postepidemic interventions should build on these foundations to enhance capacity to improve routine data quality, completeness, and timeliness. At the facility level, training and mentoring must address data use—including on setting targets, monitoring trends, interpreting results, and developing plans—as MCSP’s efforts did in both Guinea and Liberia. Facility data-use training enables health workers to make informed decisions to restore quality services, leading to higher data quality, since health facility staff are more invested in reporting accurate data for their own use.

#### ***8. Conduct community-level SBCC activities to restore confidence in the health system and address community hygiene.***

Efforts to restore confidence in the health system and attract the public back into health facilities to receive care must include SBCC work such as messaging through community events, radio broadcasts, and other mediums at the community level. In addition, community-level interventions are necessary to promote IPC behaviors outside of health facilities and stop the spread of infection. These interventions should include training, building relationships and coordinating with CHWs, local and traditional leaders, and community committees and structures to promote care-seeking behaviors and deliver context-specific messages to combat diseases.

#### ***9. Provide psychosocial care for health workers and the general public affected by epidemic-related trauma.***

It is essential that programs recognize that epidemics, especially those like the EVD epidemic, are traumatic for both health workers and the general public, making it difficult for both groups to return to health facilities to continue providing and receiving care. As MCSP did in Liberia, psychosocial care should be included as

part of the MOH package of care, and training packages for health workers should include information on specific coping mechanisms that individuals can employ following trauma.

### *10. Allow sufficient time to promote sustainable change after epidemics and emergencies.*

Time is always a concern in development projects, but it is especially problematic for projects working through emergency funding. Timelines on these projects are frequently short, and they are initiated quickly when funding becomes available and require escalated implementation and closeout procedures. Effective and sustainable HSS takes time and requires follow-up, consistent reinforcement, regular monitoring and evaluation, and development of systems that can continue after project closes. Projects initiated to respond to epidemics and emergencies should, at a minimum, allow sufficient time to transition interventions to more sustainable, health systems-focused interventions.

## **Experience in Integrating Emergency Funding into a Global Award**

MCSP's experience as a global award implementing the EVD response was somewhat unique and provides an opportunity to examine the benefits and challenges of using MCSP's funding mechanism for emergency response and recovery. MCSP was well placed to take on this funding for several reasons. First, it works across a wide range of technical areas and has flexibility, expertise, and a strong capacity to respond to interventions related to IPC, RMNCAH, HSS, quality improvement, community health, and other related areas. MCSP already had materials and models that could be adapted for this emergency response. Second, the organizations implementing MCSP were already working and had strong relationships and reputations in Guinea, Liberia, and Ghana, so it was able to begin implementation more rapidly than a new organization. MCSP was able to implement emergency response interventions that ensured continuity with other ongoing work in these countries, including human capacity development, HSS, and quality improvement interventions. Third, as a global program mechanism, MCSP had systems set up to absorb large and multiple funding streams and to report to funders and stakeholders. MCSP was able to continuously communicate with the donor and jointly solve inherent project complexities that arose during a rapid postepidemic response. Finally, by implementing in multiple countries, MCSP was able to synthesize learning across countries and facilitate country-to-country sharing of effective interventions, including with other countries that MCSP supports through its global award.

There were challenges associated with bridging the humanitarian and development continuum, however. First, funding for emergency response tends to be time bound and limited. MCSP took a long-term perspective in all three countries, focusing on inputs to help the health workforce and systems be more resilient. However, an unfinished agenda remains to ensure that governments and development partners build on MCSP's HSS and capacity-building efforts and sustain the gains made, which require discussions at the donor and national-government levels. Second, while a global program like MCSP is clearly poised to respond to epidemics, by design, the program was not intended to implement large-scale construction projects such as those required for Liberia RHS, which were essential to improving IPC capacity in countries. Such projects required immense agility and flexibility for both the donor and the project to mobilize and deploy personnel and resources efficiently and effectively.

## **Conclusions**

As a global program, MCSP was able to work across countries and gather lessons learned to suggest elements of a workable model, as presented in this brief, for restoring health systems after an epidemic or another shock to the health system. With expertise in a wide range of technical areas and geographic locations, MCSP provides a mechanism that can respond relatively rapidly to a range of health needs during an epidemic, or other emergency situation, and during postemergency recovery, thereby enabling the implementation of sustainable improvements for stronger, more resilient health systems.