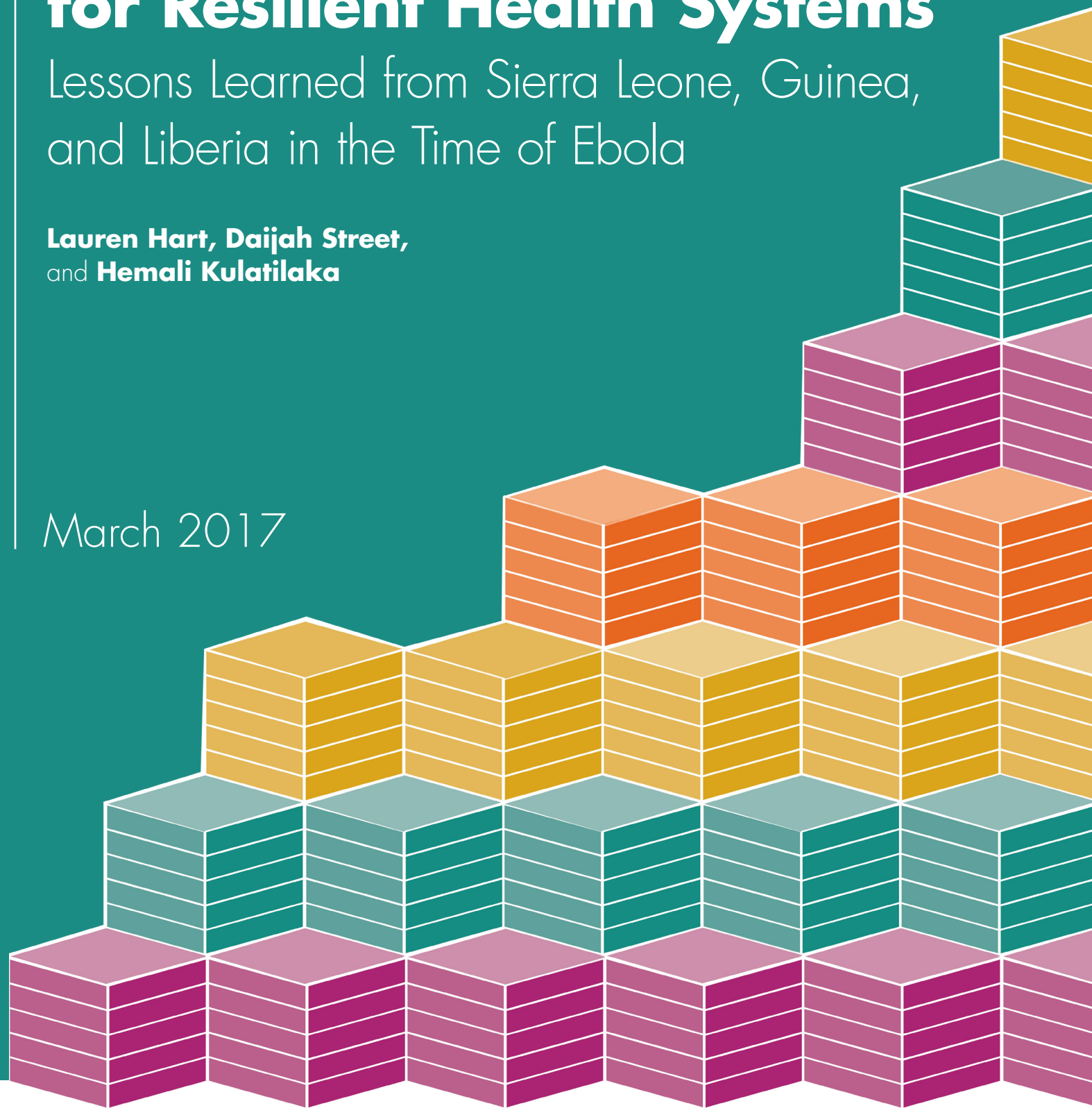# Building Capacity for Resilient Health Systems

Lessons Learned from Sierra Leone, Guinea, and Liberia in the Time of Ebola

Lauren Hart, Daijah Street, and **Hemali Kulatilaka**

March 2017

USAID FROM THE AMERICAN PEOPLE

MEASURE Evaluation

Building Capacity for Resilient Health Systems

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ACKNOWLEDGMENTS

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ABBREVIATIONS

CB	capacity building
DHIS	district health information system
HIS	health information system(s)
HMIS	health management information system(s)
HMN	Health Metrics Network
ICT	information and communications technology
MOH	Ministry of Health
MOST	Management and Organizational Sustainability Tool
M&E	monitoring and evaluation
PRISM	Performance of Routine Information System Management
TA	technical assistance
TWG	technical working group
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

Background

In the wake of the Ebola outbreak, the United States Agency for International Development (USAID)-funded MEASURE Evaluation implemented health systems strengthening interventions, all with a strong capacity building (CB) component, in Liberia, Sierra Leone, and Guinea. All three interventions consisted of an assessment followed by strategic planning. Two technical advisors from MEASURE Evaluation were embedded in these countries' health ministries for three months to implement the assessment and strategic planning. This effort was followed by virtual technical assistance (TA).

The uniform approach used across the three countries presents a unique opportunity to compare and contrast the experience of CB in different countries. This comparison is of particular interest, because a MEASURE Evaluation-wide capacity building policy that promotes this same process—an assessment followed by action planning—was recently enacted for all CB efforts.

Approach

The purpose of this report is to provide insight into strategies for CB for resilient health systems, by documenting and comparing the experience of capacity assessment followed by strategic planning in Guinea, Sierra Leone, and Liberia. Information was gathered from key informant interviews with MEASURE Evaluation staff and supplemented by an extensive desk review of MEASURE Evaluation's internal documentation.

Lessons

Lessons learned consisted of insights into the importance of assessing and planning for CB, the value of stakeholder engagement within that process, ideas for planning for the transition of responsibilities from MEASURE Evaluation to the ministry of health, the need for realistic scopes of work, and the value of implementing such an intervention during a time of crisis. Implementing an assessment of the health information system—including both system and staff capacity—in each country allowed the rest of the process to be tailored to that country's needs. This allowed for each country to plan for systematic CB going forward. By engaging stakeholders throughout the process, these strategic plans are more likely to find champions in the countries and to be implemented after MEASURE Evaluation's activities end. Different transition experiences in each country imparted valuable knowledge about various aspects of these handoffs. These experiences were part of a larger lesson involving intervention in a time of crisis. Crisis situations present urgent staffing challenges and role changes are needed to address emergent issues quickly. This type of instability can make any intervention difficult to implement, but is especially challenging for CB efforts that rely on the presence of specific people within a health system in order to move forward.

Conclusion

These lessons provide important information to guide future CB efforts. The importance of systematic CB—including assessment and planning—further validates best practices at MEASURE Evaluation and elsewhere. Given the global focus on human resources for health—of which CB is an important part—and health systems strengthening, we hope that these insights will also be of use outside of the project.

PURPOSE

The purpose of this report is to provide insight into CB for resilient health systems, by documenting and exploring the experience of planning for CB of health information systems (HIS) in Guinea, Sierra Leone, and Liberia.

In the wake of the Ebola outbreak, USAID provided funding to MEASURE Evaluation to implement similar interventions across three countries. The aim of these three interventions was to assess the HIS in each country and develop strategic plans to strengthen it. Two technical advisors from MEASURE Evaluation were embedded within the MOH for three months to implement the assessment and strategic planning across all three countries. This effort was followed by virtual TA, with the goal of creating a national strategic plan for health systems strengthening.

The uniformity of the approach and the interventions present a unique opportunity to compare and contrast the experiences of CB in each country. Though these examples all involved building resilient health systems following an Ebola outbreak, our hope is that the lessons learned can be applied to other health systems strengthening efforts in other countries and contexts.

This report presents an overview of the experience in each of the three countries around assessing the HIS and developing strategic plans to strengthen the HIS followed by a discussion of lessons learned from these CB experiences. Given the global focus on human resources for health—of which CB is an important part—and health systems strengthening, we hope that these insights will be of use both within and outside of the project.

METHOD

The information presented here was collected both from key informant interviews and a desk review. Substantial feedback was also gathered in review of an early draft.

We developed this report using a three-stage process. First, the CB team completed a desk review of documents from the corresponding activities in Sierra Leone, Guinea, and Liberia. Documents reviewed were scopes of work, three-month work plans, monthly reports, and assessment reports. These documents were gathered from the MEASURE Evaluation project reporting database and directly from the MEASURE Evaluation field team. From them we captured the objectives of the intervention in each country, the assessment tools used, and the findings from these assessments, along with any action plans created as a result of these assessments.

After reviewing these documents, the CB team conducted key informant interviews with the country portfolio managers for Sierra Leone, Guinea, and Liberia and with others, as needed. These interviews yielded additional detail and clarification on the role of stakeholders, context-specific challenges and facilitators, and information on any progress or changes since the completion of MEASURE Evaluation's TA activities.

BACKGROUND

When the Ebola outbreak began in March 2014, it had an aggressive impact on several African countries. Guinea, Sierra Leone, and Liberia were of special concern, because the World Health Organization (WHO) had categorized them as having "widespread and intense transmission" (World Health Organization, 2014). By the end of the outbreak, in March 2016, Guinea had seen 3,811 cases and 2,543 deaths, Liberia had seen 10,675 cases and 4,309 deaths, and Sierra Leone had seen 14,124 cases and 3,956 deaths (World Health Organization, 2016b). These numbers make clear the damage that Ebola caused in just a two-year time frame (World Health Organization, 2016a). Not only did the outbreak have an immediate impact on the lives of people living in each country, but it also put tremendous pressure on the countries' HIS to provide reliable data in a timely manner to guide the response to the Ebola outbreak. Much of the current work and discussion around resilient health systems came out of the experiences of Liberia, Guinea, and Sierra Leone during and following the Ebola outbreak.

The HIS in Guinea, Sierra Leone, and Liberia were, and continue to be, distinct from one another. In Guinea, advocacy for using DHIS 2 (software that supports management of a district health information system [DHIS]) and upgrading the technology infrastructure in the country had been identified as a next step, before the outbreak, but work on this was not yet under way. A DHIS 2-based system had just been established in Sierra Leone and the government was in the process of rolling it out and dealing with data quality challenges. Liberia had a functioning DHIS 2-based system going into the outbreak, but the system required intervention to avoid collapse under stress.

Because of the potential long-term impact that the Ebola outbreak could have on the health systems in West Africa, USAID decided to take immediate action. The goal of the USAID intervention was to create stronger, more resilient systems in each of these three countries.[1] Because of MEASURE Evaluation's work on health systems strengthening, USAID asked us to implement these interventions.

MEASURE Evaluation had varying levels of experience working in these three countries prior to the Ebola crisis. In Guinea, we had worked with local partners to complete a Performance of Routine Information System Management (PRISM) assessment just before the Ebola outbreak. In Liberia, there was no ongoing collaboration, but MEASURE Evaluation was familiar with many key officials at the Ministry of Health (MOH), because one of our partners—John Snow, Inc.—had implemented a large health system recovery project in the years following the end of the civil war. We had no previous experience working in Sierra Leone.

Each activity came with a specific mandate, both in what was to be accomplished and in the approach to meeting the stated objectives. The scopes of work were to develop a three-month work plan, map existing platforms and facilities, complete assessments of the health system, create an HIS plan, complete action plans, and provide training or mentoring for institutional CB. Liberia's scope of work was the first to be developed, and it served as the model for those of the other two countries. The unique situations in each of these countries led to different experiences implementing these interventions, and different outcomes resulted.

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[1] USAID also funded projects in Mali, Côte d'Ivoire, and Senegal following the Ebola outbreak, also implemented by MEASURE Evaluation. These are not reported here, because fundamental differences in the interventions there did not lend themselves to inclusion in this comparative review.

COUNTRY OVERVIEWS

The information presented here was gathered from the desk review of each country's reporting documents, along with key informant interviews for additional details and clarification. This section contains an overview of the embedment in each country. It describes the country context, objectives of the HIS strengthening efforts, assessment tools and findings, and action items, along with progress and challenges that occurred during and after the embedment.

Liberia

Context

The main objective of the embedment in Liberia was to create a plan to strengthen the health information capacity within the MOH, which would lead to a more resilient HIS. Two technical advisors were embedded from June to September, 2015, with a six-month virtual TA period scheduled after the end of the embedment. Unlike Sierra Leone and Guinea, Liberia had a functioning DHIS 2 system before the Ebola crisis hit. This system was simply not strong enough to keep up with the demands of the crisis. The main objective of MEASURE Evaluation's involvement was to provide assistance in rebuilding the HIS so that it would be able to cope with any future stress.

Embedment

The goal of the embedment was to create an HIS strategic plan to help the MOH in plan interventions systematically to increase the resiliency of the HIS. This "HIS 2015–2020 strategy" calls for the HIS and its subsystems to be integrated and incorporates recommendations to enhance the ministry's capacity to use data for decision making.

The assessment also detailed the existing HIS architecture, to help the ministry understand the current situation while planning for improvements. Strong stakeholder engagement was critical in developing the HIS strategy. As part of the three-month work plan, stakeholder mapping was done to illuminate the roles of all stakeholders working in HIS strengthening in Liberia. Stakeholder engagement efforts also involved establishing a technical working group (TWG), along with subgroups, to ensure participation and input by all relevant parties.

Assessment

MEASURE Evaluation staff worked with local stakeholders to identify the assessment tools appropriate to the development of the HIS 2015–2020 strategy. These tools were then presented for approval to the stakeholders: the MOH and its technical partners: the Clinton Health Access Initiative, DiMagi, NetHope, Girls Educational and Mentoring Services, Partnership for Advancing Community Based Services, Collaborative Support for Health, DELIVER, Africare, FIO Corporation, the United Nations Development Programme, the United Nations Office for Project Services, OpenHIE, the University of Oslo, IntraHealth International, and eHealth Africa, along with donors such as USAID, the United States Centers for Disease Control and Prevention, the United Nations Children's Fund, and WHO. The tool they chose to use was the Health Metrics Network (HMN) Framework (Health Metrics Network, 2008), with a couple of additions. The team added elements to assess capacity and a separate HIS information and communications technology (ICT) infrastructure assessment tool to fill gaps in data collected using the HMN Framework alone. The assessment led to a focus on making changes to resource use (developing and disseminating policies, establishing infrastructure, establishing working

groups), data sources and indicators, data quality (along with its management, dissemination, and use), and HIS strategic plan monitoring and evaluation (M&E). As noted above, it also led to reestablishing a TWG that assisted in the creation of the HIS strategy.

Progress toward Goals

The purpose of the assessments was to inform the development of the HIS 2015–2020 strategy, which was aimed at clearly laying out steps for reaching the MOH's overall goals for the HIS. This goal, from the Liberian health information strategic plan (Ministry of Health, 2016) states the following:

> *By 2021, the National Health Information System of Liberia will produce quality data and information used in support of the health system functions at all levels, with a solid governance and management structure, using appropriate information and communication technology, including data confidentiality, and security, at an affordable cost to the Government of Liberia.*

The final HIS strategy includes 17 strategic objectives. Five of these objectives relate to resources, focusing on policies and infrastructure, and nine of the objectives relate to data sources and indicators, focusing on the functionality of various structures. One objective related to data quality, management, dissemination, and use, and the last two objectives related to the M&E of the strategic plan. A TWG was created with stakeholders. This group played a major role in the creation of the HIS strategy.

Further prioritization of strategic objectives was a challenge. This process was completed after the embedment, in a series of stakeholder meetings. There was much deliberation about reducing the number of strategic priorities, but ultimately the group decided to keep this ambitious list of 17 objectives.

In Liberia, as with Sierra Leone, the limited availability of MOH staff and other stakeholders was a challenge. This challenge caused the timelines to shift and reduced the momentum for completing the deliverables.

After Embedment

The goal of the embedment was to create the HIS strategy mentioned above, for adoption by the MOH. The MEASURE Evaluation team, in collaboration with local stakeholders, was able to complete the HIS strategy during the intervention.

MEASURE Evaluation initially planned to continue virtual TA for 12 months after the embedment, and during implementation of the HIS strategy, but ended up reducing the TA period to six months. This was owing to the pace of HIS strategy completion (the technical advisors had to move at the MOH's pace) and to funding challenges. The embedment incurred unforeseen costs associated with the need for workshops, more travel to complete the HIS strategy, and other expenses involved in working with the MOH to complete the HIS strategy.

The adoption of the HIS strategy was not part of the MEASURE Evaluation scope of work and was outside of MEASURE Evaluation's control. The same challenges that delayed completion of our work have also hindered adoption of the strategy. Moreover, MEASURE Evaluation is no longer involved in any activities in Liberia, making it difficult for us to champion the HIS strategy formally or informally.

Guinea

Context

When the first case of Ebola was identified in Guinea, the country was operating with a weak national health management information system (HMIS). Therefore, the major objectives of the USAID-funded intervention in Guinea were to strengthen the institutional capacity of the MOH in health informatics and to engage in organizational development to strengthen the HMIS. The embedment began in September 2015 and ended in December 2015; however, unlike in Sierra Leone and Liberia, MEASURE Evaluation was already present in Guinea, working on other activities, when the Ebola outbreak started and has continued working in Guinea after the embedment and virtual TA ended. We have also established an office in Guinea, and follow-up on this intervention has been assigned to staff within that office.

Embedment

As with both Sierra Leone and Liberia, the goal of the embedment was to develop and implement an HIS strategic plan. In Guinea, this was to include a costed operational plan for country-led HIS development, along with institutional capacity strengthening. Along with its objective of completing the HIS strategy, the embedment included objectives for renewed advocacy for DHIS 2 as the HMIS and strengthening MOH capacity around data for decision making. The strategic plan included specific action items around each of these areas.

Assessment

MEASURE Evaluation had just completed a PRISM assessment when the Ebola outbreak began, and the results provided timely information about the status of the health system just before the outbreak. Therefore, the rich data from this assessment was used to inform the development of the national HIS strategy, and it was not deemed necessary to conduct an additional assessment at the beginning of the embedment period. However, in order to supplement data for the institutional CB plan, the MEASURE Evaluation team also looked at selected management components (e.g., existence and knowledge of the unit's mission statement, stated roles and responsibilities for all staff, and use of information by unit) using the Management and Organizational Sustainability Tool (MOST). However, due to frequent staff travel, and many vacant staff positions, too few surveys were completed to be useful for analysis. Because of these low completion rates, along with a short timeline and competing deliverables, the team decided to postpone the development of the CB plan until after the embedment when additional unit staff would be brought on board and a new two-year MEASURE Evaluation activity in Guinea would be able to get more complete information.

The ICT assessment tool developed by MEASURE Evaluation for use in Liberia was adapted and used in Guinea by Research Triangle Institute, with MEASURE Evaluation input. In addition to these other assessments, the HMN Framework was also used in Guinea, although not for the initial assessment but instead as the underpinning for the strategic planning process.

The HMIS assessment found data quality to be a weakness, as a result of a low performing archiving system of registers and monthly reports, along with inadequate electronic data filing, weak supervisory support, and the absence of written policies and procedures on the HMIS process. It also found little use of health information, because of a low level of training, a lack of documentation, and poor documentation quality.

Progress toward Goals

The MEASURE Evaluation team made progress on developing the HIS strategy, advocacy of DHIS 2, and MOH CB for data use over the course of the embedment. One action item under Objective 1— "Develop and initiate implementation of the HIS strategy, including a costed operational plan"—was to support the establishment and regular meeting of a national HIS TWG. The TWG was established, with MEASURE Evaluation staff convening a group of stakeholders, including MOH staff and funders of Ebola-related work. Progress was also made on Objective 2—"Renew advocacy and clarify advantages for adopting DHIS 2"—by conducting comprehensive mapping of the HIS platforms and creating a facility registry. MEASURE Evaluation staff also continued advocacy of DHIS 2, which was selected as the HMIS platform for Guinea.

The team did have to postpone several other action items, because of logistical challenges. An action item within Objective 2—"Conduct data analysis and use workshops"—was postponed and is set to be picked back up once the DHIS 2 system is producing data for analysis. Several action items that follow up on the administration of the MOST, such as the drafting of a CB plan, were also postponed. Key staff were either not yet on board or were not able to complete the questionnaire for the assessment that would inform this plan before the end of the embedment period, so completion of the plan was postponed until this was possible. A development workshop was conducted for three sets of HMIS supervision tools, but the development of the data management procedures manual was postponed.

After Embedment

After the embedment period, MEASURE Evaluation staff continued working on the HIS strategic plan, and it was completed and approved in February 2016. Although not all of the objectives were completed, the work on HIS strengthening in Guinea has been able to continue through a separate two-year activity. MEASURE Evaluation set up an office in Guinea in January 2016. The progress made during the embedment period is rolling seamlessly into this new project and continues. Guinea's virtual TA period was set to end in September 2016; however, several months before this date, it became clear that some of the deliverables would not be completed for the project by then. The virtual TA period was extended through the end of October 2016 so that these documents could be completed.

Sierra Leone

Context

When the first case of Ebola was identified in Sierra Leone, the groundwork for the health information management system (which goes by the same name as the software that runs it: DHIS 2), was just being established. Progress had been made in getting the system set up, but rollout was not yet complete, and the system was not yet able to reliably collect quality data. The addition of the demands of the Ebola outbreak threatened to overwhelm the new system.

The objective of MEASURE Evaluation's TA was to assess the health ministry's HIS capacity in order to create an action plan and to enhance the ministry's capacity to use data for decision making. The hope was that this would also place the health system in Sierra Leone in a strong position to deal with future stresses. MEASURE Evaluation's process was to identify gaps in the country's HIS, agree on priorities, and then plan for interventions to address these gaps systematically. In service of this goal were several shorter term objectives: to enhance leadership and sustainable governance, assess the current HIS structure and data management process,

improve data integration and use, enhance capacity for workforce training and development, and set policy development and guidelines in order to establish processes.

Embedment

The embedment in Sierra Leone began in October 2015 and ended in February 2016. Although a three-month embedment had been planned, in-person involvement spanned five months because of negotiated breaks by the technical advisors during the embedment period. These breaks extended the overall timeframe.

Members of the embedment team were given a scope of work that was similar to that for the other two countries and were given two weeks once they arrived to make observations before finalizing a three-month work plan. The work plan objectives were to conduct a PRISM assessment, write a national HIS strategy with a costed operational plan (ensuring that they addressed interoperability), develop a health facility registry, establish a functioning HIS TWG that would meet regularly, identify a focal person at the MOH for institutional CB coaching and mentoring, conduct an institutional CB assessment, and create an institutional CB action plan. The team also planned to build capacity in data use and then continue to provide virtual TA as needed for 12 months after the embedment. Several stakeholders were involved with the work in Sierra Leone, including USAID's Global Development Lab, the health ministry, WHO, IntraHealth, IBM, and GOAL Global. These stakeholders maintained high levels of engagement throughout the embedment through weekly phone or video chats and TWG participation.

Assessment

To achieve the objectives outlined above, the first step was to conduct several assessments. To prepare for these assessments, the group first needed to determine which tools to use. Once possible tools were identified, they were reviewed and needs were discussed with stakeholders. Ultimately, the group decided to use the HMN Framework in combination with elements of the PRISM tool and MOST. All six of the HMN components were included (HIS resources, indicators, data sources, data management, data quality, and dissemination and use). Only two of the PRISM tools were used: the performance diagnostic tool and the management checklist. Minor adaptations were made to the MOST, such as adding components to assess administrative procedures based on input from the MOH. The HMN Framework was used at the national level and PRISM was used primarily at district health facilities. The assessments were conducted through interviews at the respective levels.

The HIS assessment (using the HMN Framework and PRISM) found areas of weakness in dissemination and use of information, standardizing and using indicators, data management, infrastructure and staff, and a lack of reporting forms and reports at the facility level. The application of MOST found that all of the management portions of the organization needed improvement, but the lowest ranking areas were authority and accountability along with the corresponding roles and responsibilities component, human resources planning/human resources development, and M&E.

Progress toward Goals

During the embedment, the team working in Sierra Leone and their MOH collaborators completed the planned assessments of the health system. From the results of these assessments, they developed recommendations and a CB action plan. This plan included recommendations for implementation during the remainder of the embedment and during the virtual TA as well as recommendations for MOH implementation after MEASURE Evaluation's involvement ended. MEASURE Evaluation was also able to help with the development of a master facilities list.

One activity from the CB action plan that MEASURE Evaluation staff members implemented during the embedment was mentoring MOH staff members on using health data. Following this mentoring, the MOH staff published their first health bulletin in five years.

During the embedment, MEASURE Evaluation staff also worked with the MOH to start an HIS TWG. The purpose of this group was to bring together all the agencies providing funding related to the Ebola outbreak with MOH staff for coordination and information sharing. This group continues to meet regularly and is now convened by the MOH.

One challenge encountered throughout the embedment period was the limited availability of MOH staff to complete the institutional CB, because of the increased demands placed on their time during the Ebola outbreak. This made it difficult to carry out workshops and other institutional CB plans during the time of the embedment. The reduced time available for dealing with longer-term planning in exchange for time spent dealing with the outbreak also made it difficult to make quick progress on the HIS strategic plan, which was the final deliverable of the five-month embedment period. MEASURE Evaluation, the MOH, and USAID worked together to modify the plan and assessment reports took the place of the strategic plan as the final deliverable for the embedment, with completion of the strategic plan no longer a priority.

After Embedment

Following the embedment, MEASURE Evaluation continues to provide virtual TA in Sierra Leone. MEASURE Evaluation has been able to continue working with the MOH on the deliverables not completed during the embedment. Ministry staff, with remote TA from MEASURE Evaluation, have also made progress on some of the interventions outlined in the CB action plan: aligning their continued work around HIS with their mission and values as well as clients and community, conducting meetings more regularly, increasing communication within the directorate, improving processes for managing information and data, and empowering mid-level staff to take on a more active role within teams. The health ministry also hosted an interoperability workshop in August 2016.

Summary of Country Experience

Figure 1. Capacity building timeline
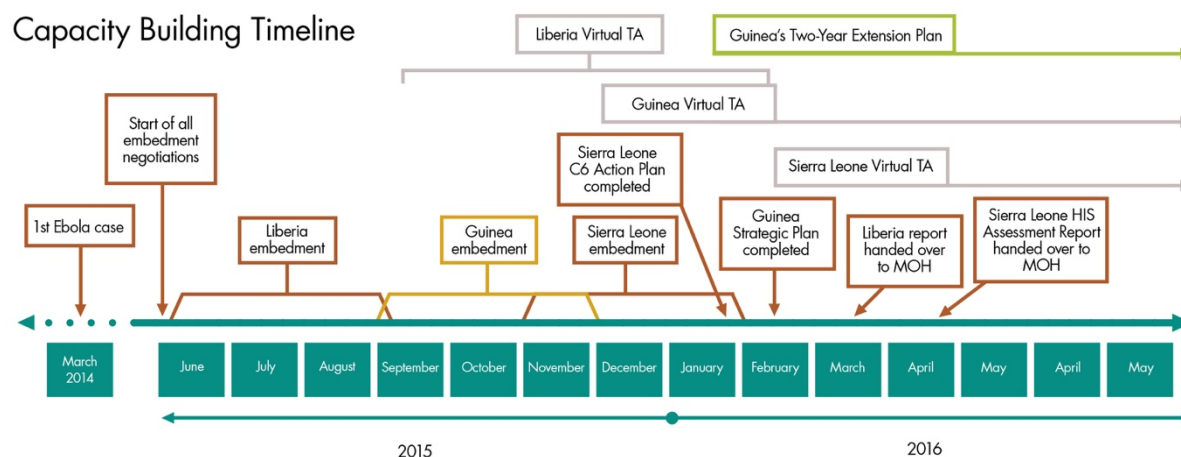
The above timeline illustrates key events that were described in country overviews. Each country had an embedment and virtual TA period, initiated after the Ebola outbreak began. Several differences among the countries are also evident, such as the start date of activities in each country, the number of months of embedment, the length of the virtual TA period, and the timing of handing over project deliverables.

Table 1. Capacity assessment tools, implementation, and results

	Assessments Used in Country		
	Sierra Leone	**Liberia**	**Guinea**
Assessments	HMN Framework with elements drawn from the PRISM • All sections of the HMN Framework were used. • Only the performance diagnostic tool and the management checklist were used from PRISM. The Management and Organizational Sustainability Tool • Used with adaptations to assess administrative procedures	HMN Framework with elements added to enhance the policy, planning, and coordination portion of the questionnaire • All sections of the HMN Framework were used. HIS ICT Infrastructure Assessment Tool • Created to make up for the deficits in the HMN Framework in relation to underlying HIS ICT infrastructure	The Management and Organizational Sustainability Tool PRISM
Key assessment findings	The HIS assessment found areas of weakness in dissemination and use of information, standardizing and using indicators, data management, infrastructure and staff, and a lack of reporting forms and reports at the facility level. The MOST found that all of the management portions of the organization needed improvement, but the lowest ranking areas were authority and accountability (along with the corresponding roles and responsibilities component), human resources planning/human resources development, and M&E.	Based on assessment data, they created strategic objectives to make changes to their resource use (develop and disseminating policies, establishing infrastructure, establishing working groups), data sources and indicators, data quality (along with its management, dissemination, and use), and HIS strategic plan M&E.	The HMIS assessment found data quality to be a weakness, as a result of a low archiving system of registers and monthly reports, along with electronic data filing, weak supervision support, and the absence of written policies and procedures on the HMIS process. It also found the use of the health information low, because of a low level of training, a lack of documentation, and poor documentation quality.
Stakeholder involvement	Strong stakeholder engagement occurred throughout the embedment. Stakeholders checked in via phone and video messages and were involved in TWGs.	Strong stakeholder engagement was important and occurred throughout the embedment.	MOH central-level staff, health programs (malaria, TB, and HIV); U.S. implementing partners (RTI, Jhpiego, IntraHealth) on eHealth

Each country involved in this review used assessments in some capacity in their country. The HMN Framework, MOST, and PRISM were each used in at least two countries.

Health Metrics Network (HMN) Framework

The HMN Framework was used in all three countries. Both Sierra Leone and Liberia used the HMN Framework as part of their assessments, each adding to the assessment in some way to better fit the country's needs. In Liberia, additions to the HMN Framework included assessment around capacity and ICT. The team in Guinea used the HMN Framework as a key input for the strategic planning process.

Performance of Routine Information System Management (PRISM)

Sierra Leone used PRISM's performance diagnostic tool and management checklist and also the HMN Framework. Guinea used results from a PRISM assessment, although this had been completed before the intervention.

Management and Organizational Sustainability Tool (MOST)

MOST was also used in two countries: Sierra Leone and Guinea. In Sierra Leone, it was deemed necessary to make adaptations to assess administrative procedures. In Guinea, the assessment was used as-is.

Strategic Planning

In each country, the assessments identified areas within the HIS that warranted particular attention. The assessment findings were then used to guide planning and policy development going forward. In Liberia and Guinea, this took the form of a strategic plan. In Sierra Leone, this information was instead presented in the national health information assessment (Sierra Leone Department of Policy, Planning, and Information, 2016).

In Liberia, the assessment led to a focus on changing the country's use of resources; data sources and indicators; data quality, management, dissemination, and use; and the M&E of the HIS strategic plan. This took the form of specific activities, including reestablishing a TWG, expanding HMIS functionality and improving DHIS 2 accessibility, developing standard systems for data quality assurance, developing master facility registries, and establishing needed hardware and software to ensure interoperability.

In Sierra Leone, the HIS assessment revealed needs related to the dissemination and use of information, standardizing and using indicators, data management, infrastructure and staff, and a lack of reporting forms and reports at the facility level. Informed by these findings, recommendations were to use a TWG for communication to stakeholders and coordination of support from donors, to create a team to upgrade and maintain DHIS 2, to ensure reliable Internet access, and to revise the training curriculum for staff members.

Findings from MOST pointed to areas for improvement in management. The greatest needs were to clarify lines of authority and accountability by defining roles and responsibilities more precisely and to strengthen human resources planning and human resources development and M&E. Recommendations that came out of these findings were to provide leadership and mentorship for policy development, planning, and information management staff; update or establish administrative systems; and develop a strategic plan.

In Guinea, HMIS findings identified weakness both in data quality and data use. Issues with data quality were attributed to the low performing archiving system of registers and monthly activity reports and electronic data filing at the intermediate level, weak supervisory support (leading to deviations in HMIS practices, because of a lack of technical support), and the absence of written policies and procedures on HMIS processes. The issues

with data use were attributed to meeting minutes not being archived, a lack of documentation, and the poor quality of the documents that were available. Many recommendations were made in order to address these weaknesses, such as developing and disseminating the data management and procedures manual, developing supervision tools, conducting trainings on these new tools and procedures, and looking into the implementation and monitoring of DHIS 2 software.

Although these countries have different priorities, the assessments produced similar sets of recommendations for them. Recommendations both for Liberia and Sierra Leone were to establish (or reestablish) TWGs and set goals for improving the DHIS 2 system.

The strategic plans have also created a tool for monitoring implementation of HIS strengthening interventions.

DISCUSSION

This section covers common themes that have emerged and lessons learned from the embedment and related activities in Sierra Leone, Guinea, and Liberia.

Assessments

Assessing capacity is useful in understanding existing capacity; identifying performance gaps; understanding relationships and factors that hinder or facilitate CB activities; and, when possible, informing CB plans to guide activity planning, organizing, implementing, and monitoring.[2] Assessment should be the first step in a systematic CB process. All three countries in this review conducted some form of capacity assessment using customized versions of generic assessment tools, such as the HMN Framework, MOST, and PRISM.

The implementation of these assessments, in each case, proved to be key to the success of the overall intervention. Each country started with a very similar scope of work, but results of the assessments allowed MEASURE Evaluation staff to tailor the work plan to specific needs. This created a clear and detailed plan, targeted interventions, and the potential for more overall impact. In Liberia and Guinea, the formal assessments completed before and during the embedment were used to create strategic plans for the country. Even though Sierra Leone did not complete a strategic plan, it was still able to complete reports informed by the HIS and a capacity assessment with recommendations for next steps.

Planning for Capacity Building

The goal of the embedment in each country was the development of a strategic plan, including a plan for future CB. Including aspects of individual, institutional, and system-level capacity in the assessment in each country guaranteed not only that planning for CB would be part of the strategic plans but also that the CB plans developed would be targeted to the needs of the country. In addition to helping to clearly identify areas of need—and thus interventions that can help address those needs—assessing capacity systematically can also support advocacy to make these interventions a priority. This is especially important in a time of crisis, when the focus is on interventions with very short timelines. Despite the longer-term impact expected from CB efforts, they are an important way to make sustainable improvements toward a resilient HIS.

As noted above, planning for CB is an important tool for monitoring progress toward achieving the goals and filling the gaps identified in an assessment. This is an important function of such a plan and one of the main motivations behind the recommendation for following assessment with action planning.

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[2] MEASURE Evaluation internal project guidance

Stakeholder Engagement

MEASURE Evaluation took care to involve stakeholders at every stage of implementation—in identifying which assessment tools were most appropriate, given the country context, and in interpreting the assessment findings for strategic planning. Involving stakeholders during the assessment phase is an important tool for advocacy, leading to greater buy-in for later activities based on the assessment results.[3] Mapping stakeholders was a priority. This activity is important, because knowing who should be involved in decision making is a first step to gathering all important parties for decision making, both informally and as part of established TWGs.

Engaging stakeholders is also an important part of implementing activities for CB and change. For example, in Guinea, special emphasis was placed on bringing together all funders for Ebola work. Because of MEASURE Evaluation's position as an outsider (compared to the MOH staff or program implementers) they were well-placed to convene this group. This helped to coordinate activities with similar goals and target populations and to further advocate a national HMIS. This group of stakeholders continues to meet and work together. Familiarity with the stakeholders also proved to be important. MEASURE Evaluation staff members in Liberia were familiar with the people they were trying to convene, making it easier to complete certain tasks.

Bringing together stakeholders and involving them throughout the process—identifying assessment tools, completing the assessment, analyzing results, and using those results for planning—is an important step toward sustainability. Their involvement increases their interest and motivation to continue to work on implementing plans and can also lead to more formal methods of participation, such as regular meetings or TWGs.

Importance of Transition Plans

Despite the challenges of working in each of the three countries during the Ebola outbreak, each MEASURE Evaluation team was able to accomplish the objectives set out for the embedment. The next steps for each country were not a part of MEASURE Evaluation's mandate, but contribute to the sustainability of the interventions. The unique conditions of Guinea, Sierra Leone, and Liberia make it possible to see how this transition occurs in different contexts.

Liberia completed the assigned work plan—producing an HIS strategy endorsed by all stakeholders that was passed to the MOH for approval. However, the conclusion of the virtual TA period there means that MEASURE Evaluation does not have funding or a mandate to assist with or observe the MOH's implementation of the HIS strategy. A similar challenge exists in Sierra Leone, which has no plans for MEASURE Evaluation's involvement following the completion of virtual TA.

When MEASURE Evaluation's embedment in Guinea ended, we were able to seamlessly roll over activities that had not been completed (along with oversight of the implementation of the strategic plan) to the new MEASURE Evaluation office in that country. Maintaining a presence in Guinea has allowed a smooth transition, with MEASURE Evaluation staff available on the ground to assist as needed.

Intervention during a Time of Crisis

Common in all three countries were the difficult working conditions during the embedment—a time of crisis following the Ebola outbreak. This created challenges for MEASURE Evaluation staff members, because the MOH was busy dealing with emergent issues and less able to devote time to long-term planning. It also meant that MOH staff were called on to help out in areas outside of their usual posts, and teams that usually dealt with HIS were often not present, because the HIS was not a priority function in the midst of the crisis.

All three of the countries encountered challenges to completing the full scope of work in the anticipated timeline. This was especially true in Liberia and Sierra Leone, where there was little, if any, work to build on at the beginning, and there was no MEASURE Evaluation team in either country to hand the project off to after the intervention finished. This created challenges, especially in Liberia, where the length of virtual TA had to be shortened, because of funding challenges. Crisis situations presented unique challenges involving staff shortages, and required role changes to address emergent issues quickly. This type of instability can make any intervention difficult to implement, and is especially daunting for CB efforts that rely on the presence of specific people within a health system in order to move forward.

In Liberia, the MOH failed to review a completed strategic plan, because ministry staff were overburdened with other duties. In Sierra Leone, the team was unable to train the country's CB point person, who was consistently out of office or busy with other work. Guinea also struggled generally with gathering people together to move the work plan forward.

The plan to intervene during a crisis to build systems that will help, both in the moment and with rebuilding efforts after the outbreak, was well-founded. However, if this strategy of embedment is to be replicated in a similar emergency situation, it might make sense to anticipate delays and plan for someone to be on the ground for a longer period or to spread out the embedment period—e.g., spread the three months over a year—so that there is more time to plan and bring people together as progress is made in managing the crisis. Embedment may also be a good choice for more rapid change when the situation is not an emergency and there is the luxury of time for planning and intense work with ministry staff.

CONCLUSION

The process of reviewing the experiences of MEASURE Evaluation teams in Liberia, Guinea, and Sierra Leone directly following the Ebola outbreak highlights a number of important lessons and insights into CB for health systems strengthening. These lessons apply both to future interventions in a time of crisis and to future uses of the strategy of embedment and virtual TA. These lessons, discussed in more detail above, involved the following:

- The importance of assessment in identifying current health system needs and as the first step in planning to meet those needs. In these three examples, the time dedicated to assessment in each country allowed the rest of the process to be tailored to that country's needs.

- Planning for CB—in these examples, as part of a larger strategic plan—was the first, important step in advancing health systems strengthening priorities. A CB plan has also proven to be an important tool for monitoring progress toward priority interventions and achievements.

- When stakeholders are engaged throughout the processes both of assessment and strategic planning, the plans are more likely to find champions in the countries and to be implemented after a partner's activity ends. Both formal and informal benefits from engaging stakeholders were seen in each of these three countries.

- The different transition plans in each country led to very different experiences as far as handoff of the strategic plans. The presence of a MEASURE Evaluation office in Guinea has provided the opportunity for monitoring and advocacy for the strategic plan in a way not possible in either Liberia or Sierra Leone.

- Intervention during crisis brings with it specific challenges and constraints. The teams in each of these countries encountered many similar challenges. Chief among them were ministry staff shortages owing to increased demands for staff time, and the need for MOH staff to take on additional roles to meet emergent needs.

These experiences and lessons learned are useful for MEASURE Evaluation staff, and they will inform future practice around CB. The experiences enriched project guidance and confirmed current project best practices, particularly around capacity assessment and planning for capacity as part of a systematic CB intervention. We hope that the experiences and discussion presented here will also be useful to others working to strengthen health systems and build capacity through similar interventions.

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