USAID | LIBERIA
FROM THE AMERICAN PEOPLE

COLLABORATIVE SUPPORT FOR HEALTH PROGRAM

Liberia
Collaborative Support for Health (CSH) Program

End-of-Project Report

(February 27, 2015 – August 31, 2018)

CONTRACT No AID-669-C-15-00001

Submitted by: Management Sciences for Health

August 31, 2018

This report is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of the USAID Collaborative Support for Health (CSH) Program and do not necessarily reflect the views of USAID or the United States Government. It was prepared by Management Sciences for Health for the USAID Collaborative Support for Health Program, contract number AID-669-C-15-00001.

Cover photo: *Dr Wilhelmina Jallah, Minister of Health, receives the official copy of the National Health Quality Strategy from Mervyn Farroe, USAID Deputy Mission Director.*

Photo by MSH

Acronyms and Abbreviations

ACCEL	Academic Consortium to Combat Ebola in Liberia
ACT	Artemisinin Combination Therapy
ATC	Anatomical Therapeutic Chemical
CDC	United States Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
CHB	County Health Board
CHT	County Health Team
CM	Certified Midwife
CPD	Continuing Professional Development
CSA	Civil Service Agency
CSH	Collaborative Support for Health Program
DEN-L	Development Education Network of Liberia
DHIS2	District Health Information System
DHT	District Health Team
DIG	Development Innovations Group
EEF	Ebola Emergency Fund
eLMIS	Electronic Logistics Management Information System
EPHS	Essential Package of Health Services
EU/TA	European Union Technical Assistance
EUV	End-User Verification
EVD	Ebola Virus Disease
FARA	Fixed Amount Reimbursement Agreement
FY	Fiscal Year
GDU	Governance and Decentralization unit
GOL	Government of Liberia
HFU	Health Financing Unit
HIS	Health Information Systems
HMER	HMIS, Monitoring and Evaluation, and Research Unit (MOH)
HMIS	Health Management Information System
HR	Human Resources
HRH	Human Resources for Health
HRO	Human Resource Officer
IC	Improvement Collaborative
ICN	Improvement Collaborative Network
iHRIS	Integrated Human Resources Information System
IPC	Infection Prevention and Control
IST	In-Service Training
JISS	Joint Integrated Supportive Supervision
JSR	Joint Sector Review
LBNM	Liberian Board of Nursing & Midwifery
LDP+	Leadership Development Program Plus

LHEF	Liberia Health Equity Fund
LIPA	Liberian Institute of Public Administration
LMDC	Liberia Medical and Dental Council
L+M+G	Leadership, Management, and Governance
LMIS	Logistics Management Information System
LPB	Liberian Pharmacy Board
M&E	Monitoring and Evaluation
MFL	Master Health Facility List
MHF	Master Health Facility
MIP	Malaria in Pregnancy
MOH	Ministry of Health
MPW	Ministry of Public Works
MSH	Management Sciences for Health
NDU	National Diagnostics Unit
NGO	Nongovernmental organization
NHQS	National Health Quality Strategy
NHSWPP	National Health and Social Welfare Policy and Plan
NMCP	National Malaria Control Program
OFM	Office of Financial Management
OIC	Officer in Charge
PBF	Performance-Based Financing
PDSA	Plan-Do-Study-Act
PFM	Public Financial Management
PFMRAF	Public Financial Management Risk Assessment Framework
PMI	President's Malaria Initiative
PRLS	Peer Review Learning Session
PST	Pre-service Training
QA/QI	Quality Assurance and Quality Improvement
QM	Quality Management
QMT	Quality Management Team
QMU	Quality Management Unit
R4D	Results for Development
RBF	Results-Based Financing
RBHS	Rebuilding Basic Health Systems
RDF	Revolving Drug Fund
RMP	Risk Mitigation Plan
SCM	Supply Chain Management
SCMU	Supply Chain Management Unit
SOP	Standard Operating Procedure
SP	Sulfadoxine-pyrimethamine
TA	Technical Assistance
TB	Tuberculosis
TOR	Terms of Reference
TOT	Training of Trainers

TNA	Training Needs Assessment
TWG	Technical Working Group
UHC	Universal Health Coverage
UN	United Nations
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USG	United States Government
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization

Table of Contents

ACRONYMS AND ABBREVIATIONS 3

TABLE OF CONTENTS 6

1. EXECUTIVE SUMMARY 7

2. INTRODUCTION 9

3. ACHIEVEMENTS BY OBJECTIVE 14

OBJECTIVE 1. INSTITUTIONALIZE QA/QI INITIATIVES TO IMPROVE HEALTH CARE SERVICE DELIVERY 15
OBJECTIVE 2. STRENGTHEN HUMAN RESOURCES FOR HEALTH MANAGEMENT 24
OBJECTIVE 3. IMPROVE SUPPLY CHAIN MANAGEMENT 40
OBJECTIVE 4. STRENGTHEN THE HEALTH MANAGEMENT INFORMATION SYSTEM 48
OBJECTIVE 5. INCREASE THE FINANCIAL SUSTAINABILITY OF SERVICES 55
OBJECTIVE 6. (FORMERLY OBJECTIVE 1) DEVELOP LEADERSHIP, MANAGEMENT, AND GOVERNANCE CAPACITY OF THE MOH 61
OBJECTIVE 7. (FORMERLY OBJECTIVE 2) STRENGTHEN MPW CAPACITY TO MANAGE WATER SUPPLY INFRASTRUCTURE IMPROVEMENTS 67
IMPROVING MANAGEMENT OF MALARIA 69

4. CHALLENGES AND LESSONS LEARNED 72

ANNEXES. 75

ANNEX 1. INITIAL RESULTS FRAMEWORK 75
ANNEX 2. TECHNICAL DOCUMENTS INVENTORY 76

1. Executive Summary

Following the Ebola Virus Disease (EVD) outbreak, USAID's Collaborative Support for Health Program (CSH) (February 2015–August 2018) advanced and improved the health system by working in close partnership with the Government of Liberia (GOL). The program was intentionally designed to focus on priority areas aligned with the GOL's 2011-2021 National Health and Social Welfare Policy and Plan (NHSWPP) and the National Investment Plan for Building a Health System 2015-2021. Led by Management Sciences for Health (MSH) with partners Development Innovations Group (DIG), Institute for Healthcare Improvement (IHI), Jhpiego, and Results for Development (R4D), CSH assisted the Ministry of Health (MOH) in six counties—Bong, Lofa, Nimba (base counties), Margibi, Montserrado, and Grand Bassa (Ebola Emergency Fund [EEF] counties)—to accelerate progress toward the country's priorities. Working both at the central and county levels, CSH strengthened the MOH's overall capacity to put policies, procedures, and systems in place to make available high-quality health services to improve the health status of Liberians.

Working in support of the MOH, CSH's scope of work spanned seven objectives:

Objective 1. Institutionalize QA/QI initiatives to improve health care service delivery
Objective 2. Strengthen human resources for health management
Objective 3. Improve supply chain management
Objective 4. Strengthen the health management information system
Objective 5. Increase the financial sustainability of services
Objective 6. Develop leadership, management and governance capacity
Objective 7. Strengthen Ministry of Public Works capacity to manage water supply infrastructure Improvements

The CSH Program was implemented through a lean team of staff in the Monrovia office, with leadership by the Chief of Party, Deputy Chief of Party, Health Systems Strengthening Advisor, and M&E Director. Project Coordinators for the EEF and Base Counties were later introduced to coordinate activities of counties through County Team Leads. The program's approach had technical advisors embedded in the MOH at the central level, and mentors that worked side-by-side with counterparts in the county health teams, contributing heavily to the program's achievements. Achievements across objectives that CSH either contributed to or led directly over the life of the project ranged from policy development to county-level laboratory capacity assessments. A few of CSH's key achievements were as follows:

Under **objective 1**, CSH supported the MOH in developing the Liberia National Healthcare Quality Strategy (NHQS) that guides establishment of quality services in the country. The strategy, together with the Infection Prevention and Control (IPC) policy, was launched by the MOH in June 2018 and disseminated for wider use thereafter. In support of the MOH's strategy, CSH supported the revision of the Joint Integrated Supportive Supervision (JISS) tool to monitor core clinical standards of the Essential Package of Health Services (EPHS) at the primary level.

Under **objective 2**, CSH responded to the MOH and Governance Commission's request by facilitating the restructuring of three Human Resources for Health (HRH) units into an integrated single HR department, which was subsequently approved by the senior MOH leadership. With CSH support, the MOH and its partners developed a new MOH Staff Handbook that was disseminated to the six Program counties to guide officers in charge (OICs) and county health teams (CHTs) on HRH management. All hospitals and CHTs in the six counties have copies of

the new MOH Staff Handbook and can use it as a reference to effectively recruit and manage staff. In addition, CSH supported the installation of and training in the integrated Human Resources Information System (iHRIS) in all counties to improve accuracy and quality of workforce data. As a result of these efforts, for example, Bong CHT has an improved and functional HR record-keeping system with 81% (1,065/1,310) of health workers with complete personnel files and 78% (1,022/1,310) of staff records uploaded into iHRIS-Manage.

Under **objective 3**, CSH supported implementation of the redesigned paper-based Logistics Management Information System (LMIS). This system is now established in 15 counties, and in FY18 Q2, 66% of CSH-supported health facilities reported LMIS data to the national Supply Chain Management Unit, 55% of health facilities reported on time, and 65% of health facilities provided complete data. Furthermore, CSH supported the MOH to design a prototype of an electronic LMIS (eLMIS) to ease the burden of LMIS data management and reporting. At program end, eLMIS had been rolled out to 6 USAID-supported counties.

Under **objective 4**, CSH supported the finalization of the MOH Financial Management Policies and Procedures manual - enabling the MOH and counties to review and install appropriate accounting, procurement, audit, asset, and risk-management procedures. In addition, CSH played a key role as an analytical partner and strategic adviser to the MOH in health financing reform having: 1) partnered with the World Bank to develop an Liberia Health Equity Fund (LHEF) policy note; 2) conducted a Willingness to Pay Study and Consumer Preference Survey to inform strategic purchasing; 3) supported a National Stakeholder Health Financing Dialogue; and 4) assisted in updating the 2016 EPHS costing to inform the design of FARA 2.

Under **objective 5**, CSH supported the finalization of the national Health Management Information System (HMIS) Strategic Plan and subsequent partner mapping, revised the national HMIS ledgers, and developed a data validation SOP. Program data showed improved health facility HMIS reporting (both on time and completeness) in the base three counties from 73% in Q2 2015 to 91% in Q2 2018. Furthermore, the project supported the MOH in development of a Health Information System (HIS) interoperability roadmap and implementation plan, and supported finalization of interoperability domains and subsystems like the master health facility list and registry, and the ATC coding system for drugs and commodities in alignment with Liberia MOH DHIS2 indicator list.

Under **objective 6**, CSH provided technical assistance to the MOH to develop and finalize the County Health Board (CHB) Operational Manual and Facilitator's Guide for strengthening oversight and management of quality and equitable health service delivery at the county level. For the first time, the CHT in Bong shared and discussed county health achievements, financial information and next quarter plans with the CHB for its inputs and support in conformity with the CHB's role as a governance body. CSH also built capacity (i.e. through developing a continuous professional development policy, developing annual operational plans) of three Liberia professional bodies (the Liberia Board of Nursing and Midwifery, Liberia Pharmacy Board and the Liberia Medical and Dental Practitioners Council) to better manage licensing of health professionals and health facilities in the country.

Finally, under **objective 7**, CSH facilitated the Ministry of Public Works (MPW) joint water, sanitation, and hygiene (WASH) sector review and wrote the 2014/15 sector performance report. The project also facilitated development of a policy and sanction instruction that allowed the MPW to require nongovernmental organizations working in the WASH sector to report their water point achievements and to include them in the water point atlas.

These achievements are particularly notable given the challenging implementing environment. Launching the ambitious program during the Ebola crisis and then implementing it in its aftermath presented many unexpected challenges as well as opportunities towards long-term health system strengthening outcomes and more immediate quantifiable results through short-term health system support and inputs. This report shares progress made over the three year period as well as lessons and recommendations to contribute to learning on systems strengthening for health in a post-crisis environment.

2. Introduction

The USAID Collaborative Support for Health Program (CSH) (February 2015–August 2018) provided targeted health systems strengthening technical assistance (TA) to the Government of Liberia (GOL). The Program worked at the central and county levels to improve the health status of Liberians by strengthening the Ministry of Health (MOH)'s overall capacity to consistently and effectively deliver high-quality health services. Led by Management Sciences for Health (MSH), the CSH Program assisted the MOH in six counties—Bong, Lofa, Nimba, Margibi, Montserrado, and Grand Bassa (see Figure 1)—to accelerate progress toward the country's priorities for quality health care improvement. Initially the Program focused on three counties: Bong, Lofa, and Nimba, with the second three added in 2017 following the devastating 2014-2015 Ebola Virus Disease (EVD) outbreak.

Over the life of the Program, CSH supported the design and implementation of capacity-building and health systems strengthening activities at both levels (county and central). To achieve the GOL's health goals, CSH worked alongside the MOH and Ministry of Public Works (MPW), together with partners Jhpiego, Results for Development (R4D), Institute for Healthcare Improvement, and Development Innovations Group (DIG).

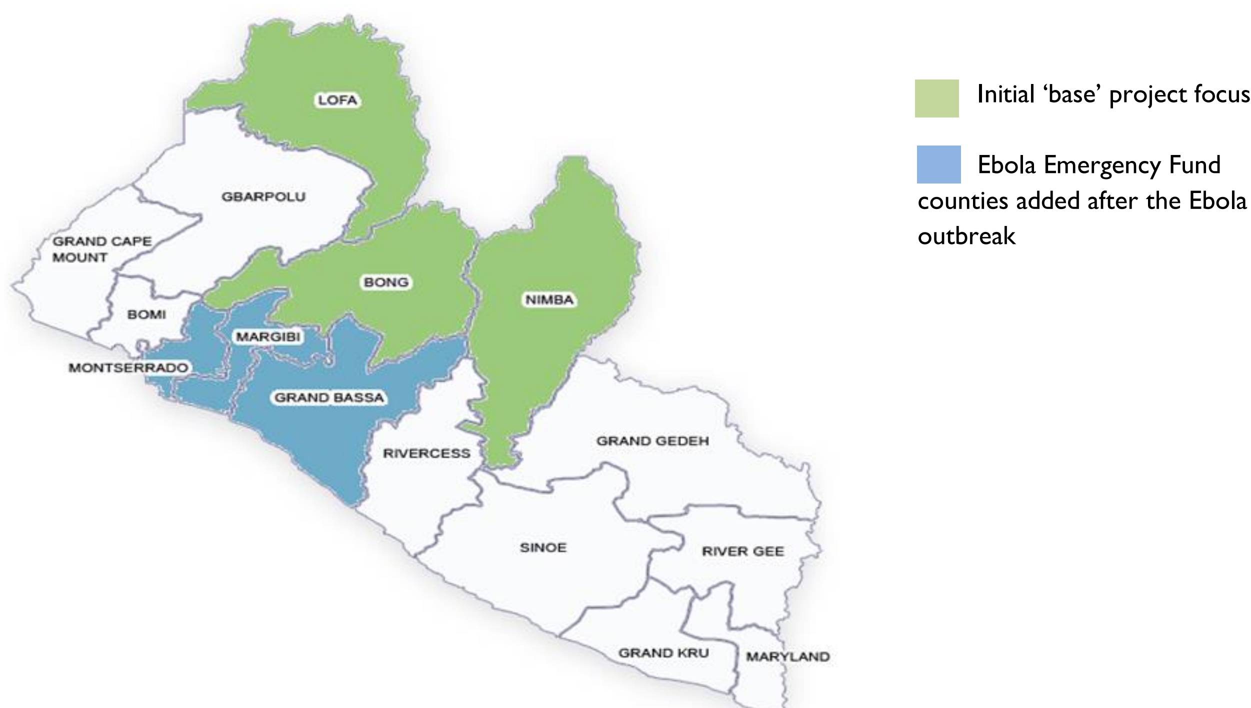
> The Collaborative Support for Health Program was a USAID contract to support the design and implementation of capacity-building and health systems strengthening activities at the central level and in targeted counties in alignment with the Investment Plan for Building a Resilient Health System.

The Program was designed to focus on priority areas aligned with the GOL's 2011-2021 National Health and Social Welfare Policy and Plan (NHSWPP) and the National Investment Plan for Building a Health System 2015-2021. Following the Ebola epidemic, in 2015 the MOH articulated a refined vision to guide partners to consolidate resources in rebuilding the health system: the National Investment Plan for Building a Resilient Health System 2015–2021. The Investment Plan was intended to "restore the gains lost due to the [Ebola] crisis, provide health security for the people of Liberia by reducing risks due to epidemics and other health threats, accelerate progress towards universal health coverage by improving access to safe and quality health services, and narrow the equity gap for the most vulnerable populations."

Working with partners, CSH supported the implementation of activities aimed at improving the health status of Liberians. The Program's overall strategy was to provide integrated health systems support to the MOH as it implemented its national health strategies and plans. The

coordinated comprehensive support provided under the Program to the health sector (and briefly to the MPW) included leadership, management, and governance; advancing quality of care; strengthening the health workforce; ensuring the availability of medicines; and improving financial management and data systems.

Figure 1. CSH-supported counties



The CSH Program was initially organized around seven specific objectives:[1]

1. Strengthen leadership and governance capacity at all levels
2. Strengthen the MPW's capacity to manage water supply infrastructure improvements
3. Institutionalize quality assurance (QA) and quality improvement (QI) initiatives to improve health care service delivery
4. Strengthen human resources for health management
5. Improve supply chain management
6. Increase financial sustainability of health services
7. Strengthen the health management information system

In February 2017, when USAID awarded MSH additional funding from the Ebola Emergency Fund (EEF) to expand CSH's health system strengthening activities to three counties most affected by Ebola (Grand Bassa, Margibi, and Montserrado), interventions in these countries were designed

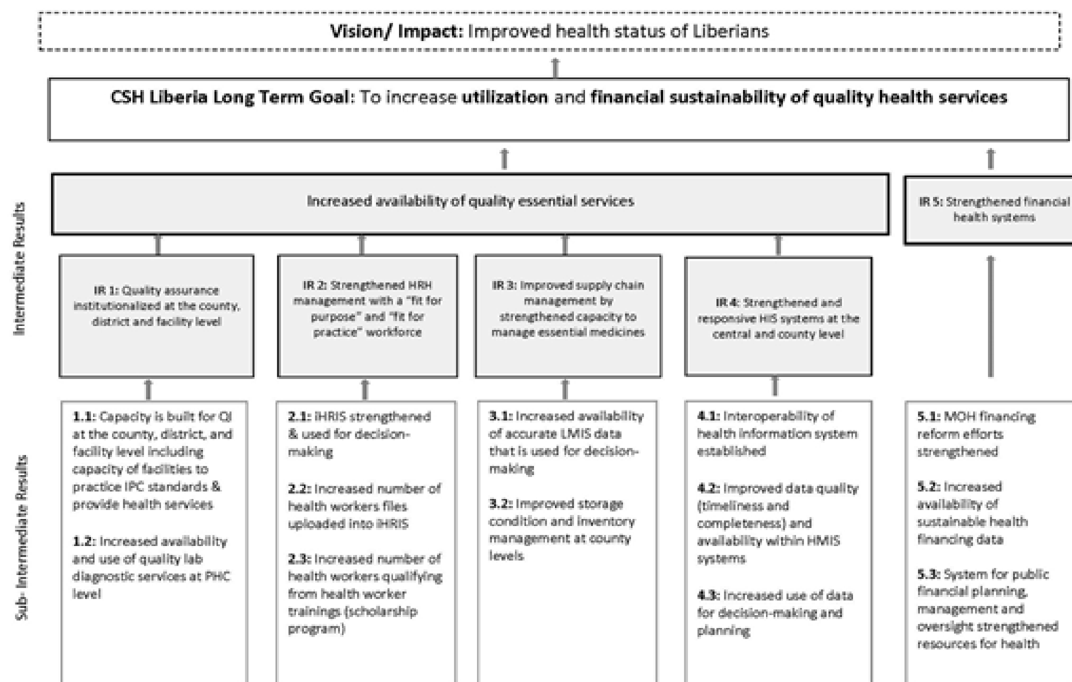
[1] See annex for the initial results framework for the Program

to scale up achievements, best practices, and proven strategies from the base counties and to support three key objectives:

1. Strengthen capacity of health facilities in the three counties to practice infection prevention and control (IPC) standards and provide health services according to the National Health Quality Strategy and Plan.
2. Support implementation of the national Health Information System (HIS) and accelerate improvements to health and logistics information systems.
3. Strengthen county health team (CHT) capacities and systems in Grand Bassa, Margibi, and Montserrado counties to manage the restoration of health services and strengthen core systems functions.

Entering program year four (PY4), and following the mid-term evaluation of the Program, the scope of the CSH Program was refined under the directive of USAID, and activities for Objective 1, Leadership, Management, and Governance (L+M+G); Objective 2, Water, Sanitation, and Hygiene (WASH); and some activities under Objective 3 at the county level were eliminated. The revised objectives included: 1) increasing the availability of quality health services by institutionalizing quality assurance at the county, district, and facility levels; 2) strengthening Human Resources for Health (HRH) management to help create a more "fit for purpose" workforce; 3) improving supply chain management by increasing capacity to manage essential medicines; 4) strengthening the Health Management Information System (HMIS) to be more responsive; and 5) improving sustainability of health services by strengthening key financial systems and generating evidence to inform health financing reforms in the country. The CSH Program Results Framework (Figure 2) was realigned accordingly and the Program's performance Management Plan was revised to better capture the Program's intended outputs and outcomes.

Figure 2: Revised CSH Program Results Framework



In March 2018, a decision was made to close the Program earlier than anticipated, with the Program end date moved to August 2018. As part of its close-out strategy, the CSH team and USAID CSH Contracting Officer Representative (COR) held a series of close-out consultative meetings with key stakeholders to communicate the close-out timelines, outstanding activities, and key challenges, and to develop transition plans and identify additional support required to finish some activities started under CSH.

Photo by Cindy Shiner

Phebe Hospital outpatient clinic, Bong County. Strengthening the capacity of the health workforce was among the CSH Program's objectives.

Despite the early close-out, over the life of the project, CSH was able to support the MOH to achieve several of its goals because of the Program's design and approach. The CSH Program was aligned with the MOH's policies and plans and followed USAID's Human and Institutional Capacity Development model. In all activities, the Program followed the lead of the MOH to support its efforts with critical inputs of technical support and financial and other resources to implement its long-term plans, ensuring MOH involvement, leadership, and buy-in at all points in the Program. Although, at times, this meant delays in approvals or in finalizing products, the outcome was a product that was led and owned by the MOH, the entity ultimately responsible for implementing and maintaining progress. The support was designed and provided in such a way that the MOH and partners jointly created the systems, tools, and resources, and developed the in-house skills and abilities to use and manage these tools and resources that are needed to meet the MOH's 2021 health system goals.

At the central level, the Program's embedded advisors provided intensive TA to the MOH with critical realignment of systems, ensuring that management structures and guidance were clear, that the information needed to effectively manage the components of the health system were available, and that systems for improving skills were in place. At the county level, building on MSH experience in other countries, CSH embedded mentors into the CHTs to provide on-site support to the CHT staff.[1] HR mentors, supply chain mentors, a public financial management mentor, QI mentors, and M&E mentors were embedded with the CHTs to provide daily support and TA in a coordinated manner. The mentors worked with the CHTs to revise and revamp the county-level infrastructure and systems to allow them to efficiently spend time managing services and improving quality, while enhancing client services.

> *"My team has been thinking about assessing our performance every quarter, but we did not know where to start. Now that we have been introduced to this tool, we will use it to conduct our self-assessment every quarter and create improvement plans."*
> – Member of CHT commenting on the HSS Capacity Assessment Tool.

Details of the CSH Program activities and outcomes over the three and a half years of the Program are provided below and organized by the Program objective. To facilitate reporting on the expenditure of malaria funds, that activity area has been pulled into its own section under Objective 4. In addition, each section describes activities that were transitioned to the MOH or other partners when the Program ended, as well as provides recommendations for future programming.

3. Achievements by Objective

Rapid baseline county-level capacity assessments were conducted in both base and EEF counties to guide the capture of data on the status and capacity of local health systems. Findings helped to identify health system strengthening gaps and guide program interventions. The assessment was conducted with County Health Teams (CHTs) utilizing a County Health System Strengthening (HSS) Capacity Assessment tool. The tool – initially developed by USAID's Rebuilding Basic Health Services (RBHS) project - was revised by CSH in consultation with the MOH in order to strengthen and broaden the assessment.

The outcome, results, transition plans and recommendations of the program discussed in this section are organized thematically following the order of the revised results framework. This is followed by the two objectives that were dropped midway:

- Objective 1. Institutionalize QA/QI initiatives to improve health care service delivery
- Objective 2. Strengthen human resources for health management
- Objective 3. Improve supply chain management
- Objective 4. Strengthen the health management information system
- Objective 5. Increase the financial sustainability of services

- Objective 6 (formerly Objective 1). Develop leadership, management and governance capacity
- Objective 7 (formerly Objective 2). Strengthen MPW capacity
- Malaria

Objective 1. Institutionalize QA/QI initiatives to improve health care service delivery

The service delivery building block encompasses many things, including QA and QI systems. Health care quality issues are reflected in the wide variations in utilization, from underuse, overuse, or misuse of services, to inadequate provision of services and assignment of poorly trained staff by the health system. Quality is broadly defined as addressing prevention and care processes, quality of equipment, and, above all, quality of staff delivering the services. With the support of the CSH Program, the MOH has taken action to address these issues by updating the quality standards of care and creating an environment in which these standards can be effectively implemented, assessed, and measured in order to determine gaps and bring about solutions. By working closely with the MOH to create a home for quality within the MOH and by developing systems, standard operating procedures (SOPs), processes, measures, and tools, CSH was jointly able to achieve the following high-level outcomes:

- Establishment of a Quality Management Unit responsible (QMU) for setting the direction and developing standards and institutionalizing QA/QI at all levels of health care delivery
- Development and launch of a National Health Quality Strategy (NHQS)
- Establishment of Quality Management Teams (QMTs) within the counties/facilities
- Update the MOH Quality Standard and Joint Integrated Supportive Supervision (JISS) tools for national, district, and county levels; 231 of 323 facilities were visited in the six CSH-supported counties

Background and context

QA/QI and IPC strategies were not comprehensively addressed in the health care system before the EVD epidemic, and the MOH didn't have an internal framework for coordinating and collaborating among partners working in service delivery QI. During the epidemic, the need for more effective IPC stood out dramatically as many people, including health workers, contracted the virus in health facilities. An Infection Prevention and Control Committee was formed during the epidemic; although this remained in place, some felt that rather than doing IPC as a stand-alone approach, it should be integrated into quality management. When the EVD epidemic subsided, the MOH began exploring a comprehensive approach to institutionalized QA/QI and IPC to improve the quality of health care services provided at facilities in support of the MOH goal of building a resilient health system by 2021.

> The MOH, in its 10-year National Health Policy and Plan 2011–2021 highlighted its vision to optimize the delivery of quality health services and improve access to safe and quality health services. This was reinforced as one of the MOH's priorities in the 2015–2021 National Investment Plan for Building a Resilient Health System following the EVD outbreak. The Investment Plan proposes to improve both quality of care and access to health services, and aims to promote monitoring of the adherence to clinical standards and practices as well as means for monitoring performance for improvement of services.

CSH began its work in this area with consultative meetings with counterparts at the MOH and with in-country partners to understand MOH priorities and align activities with ongoing QA/QI initiatives. The process for developing the CSH Program TA approach for QA/QI began with joint discussions involving the MOH and partners at a quality management technical working group (TWG) on integrating quality into the general framework of service delivery. CSH also held scoping visits to assess the landscape and to get stakeholder input on quality issues, needs, existing plans, etc. CSH led a series of stakeholder discussions to identify key drivers of poor quality, how to define quality in Liberia, etc., to inform the TA approach.

CSH QA/QI activities changed focus over the life of the project, but included collaborating with the MOH at the central level to establish systems and institutions for ensuring quality service delivery, and working with it to develop and update tools and systems for assessing and regularly improving quality. The first years of the Program included a quality collaborative component which was discontinued in the third year. CSH also supported the revision and roll-out of the JISS approach, and began work with the MOH to initiate a laboratory QI initiative.

Achievements and Challenges

i. Building central-level MOH quality assurance capacity

At the beginning of the CSH Program, there was discussion within the health sector about the best home for IPC management. Some advocated that IPC should be moved to the Public Health Initiative, but the Minister of Health wanted this role to remain with the MOH. CSH assisted in planning how this could happen by working with stakeholders to design an organogram and plan

for integrating IPC with quality management within the MOH. The proposed approach won support, and CSH then worked with the MOH leadership and General Counsel to determine what needed to be done to establish a new quality unit. As a result, a Quality Management Unit was created within the MOH to coordinate the QA/QI and IPC activities at the central, county, district, and facility levels; this unit became the counterpart for all quality support for the duration of the CSH Program. The unit was mandated to provide oversight for all dimensions of health service quality, including IPC, at the central/national, county, district, and facility levels in coordination with National Health Quality Advisory (NHQA) Board with diverse membership. The Unit's mandate is to use local data to identify various system and process gaps fueling adverse health outcomes, while sharing best practices in a cycle of continuous learning. CSH provided TA to design the organogram and to draft position descriptions. CSH also supported the development

of the QMU workplan for the first year. In addition to supporting the creation of this Unit, the CSH Program helped put in place several other foundational QA/QI building blocks.

Working with the MOH and other partners, the CSH Program supported the development of the NHQS, one of the MOH priorities in the investment plan for building a resilient health

Ministry of Health, Monrovia

Photo by Cindy Shiner

system for 2015-2021. The strategy provides a practical and feasible plan to systematically improve the health system's ability to provide safe and high-quality services. It aims to restore public trust in the system through improved leadership, governance, accountability and community engagement. The NHQS establishes accountability for health services, and gives clients knowledge and rights to expect basic quality standards. The strategy, designed through an iterative and inclusive process, is the first such strategy in Liberia and provides a framework for the improvement of health services, particularly after the EVD crisis and experience. It was launched officially on May 10, 2018.

CSH collaborated with the MOH QMU to develop the terms of reference for the proposed NHQA Board which would be responsible for setting shared direction and providing input for major decisions on QI initiatives at all levels of the health system. CSH facilitated the maiden meeting of the NHQA Board where potential members were invited to review the terms of reference (TOR) and requested to serve on the board. At time of CSH close-out, the MOH QMU was planning to complete the establishment of the NHQA Board and support its first orientation meeting.

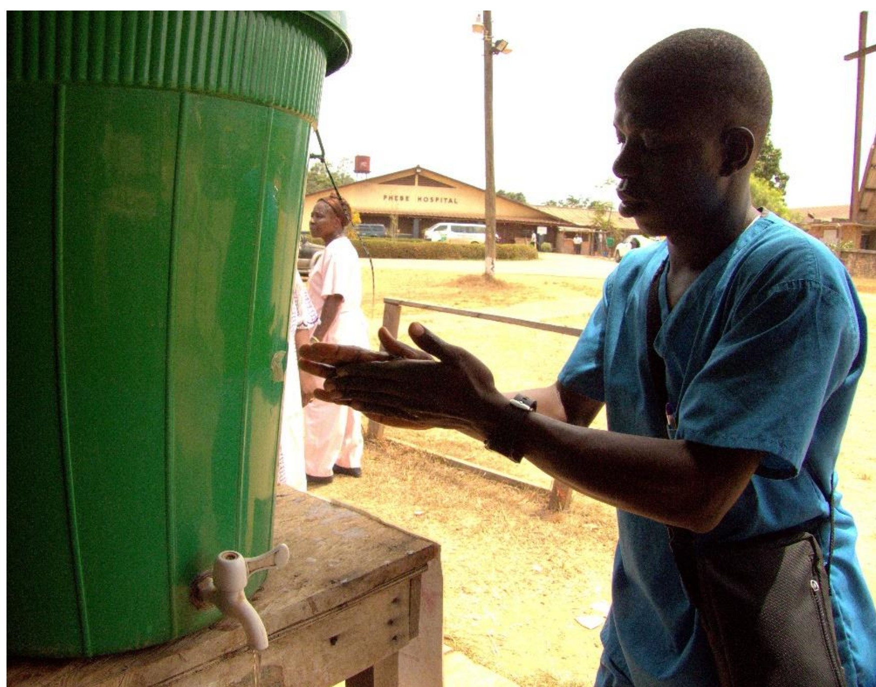


Photo by Cindy Shiner

A health worker washes his hands before entering Phebe Hospital in Bong County. Poor infection prevention and control at health facilities contributed to the spread of Ebola

ii. Building county, district, and facility-level quality assurance capacity

The Program took several approaches to build QA/QI capacity at the county level. CSH deployed QA/QI clinical mentors to all six CSH counties to provide technical support for continuous capacity-building of county staff and QMTs. These mentors supported the CHT with all QI initiatives at the county level. The mentors' main counterparts were the county clinical supervisors,

but they also provided TA and support to other county supervisors, including IPC and malaria focal points, since quality affects all clinical service delivery areas.

One of the QA initiatives was the implementation of the Collaborative Improvement approach in 45 health facilities in Bong, Lofa, and Nimba counties. To initiate this, CSH provided TA to the MOH to develop TOR for QMTs at the county and quality improvement teams at the facility levels. The QMTs were created in each county to support the QA/QI efforts, including through peer-to-peer mentoring at health facilities. The Program provided several training programs with MOH central and county staff to give them background on the collaborative approach and on how to manage QA and QI activities, and to develop their skills to mentor staff in the facilities.

The quality improvement teams from each facility were brought together into two improvement collaboratives, Intra-County and Cross-County. These collaboratives used the Plan-Do-Study-Act (PDSA) methodology to test different ways to improve clinical outcomes; they learned from each other as they implemented QI projects and assessed the results. Using this PDSA approach, the collaboratives tested innovative ideas to solve quality of care issues affecting their facilities. Ultimately, the purpose was to develop a set of high-impact interventions found to improve maternal, newborn, and child health-related quality of care challenges identified in the collaboratives. However, the Program was unable to finalize the compilation of high-impact change ideas with proven outcomes, known as the "Break Through Series," given challenges with data quality and urgent demands for results.

MSH photo

Quality improvement learning session

Over the first 12 months of the implementation of the Improvement Collaborative prototype, there were 10 learning sessions (cross- and intra-county) held with 237 staff from CHTs, district health teams (DHTs), and health facilities (37 clinics, 2 health centers, and 6 hospitals) in Bong, Nimba, and Lofa. The Intra-County collaborative contributed to results such as: Antenatal care coverage recorded an improvement for Lofa County from a baseline of 46.6% to 68.6% post-intervention;

and the Cross-County improvement collaborative networks (ICNs) recorded a 17% reduction in institutional maternal mortality from a baseline of 645.2/100,000 live births to 539.1/100,000 live births, while the Intra-County ICN recorded a 51% reduction from a baseline of 208.6/100,000 live births to 103.6/100,000 live births. The Improvement Collaborative activity was ended at the end of PY3.

iii. Building systems and capacity for supportive supervision

Another intervention offered by CSH to strengthen quality of health services was its collaboration with the MOH and other partners to revise and implement the JISS tool, which provides the framework for assessing the quality of the provision of the Essential Package of Health Services (EPHS) identified by the MOH. In the post-Ebola context, a broader policy framework was required to ensure a strategic approach was taken regarding quality of care. The MOH and CSH Program recognized that identifying weaknesses via JISS scores was not enough; follow-on action through in-depth mentoring was required to ensure that the gaps were addressed. Supportive supervision using mentorship (one-on-one or group) is recognized to be an important factor in improving quality of services because it emphasizes joint problem-solving, two-way communication, and performance-improvement planning. The MOH recognized that the previous approach to supervisory visits was more directive in nature rather than focused on joint problem-solving to improve health system performance. The MOH envisioned a supportive supervision framework that encouraged review and reflection, provided supervision to improve clinical standards and, ultimately, enhanced the quality of client care. CSH worked with MOH and partners to revise the tool and process for JISS, and provide skills building and mentoring as the CHTs implemented the revised JISS.

The CSH Program worked with the QMU and MOH to implement a two-step process to first revise the core clinical standards that make up the EPHS, and second to align the JISS tool with these revised standards. With this, the JISS tool's scope was expanded and the tool revised to allow teams to address gaps in services in a supportive, practical, proactive manner, with greater emphasis on action planning. Following the addition of IPC, administration, and mental health to the EPHS, these components were added to the tool, bringing it to clinical standards in the 13 areas. It was made more user-friendly, comprehensive, and better aligned with the EPHS. The tool was revised to include a clinical standards checklist, clearer instructions, a standard scoring system for each question and technical area, and a bolstered action planning process.

Consistent with the aim of the NHQS, the revised JISS implementation process happens at three levels of the health system—district, county, and national—so that the results can inform the MOH on the status of health services nationwide. The new MOH JISS strategy mandates that the DHTs conduct monthly visits in 100% of district-level facilities, while the CHTs conduct quarterly supervisory visits in 75% of health facilities at the county level. MOH central then conducts its integrated supervisory visits biannually in 25% of randomly selected health facilities of the country. A small team of supervisors visits the facilities, and using the revised JISS tool, assesses facility performance in all clinical areas. They collect information that is reported back to all relevant CHT staff in post-JISS feedback sessions.

In addition to driving the change process for the JISS tool, the CSH Program also supported the training of national supervisors in how to use the tool, and assisted with rolling out training to county-level supervisors. CSH conducted a training of trainers (TOT) for master trainers (65) and rolled out training for the revised JISS to 115 CHT and DHT supervisors.

In the CSH counties, the Program supported mock JISS activities in October-November 2017 to assure that clinical supervisors understood the new tool and process. CSH supported initiation of the routine implementation of the JISS tool in the Program's six counties. Counties began implementing the JISS tool in December 2017 and JISS implementation was done to scale from January-March 2018. To date, CHTs have implemented the JISS tool in 231 of 323 facilities in the six CSH-supported counties—Bong, Nimba, Lofa, Montserrado, Margibi, and Grand Bassa—reaching nearly three-quarters of the health facilities (Table 1). CSH supported 357 JISS visits in the six counties from October 2017-April 2018.

Table 1: Health facilities receiving a CSH-supported JISS visit

	HFs visited with JISS	Total HFs	%
Bong	35	44	80%
Lofa	31	59	53%
Nimba	52	75	69%
Grand Bassa	28	33	85%
Margibi	29	44	66%
Montserrado	56	68	82%
Grand Total	231	323	72%

Over the seven-month period, the overall JISS scores have remained relatively stable across the six counties (Table 2 probably because of insufficient time to implement remedial actions. The average JISS score across the six CSH-supported counties during the first quarter of roll-out was 68%, covering 115 visits. The average JISS score for the 51 visits conducted in April 208 was 67%.

Table 2: JISS county-level average scores

	Quarter 1 (Oct-Dec 2017)*		Quarter 2 (Jan-Mar 2018)		Quarter 3 (Apr 2018)	
	%	n	%	n	%	n
Bong	61%	11	70%	32	No visits conducted	0
Lofa	79%	25	84%	27	83%	10

Nimba	69%	50	64%	46	No visits conducted	0
Grand Bassa	66%	8	67%	26	78%	15
Margibi	69%	8	66%	26	71%	9
Montserrado	66%	33	60%	30	50%	17
Cross-County Average	68%	115	68%	187	67%	51

*Note: Includes mock JISS scores and visits conducted in Q1 outside of the mock exercise

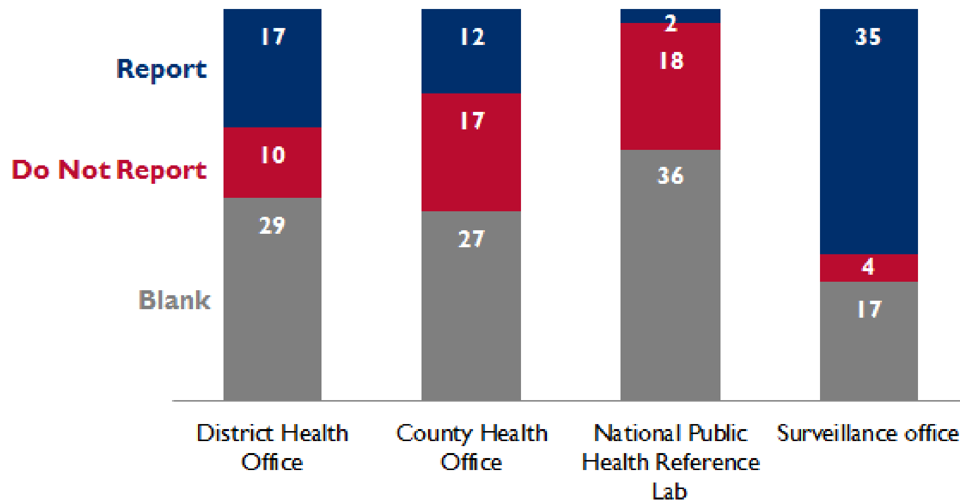
CSHs mentors provided technical support to the county clinical supervisors to compile and disseminate the JISS report in a timely manner, and they mentored service providers as they worked to address gaps identified during JISS visits. Anecdotally, continuous mentorship has improved the capacity of the clinical supervisors to independently conduct quality supervision, and improved the path for quality health services sustainability. CSH team mentors initially helped the CHT lead the supervision visits, and then took the back stage for the next quarter by only watching and stepping in when necessary. Counties began gradually leading the JISS and in-depth mentoring activities. For example, the Nimba CHT has been sponsoring post-JISS feedback meetings monthly with all supervisors on the CHT with oversight of the process and providing updates on the results of the JISS. The Bong CHT had one such meeting, but Lofa did not.

Although much progress has been made in preparing staff for their role in implementing and driving the JISS, there are improvements in the tool and process that could still be beneficial that the MOH and partners can consider as they plan to roll this out to other counties.

iv. Laboratory service quality

The Deputy Chief of Party and the lab advisor collaborated with the MOH Diagnostic Unit and CHTs/county diagnostic supervisors to implement limited laboratory QI activities at the county level. To improve the availability, use, and quality of laboratory diagnostics, the MOH with CSH support reviewed the national laboratory policy and strategic plan and the national laboratory equipment standardization guideline; developed a draft national Antimicrobial Resistance Action Plan (documents are in final draft version pending MOH review), and conducted baseline laboratory assessments in all six counties to inform development of a laboratory improvement strategy and lab performance improvement plans at the county and facility levels. In Bong, Lofa, and Nimba, CSH conducted a working session with the MOH National Diagnostics Unit (NDU) and county diagnostic supervisors to review assessment results and develop/revise county-specific plans to address gaps, such as on reporting procedures for reportable diseases. As a critical function of a laboratory, 42% of the labs assessed in Montserrado, Margibi, and Grand Bassa had a list of reportable diseases on hand while 50% did not have a list available for review. Of those who responded, the largest proportion stated that they report to the local surveillance office. Only a small proportion stated that they report any reportable disease to the National Public Health Reference Lab. These findings are highly important for epidemic preparedness.

Figure 3: Assessment of labs' reportable disease function



CSH also collaborated with the NDU to review the national laboratory equipment standardization document, provided TA to the laboratory TWG and provided technical support in the review of the national laboratory policy and strategic plan. The Program worked jointly with county diagnostic supervisors from three base CHTs to develop draft TOR for lab TWGs and provided feedback to the full CHT.

Several challenges affected CSH's ability to achieve results in the lab quality component. For example, challenges with the recruitment process for laboratory mentors limited the work that could be completed. The Program was not able to find the right staff with the appropriate skill mix to serve as an advisor to the central level and a coach-mentor to the CHT. Another challenge was that the establishment of the laboratory technical working group at the county level was incomplete and the groups were not prepared to take on the responsibility of oversight and technical guidance for the lab services.

Activities in this area were discontinued in March 2018.

Transition and sustainability

CSH support and advocacy for the QMU helped enhanced the Unit's coordination at the central and county levels to ensure implementation of the NHQS and institutionalization of quality initiatives. Although CSH helped the MOH reach some of its quality of care goals, there are a number of activities that were not completed during the life of the project. These unfinished activities may be challenging to continue as there are no other partners in these counties to quickly take them up.

As part of close-out, USAID and CSH leadership held several meetings with the QMU leadership to discuss program implementation, accelerated closure, and transitioning of CSH TA to the MOH. The Program handed over all service delivery quality technical materials to central MOH QMU and CHTs to enable them continue implementing regular JISS visits in the county. These included the JISS score cards quarterly data entry sheet and the JISS action items entry template. The same materials have also been uploaded onto the MOH server for ease of access and reference. CSH has also printed JISS tools for the six counties to cover two quarters. The QMU and CHTs are earmarked to receive assets (vehicles, printers, and furniture) in the CSH disposition plan that will support continued performance of their mandate in QI.

Recommendations

JISS data collection, analysis, and feedback. The MOH should institutionalize the review of county quarterly JISS data at the central level to create the demand for JISS data and strengthen feedback and use of the data for decision-making at the central level. The MOH QMU needs to continue to reinforce the importance of JISS feedback meetings and find innovative ways to support CHTs in conducting the meetings. The county clinical team must work closely with county monitoring and evaluation (M&E) staff, including district data clerks, to collect, analyze, and use data for decision-making and ensure that feedback is given upstream and downstream.

A three-way feedback loop for the results and action plans from the JISS also needs to be facilitated. To effectively address issues at the facility, the three levels need to connect and share the information to come up with joint improvement plans. The central level must commit to support CHTs and the counties must do likewise for the DHTs. Also, at the MOH central level the JISS is only done once every six months, so systems need to be put in place to ensure that the quarterly information is going up to the central level and being reviewed by all relevant units and programs of the MOH. A plan and system could be strengthened to ensure that gaps that are found, e.g. lack of supplies, are being shared with the specific part of the MOH that can provide the needed support. The QMU and County Health Services Unit need to lead this process to ensure more comprehensive, supportive feedback to the CHTs and DHTs.

Objective 2. Strengthen human resources for health management

The health workforce building block considers both the systems for managing the health workforce and skills and ability of the health workers. A motivated, equipped, and capable health workforce is essential for a resilient health system, and critical for delivery of health care services in Liberia. The MOH Investment Plan highlights HRH as one of its core priorities. In post-Ebola Liberia, there was a need to quickly rebuild and strengthen the health workforce and its management to ensure high-quality services were available to Liberians. With the support of the CSH Program, the MOH has taken action to address some of these issues. High-level achievements in this area include:

- Restructuring of three HRH units into an integrated single HR department
- A new MOH Staff Handbook developed and disseminated to guide officers in charge.
- Support for installation and population of the integrated Human Resources Information System (iHRIS)
- A Scholarship Policy and Guidelines to strengthen processes for awarding scholarships, and provided scholarships for midwives and lab technicians. One hundred and eight students graduated, with 86 deployed to fill critical vacancies in the counties
- An in-service training policy, calendar, and other resources centralized and coordinated for all partners working in health sector

Background and context

Within the MOH prior to the Ebola epidemic, there was a fragmentation of HRH services across units; the Personnel, Human Resources Management, and Training units were reporting to the deputy ministers of Planning, Health Services, and Administration, almost as vertical programs and not coordinated. Information was not being shared. Following the epidemic, there was emphasis on re-building the size of the health workforce given the heavy loss of life among health workers, while ensuring that current health workers were adequately trained, deployed, motivated, and paid to perform high-quality work.

Improving Service Delivery through Stronger Health Systems

When Ebola struck in 2014-2015, the virus exacted a high toll for multiple reasons, including the inability of Liberia's health system to cope with the severity of the disease. This led to a lack of trust among Liberians in need of care, and key health service delivery indicators declined significantly. For example, deliveries by skilled birth attendants declined by 7%; fourth antenatal care visits dropped by 8%; measles coverage declined by 21%; and outpatient visits fell by 61%. The epidemic also impacted the economy—gross domestic product plummeted in 2014 and 2015.

Since the Ebola crisis, the CSH Program, FARA programs, and other partners have supported the restoration of health services and the rebuilding of Liberia's health system. One way that CSH assisted was through capacity-building to improve systems that support health services, such as iHRIS training for HR officers at the central and county levels, data quality training for data managers and data entry clerks, supply chain EUV training, and more.

These service delivery improvements followed targeted interventions through community outreach, engagement with sector-wide county health board members, and community involvement in health education programs. Additional interventions included the deployment of midwives and health workers from CSH-supported scholarship programs in hard-to-reach health facilities, rigorous joint integrated supportive supervision, QI collaboratives, data quality reviews, supply chain EUV exercises, and the use of iHRIS data for staff planning and management, and development decisions.

CSH support to county health boards improved communication and engagement with key line ministries, partners, civil society, and youth and gender groups, and helped restore community trust and confidence in the health system.

As a result of these joint efforts and interventions, the CSH-supported counties of Bong, Nimba, and Lofa swept awards for best-performing counties in Liberia's health sector during Liberia's 9th Annual Health Sector Review Conference, held in the capital, Monrovia, from December 6-8, 2017.

''Liberia is more resilient than before and together, with support from our partners, we see significant results today,'' said former Health Minister Dr. Bernice Dahn.

I hope to see more midwives further their education and build up their skills because the task we have is huge. I have learned a lot from delivering so many babies. I am happy that I can now manage the entire delivery alone and I am also happy that I have become more professional in my field and can be relied on to deliver babies safely."

CSH Program HRH interventions began with consulting with stakeholders in the MOH HRH Unit, the HR TWG, and partners CHAI, the World Health Organization (WHO), UN Development Program, IntraHealth, the US Government (USG) interagency group (USAID, the US Human Resources and Services Administration, the Peace Corps, and the United States Centers for Disease Control and Prevention [CDC]) to conduct a landscape assessment of the HRH programming in Liberia. The purpose was to ascertain gaps in HRH programming, needs, and priorities, and the GOL and other donors planned investments related to health workforce development and ensuring a harmonized USG approach to both current and future programming around HRH in line with the MOH Investment Plan for Building Resilient Health System in Liberia 2015-2021. Thematic areas assessed included: pre-service training, in-service training, HRH management, the regulatory environment, and donor and GOL plans and priorities vis-a-vis the Investment Plan.

Photo by Cindy Shiner

A CSH mentor provides guidance to a health worker at a clinic in Bong County.

The assessment process provided an opportunity for the CSH Program to leverage the key findings and begin aligning its strategic approach to HRH strengthening in Liberia with the MOH and its partner priority intervention areas. Based on the findings, the USG interagency made some key recommendations for the CSH Program, which included the following broad objectives: support the MOH to establish a functional HRH structure at the central and county levels; coordinate with the MOH and CSA to validate the health workforce payroll; and work with the MOH to strengthen iHRIS and integrate it with other Health Information Systems (HIS). CSH developed a plan to strengthen the HR Unit and develop its capacity to review, update, and implement the 2015–2021

MOH HR plan (developed prior to the start of CSH). The Program's plan involved operationalizing a comprehensive institutional framework for performance management, planning, continuing education, supervision, and retention of health and social welfare workers.

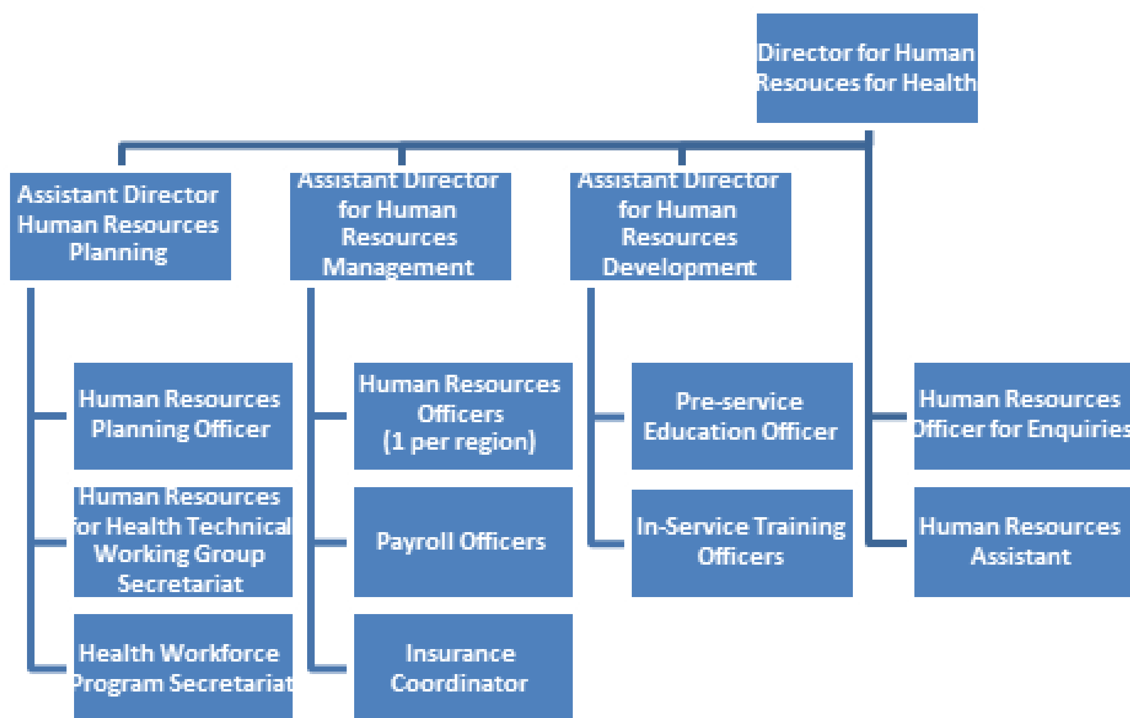
CSH's HRH activities over the life of the Program fell under several general categories: support to the HR Unit at the central level, iHRIS implementation, support to HR staff in CHTs, and pre-service training through scholarships.

Achievements and Results

i. Support to HR Unit at Central MOH

At the central MOH level, CSH assisted with the organizational restructuring of the HR management functions. The CSH Program supported the MOH to restructure and realign the fragmented HR Management Unit, Training Unit, and Personnel Unit to create an integrated MOH HRH Unit. Through a series of joint working sessions, the CSH Program provided TA to review the existing and missing strategic HR functions and conduct in-depth interviews and job analysis with incumbents in the current HR positions and units. This process, led by the MOH, was facilitated by the CSH Program and undertaken in consultation with the Liberia Governance Commission, WHO, and MOH counterparts. The final recommendation was to merge the three existing units into one integrated HR Unit with three main divisions: Policy and Planning, Human Resources Management, and Human Resources Development (see organizational chart below in Figure 4).

Figure 4: HR Unit organizational chart



The restructuring process streamlined strategic HRH functions and created new positions and accompanying job descriptions, with technical support provided by CSH. The new MOH HRH Unit is mandated to plan and manage the health workforce and address key issues surrounding performance standards, workforce information, staff retention, and the wide disparities in workforce remuneration. The new unit's responsibilities also include assessing training needs and creating a master training plan for both pre- and in-service training, as well as improving the utilization of the iHRIS and inputting of data and information into the system.

As the unit was beginning, the CSH Program provided on-site mentorship and support to staff in the new unit through the placement of embedded advisors, including an HRH Advisor, a Pre-Service Education Advisor, an In-Service Training Advisor, and a Scholarship Advisor. Following the model of the Global Improvement Framework for Health Worker In-Service Training, developed under the USAID-funded Health Care Improvement Project, the advisors helped develop policy documents, review training modules, develop standards, and support in-service training.

To ensure technical coordination and input into HR functions, CSH helped the MOH revitalize and reshape several TWGs. This included the establishment of an HRH TWG to improve MOH engagement with key partners on HRH strategic priorities based on the MOH Investment Plan. CSH provided support in the development of the terms of reference for the TWG, helped map HRH partners, and formalized the monthly meeting schedule. The TWG became functional and started meeting regularly at the end of FY 2016. CSH also supported the establishment of pre-service training (PST) and in-service training (IST) TWGs, including developing their TOR; management of these was assumed by the PST and IST officers once the MOH was able to bring these positions on. The IST TWG serves as an effective mechanism for the MOH and partners to coordinate a coherent sector-wide approach to eliminate duplication of efforts and streamline skills building programming and resources. CSH also supported the MOH to reconstitute the Scholarship Committee to provide input on the structure and selection of scholarship candidates.

Health workforce training and professional development: In the second project year, the CSH Program collaborated with the MOH HR Unit to conduct a rapid Training Needs Assessment (TNA) with MOH counterparts in all 15 counties. This focused on assessing the level of technical skills gaps in the post-Ebola health system to enable the MOH provide needed training for staff, and identified priority needs for clinical and non-clinical trainings by professional cadre to inform the MOH training plan and enhance quality service delivery, as well as to inform allocation of scholarships, hiring, and deployment decisions. The results of the TNA demonstrated particular needs for capacities in medical subspecialists, health management staff, supply chain specialists, midwives and lab technicians. The findings from the TNA provided the MOH with evidence and recommendations that informed planning, allocation of resources, and prioritization of targeted pre- and in-service training initiatives to improve some of the gaps identified.

To build staff skills in HR management, one of the areas identified in the TNA, the CSH Program partnered with LIPA to develop a training program in strategic HR and records management. Ten modules were developed and included practical job-related exercises, group tasks, and individual

work-related assignments. The training addressed the core HR strategic functions needed to manage and develop the health workforce in Liberia, standardizing a common understanding of HR practices. The training also introduced modern HR practices through the use of an automated personnel management system, iHRIS, to make decisions based on data. Forty MOH HR staff were trained from the central level, all 15 counties, and from referral hospitals. Each training participant developed an action plan, and the CSH Program with LIPA and the MOH conducted follow-up coaching sessions with participants to support the implementation of the action plans, and to ensure that the HR staff became comfortable using the new methods.

CSH also supported the MOH Senior Leadership Team and staff, with collaboration from the Ministry of Labor, the CSA, the health regulatory boards, hospitals, WHO, CHAI, the World Bank, and Partners In Health, to develop a new MOH Staff Handbook to support the day-to-day management of the health workforce. The handbook is a management tool that consolidates and makes all HR information more readily available and accessible to staff. This was developed following a series of working group and consultative meetings with stakeholders including MOH staff to define the content and structure. The handbook includes codes of conduct to improve staff compliance and performance, and provides details on employee requirements, rights, compensation and benefits, and safety. This was the first time staff had received this information in a consolidated fashion, and it clarifies roles, rights, and responsibilities and operational guidelines. In 2018, the manual was launched, and the Program printed 474 copies of the handbook and facilitated dissemination workshops in Bong, Lofa, and Nimba (179 OICs and CHT staff trained).

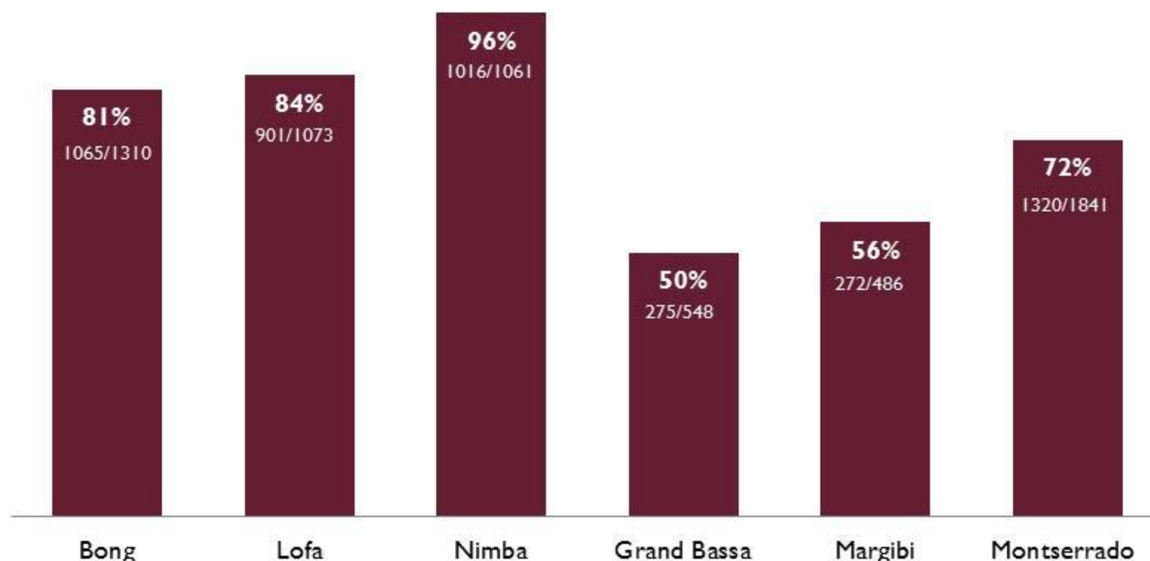
The project also supported an in-service training situational analysis, using the six themes of the global in-service training framework of strengthening training institutions and systems: coordination of training; continuum of learning from preservice to in-service; design and delivery of training; support for learning and evaluation; and improvement of training. The results of the analysis highlighted the lack of clear roles and responsibilities as well as missing TORs, standards, and procedures. The analysis also showed a lack of coordination and control from MOH, heavy use of lecture, missing QA standards for training design and delivery. Follow-up on in-service training was funding dependent and not consistent and evaluation was typically limited to participant learning and response as opposed to higher-level outcomes. Recommendations for better coordination and tracking for quality of in-service training at the county level included use of Training Plans, Training Coordinators and orientation for new staff. Based on findings of this situational analysis as well as the TNA, CSH collaborated with the MOH to develop national IST standards, and draft the national IST policy and IST data collection tools. This was done to strengthen and in-servicing training and align it with national priorities and address findings that training provided at the county level were predominantly supported independently by partners and not coordinated by the MOH, resulting in an inability to track who was trained in what area, resulting in duplicate trainings and wasted resources. The MOH in-service training policy and plan became a guide for the organization, implementation, and documentation of pre- and in-service education or training provided to targeted participants in the sector. CSH also supported the MOH HRH unit to create and populate an IST Master Calendar, aimed to more effectively plan, coordinate, and track all trainings occurring in Liberia so as to avoid duplication and repetition.

This calendar is managed by the Training Unit at the MOH and populated by the IST TWG members.

iii. Expanded Availability of Health Workforce Data

In alignment with the CSA's "One Staff One File" initiative, CSH supported the MOH at the central and county levels to update, validate, and consolidate personnel files. Resources, including filing cabinets and folders, were provided to CHTs to facilitate records-management procedures. CSH developed a documentation tracker for missing personnel files and documents, with data segregated by facility for efficient follow-up. As of May 2018, 4,849 (77%) health workers in Bong, Lofa, Nimba, Montserrado, Margibi, and Grand Bassa had updated hard copy personnel files.

Figure 5: Cumulative proportion of health workers with completed files, by county



Prior to the Ebola crisis, the MOH looked for ways to streamline and make its employee management more efficient. The decision was made to move toward using iHRIS—an open source program that was developed by CapacityPlus—to track all health worker (public and private sectors) status and training, for example, in an electronic format, allowing for easier decision-making about recruitment, deployment, etc. iHRIS serves as an online database of health workers, including staff name, date of hire, position, location, skill level (education), sex, age, salary level, and completed trainings—data to inform decision-making, planning, and management at all levels. The USAID-funded Rebuilding Basic Health Services (RBHS) capacity-building project started the implementation of the iHRIS tool to automate HR records and facilitate analysis and use for strategic decision-making about the health workforce. Installation, training, and use of iHRIS stalled during the EVD response.

Building on the progress of RBHS, the CSH Program supported the MOH in the development of a two-year HIS operational plan which incorporated core iHRIS activities to operationalize iHRIS as part of the implementation of the MOH 10-year HIS Strategic Plan. The HIS Strategic plan aimed to decentralize iHRIS and make it functional at county and referral hospital levels to reduce delays in accessing data and to close the gap of quality data availability for decision-making at the central MOH. In support of this, CSH provided technical support in the establishment of an MOH roadmap for interoperability between iHRIS, HMIS, and other health information systems.

MSH photo

Phebe Hospital personnel files, Bong County. CSH supported the MOH at the central and county levels to update, validate, and consolidate personnel files.

CSH, in collaboration with the MOH and IntraHealth International provided support to revise the iHRIS user manual and develop the plan to roll the system out to all 15 counties. Along with the updated manual, CSH supported the development of an iHRIS supportive supervision tool to be used by the central HR staff when doing supportive supervision in the 15 counties. Trainers were trained from the Health Information System Unit, iHRIS Unit, Information and Communication Technology Unit (ICT), and HR Unit, to create an in-country pool of iHRIS trainers equipped with practical iHRIS competencies and skills. Training was provided to a range of users and system administrators on how to use the system, ensure data quality, generate reports, and ensure

system functionality and stability. CSH also provided computers to the counties and to the central MOH team to facilitate the operationalization of iHRIS. This county-level roll-out helped to fulfill the MOH's vision for iHRIS decentralization, minimizing costs associated with HR staff having to travel to Monrovia to do iHRIS data entry and also facilitating data use for HR decision-making at the CHT level.

In 2017, CSH facilitated an iHRIS data cleaning exercise in its six supported counties to improve and update 11,500 MOH staff records, and provided TA to the Global Fund, World Bank, GIZ, and FARA to undertake a similar exercise in the remaining counties. Using the updated staff iHRIS list generated from the data cleaning exercise, CSH HRH mentors collaborated with the HR officers to conduct a payroll audit exercises in their respective counties to support payroll verification, assist with recruitment by updating staff records, and identify vacant positions to make recommendation to authorities to fill the position. The audit was conducted in December 2017, and CSH conducted an iHRIS verification exercise in March 2018 in Bong, Lofa, and Nimba.

As a result of the iHRIS roll-out with support by CSH, HR officers from all 15 CHTs and the central MOH were trained and are now able to use iHRIS for records management, transfers of staff, recruitment and replacements. The USAID-supported FARA is poised to use iHRIS for tracking MOH health worker in-service trainings on a monthly basis, and the MOH is using the data to identify training candidates and minimize duplicate training. GIZ, the German development agency, utilized data from iHRIS in southeast counties to conduct a gender analysis among health workers.

iv. Scholarship support

The 2015 MOH TNA report also provided the basis for making decisions about the cadres of staff needed to provide high-quality comprehensive services. Working closely with the HR Unit, CSH implemented a scholarship program to increase the number of skilled health workers available in Liberia based on the needs and priorities of the health system. To help guide this process, CSH worked with the MOH to reconstitute the Scholarship Committee (reporting to the HRH TWG) and developed its terms of reference. Following its reestablishment, CSH collaborated with the committee to review, update, finalize, and verify the Scholarship Guidelines.

The CSH scholarship program used the MOH Scholarship Guidelines in the administration of scholarships with the four local partner training schools: Esther Bacon College, Mother Patern Health College, Phebe Training College, and United Methodist University. Working with these institutions helps to strengthen the sustainability of health training programs across the country and improves the human capacity development production pipeline for deployment in order to contribute to improved health service delivery, particularly with regards to reducing maternal and infant mortality. Many potential students in Liberia do not have the means to complete necessary degrees to work in the health sector, so this scholarship program expanded the skilled workforce for the MOH to deploy to critical areas. The scholarship program aimed to increase the completion rate of pre-service education and reduce dropouts.

Over the life of the program, USAID approved 220 scholarships for midwives and laboratory technicians at four local health training schools. In addition, during the first year, CSH took over support from another project for 2 health workers who were studying internationally (one in Kenya and one in the UK).

Table 3: CSH-supported scholarships

School	Program	Number of scholarships supported
Mother Patern Health College	Lab Technology	26
Phebe Training College	Midwifery	30
	Lab Technology	37
Esther Bacon	Midwifery	57
UMU	Midwifery	70
Total		**220**

To date, there have been 108 graduates: 28 lab technicians and 80 midwives.

Table 4: Scholarship student outcomes

School	Program	Total Number	Dropped out		Graduated		Currently enrolled	
Mother Patern	Lab Technology	26	13	50%	10	38%	3	12%
Phebe	Midwifery	30	6	20%	1	3%	26	87%
	Lab Technology	37	0	0%	18	49%	19	51%
Esther Bacon	Midwifery	57	4	7%	42	74%	5	9%
UMU	Midwifery	70	12	17%	37	53%	25	36%
Total		**220**	**35**	**16%**	**108**	**49%**	**78**	**35%**

A Scholarship Recipient's Account as a Midwife

Amelia G. Mulbah, 33, is a newly trained midwife working in northwestern Lofa County. She received a scholarship through the CSH Program and graduated from nursing school in December 2016. After passing the state board test, she became a registered midwife and was deployed for two years to work at the Lutheran Referral Hospital.

Reducing maternal deaths is particularly challenging in Lofa County. Liberia's maternal mortality ratio is *725 deaths* per 100,000 live births—more than double that of nearby *Ghana*, for example. And in Lofa County the situation is worse with 1,072 deaths per 100,000 live births, according to the 2013 Liberia Demographic and Health Survey. Here, Mulbah describes her experience as a midwife:

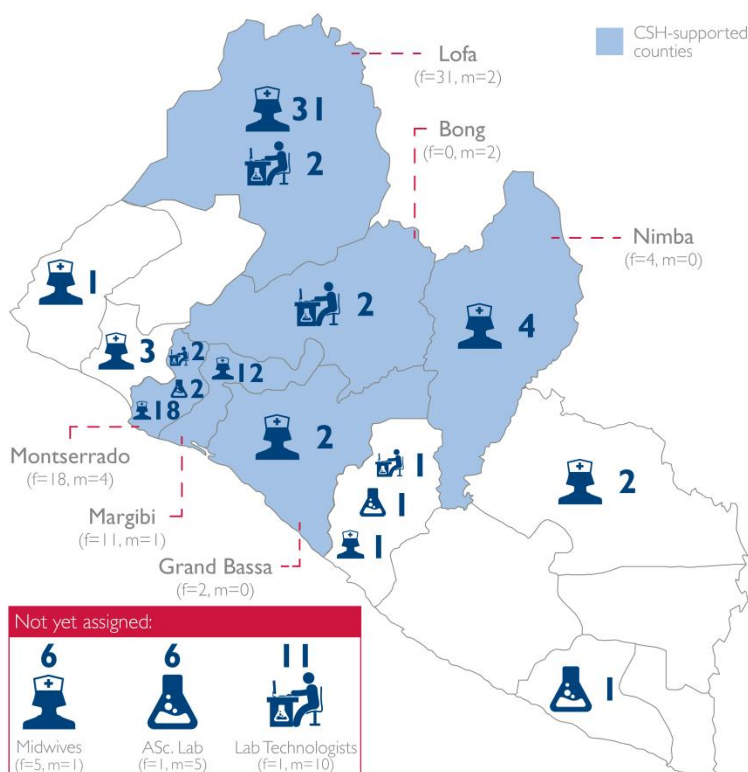
"I made the decision to become a midwife in childhood, prompted by the story my mother told me about her only sister and how she died during childbirth. Most women in my community do not go to the health facility to give birth and experience a lot of complications. I advise women to go to the hospital and not deliver babies in their homes or with the traditional midwives outside of the health facility.

My work begins at 6:30 am and ends at 7:00 pm. We usually do not rest unless the next shift comes and releases us. Sometimes as many as four women may be in labor while others need surgery and others need monitoring to check their blood pressure every 30 minutes and pulse every 15 minutes. Sometimes we have to do delivery by flashlight. Some days there is no water. Sometimes we need vitamin K to stop bleeding and there is none. Many times when we are doing delivery, we do not have the right kind of gloves. The ones we have are too short, and sometimes we get blood on our hands and get exposed to infection—this is very risky.

I hope to see more midwives further their education and build up their skills because the task we have is huge. I have learned a lot from delivering so many babies. I am happy that I can now manage the entire delivery alone and I am also happy that I have become more professional in my field and can be relied on to deliver babies safely."

As of July 2018, 86 of the graduates have been deployed, the majority in Lofa, Margibi, and Montserrado counties (see Figure 6). Seventy-eight students remain enrolled in their programs and all are expected to graduate in August or December 2018.

Figure 6: Deployment by cadre and by county



ii. HR capacity-building at county level

CSH TA at the county level was delivered through TA, the dissemination of new tools developed by central MOH to the counties, and mentoring by embedded CSH HRH mentors deployed in each of the six counties (Bong, Lofa, and Nimba in PY1 – 3 and Grand Bassa, Margibi, and Montserrado in PY4). The mentors provided on-site TA to strengthen HRH core functions in CHTs and to build capacity of the HR officer on the use of iHRIS.

Helping the counties comply with the CSA "one staff, one file" policy initiative was a major emphasis of the mentors' support. These mentors worked closely with the HR officers and their assistants to develop good records management systems and processes. A big part of the effort to implement the policy was to review health worker records to ensure completeness, including all CSA mandatory forms such as personal history forms, job descriptions, letters of appointment, curriculum vitae, academic and professional credentials, application letters, and professional licenses. To help with this process, CSH and the embedded mentors developed tools and

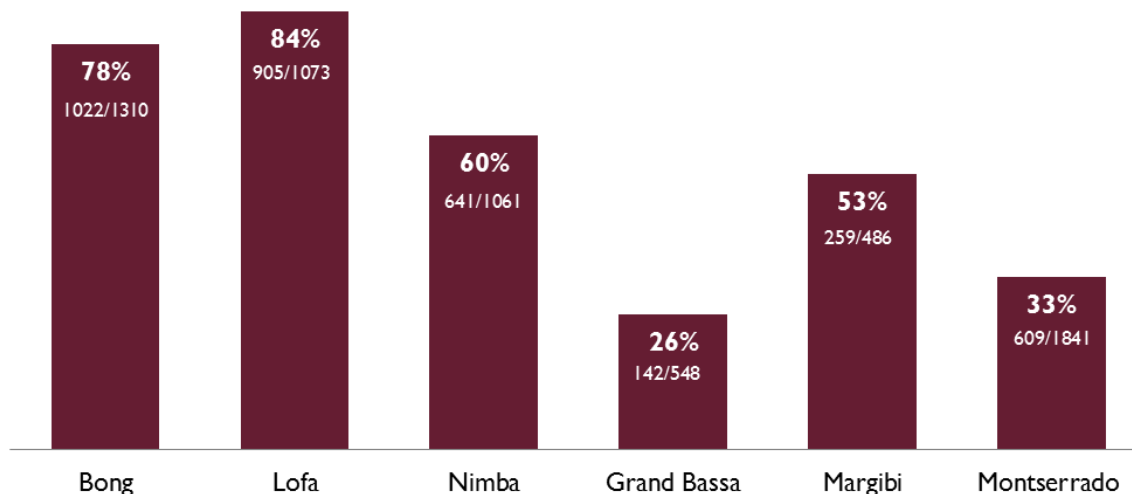
checklists to help county teams assess the file and identify missing documents. Mentors helped print and distribute job descriptions to every health care worker. The Program also helped procure file cabinets, folders, box files, stationery to improve equipping the HR filing at CHTs.

Scholarship recipient Amelia G. Mulbah works with a patient in Lofa County.

Supporting the roll-out of work started at the central level, the Program supported the training of HR officers on strategic HR functions and records management to strengthen their capacity and provided TA to enhance the their work at the county level, including iHRIS data entry.

In support of the iHRIS completion effort, to ensure that all staff had records in iHRIS as well as hard copy files, mentors provided technical support and resources (including computers and Internet access) for the county HR managers and assistants to collect iHRIS forms from MOH personnel at health facilities. CSH developed a supportive supervision tool for iHRIS, and began support to the MOH to conduct quarterly iHRIS supportive supervision visits. During this, the CHT HR officers and CSH embedded mentors distributed iHRIS data collection forms for employees record data and collection and oriented health workers on the purposes and use of key documents, such as employment contract; training personnel history and beneficiary forms; performance appraisal evaluations; personnel action notice; job descriptions; leave records; and professional licenses. CSH HRH mentors and county HR officers in all six counties conducted supportive supervision to facilities, along with CHT HR officers, each quarter to distribute and collect completed iHRIS forms with data to upload into the iHRIS for HR decision-making. As a result of this effort 4,849 health workers in the six CSH-supported counties have updated hard copy health worker personnel files at the county level, and 3,577 health workers have an updated profile in the iHRIS system. Figure 7 below shows the proportion of health workers (verified in the GOL audit) who have updated profiles in iHRIS as a result of CSH support.

Figure 7: Cumulative proportion of verified health workers who have updated profiles in iHRIS as a result of CSH support



Transition and sustainability

Over the life of the project in collaboration with partners and stakeholders, good progress was made in a number of HRH areas. Embedded mentorship by both HRH advisors and mentors proved to be an effective way to build skills and sustainable systems, both at the central and county levels. Tasks were planned jointly and key tasks were reviewed day to day to build good working relationships and deliver results. Following the end of the mentors' terms, the Unit staff were able to continue using the skills, tools, and processes that had been supported under the advisor/mentor, for example, the uploading and updating of iHRIS files. As a way to continue support for HR efforts, three counties (Nimba, Bong, and Lofa) created an HRH TWG involving stakeholders to support the county HR Unit on technical issues, including recruitments, staffing, deployment orientation, grievances, discipline, etc. However, inadequate financial and human resources at the county level pose challenges in some areas. For example, CHTs have limited resources to conduct iHRIS outreach supportive supervision activities, and they lack funds for daily sustenance allowance, which is often needed to enable staff to travel to the field and cover their cost for overnight stay. Another major constraint may be the lack of Internet access to support data entry into iHRIS.

Some of the activities that were not completed prior to the early close-out of the Program were transitioned to other USAID and MOH partners. USAID and CSH met with Jhpiego to discuss transition of the scholarship program to the organization. The records, tools, and resources related to the remaining 78 students were transferred, and Jhpiego will take over the support of these scholarship students through their graduation in August and December.

Objective 3. Improve supply chain management

Access to essential medicines is critical to good health and quality services. These must be available and affordable, of assured quality and properly used both by providers and patients. In Liberia, lack of access to essential medicines, of assured quality, is still a problem, resulting in wasted limited resources and jeopardized quality of health care. CSH coordination with partners in pharmaceutical management was crucial to maximizing impact, reducing duplicative efforts, and leveraging resources. CSH supported efforts to strengthen and automate supply chain management systems, and build local staff capacity to effectively manage the system at the central and county levels. With CSH support, the MOH has made several critical advancements under this health system building block. High-level achievements include:

- Streamlined Logistics Management Information System (LMIS) forms and staff trained and able to use them. The new forms reduce duplication and unnecessary work. In FY18Q2:
    - 66% of CSH-supported health facilities reported
    - 55% of health facilities reported on time
    - 65% of health facilities provided complete data
- Introduced an electronic LMIS (eLMIS) that was rolled out in June-August 2018.

Electronic System Developed to Improve Reliability of Liberia's Medicine Supply

Frequent stock-outs of medicines due to insufficient or incorrect data for decision-making, and delays in making orders or fulfilling them have plagued Liberia's health system, contributing to poor health outcomes for its people.

In line with the revised Liberian Supply Chain Master Plan, the CSH Program collaborated with the MOH and partners to develop a new electronic eLMIS. The system covers all aspects of the essential package of health services in Liberia, and is not designed solely for a single health program, such as HIV, as in most other countries.

Supply chain management is essential for maintaining a well-functioning health system. Automation of the LMIS will foster better and faster supply chain information processing, increased supply chain data visibility, accessibility, and reduced workload. This supports evidence-based supply chain decision-making for continuous availability of life-saving essential medicines, infection prevention control commodities, laboratory reagents, medical supplies, and other health products.

The eLMIS will enable MOH management to actively track the stock status of essential commodities at the central, county, facility, and community levels across Liberia and to identify potential stock-outs and overstocking so that timely redistribution may be made, as appropriate. Thus, the tool will contribute to the efficient management of pharmaceutical commodities to maximize availability and minimize waste.

Background and context

In the pre-Ebola period, Liberia experienced frequent stock-outs of essential medicines and commodities, uncertain drug quality, lack of consumer and provider confidence, and no consistent method to distribute drugs from the central warehouse to service delivery points. The MOH's Supply Chain Master Plan (2010) delineated roles and responsibilities of the different units involved in supply chain management, and included the development of LMIS tools. Halfway through implementation of the plan, some challenges were identified, and the EVD outbreak highlighted shortcomings of the existing system. In an effort to manage the EVD crisis, commodities were introduced into the supply chain system that were not previously on the essential medicines list and were not part of the standard treatment guidelines. During the outbreak, many fragmented supply chain parallel systems were set up, which contributed to the challenges in managing the supply chain. As a result, ad hoc distribution systems were created and managed independently. There were several new partners working in drug supply and a

number of ad-hoc working groups were established, many not coordinating. At the same time, the system for tracking, forecasting, and managing supplies and medicines was paper-based and cumbersome and the existing LMIS system had bottlenecks in its overall implementation. The LMIS data burden at the facility level; the large number of LMIS tools that needed to be filled in; and lack of capacity due to inadequate training, mentorship, and supportive supervision, coupled with lack of uniformity of the system, led to confusion among health workers implementing the LMIS at the facility level. There were also reported diversions of drugs which affected the availability of medicines at the facility level.

Photo by Cindy Shiner

A child receives an immunization at an outpatient clinic in Phebe Hospital, Bong County. The CSH Program worked with the MOH to reduce frequent stock-outs at the facility level and to minimize opportunities for diversion of medicines and supplies.

Following the end of the EVD outbreak, the MOH Supply Chain Management Unit (SCMU) brought back together the supply chain stakeholders to review and update the Supply Chain Master Plan. During this review, with guidance from USAID, CSH was given responsibility for strengthening the LMIS aspect of the plan.

In 2015, the Program conducted a supply chain landscape analysis to inform the design of the CSH interventions. This analysis identified lack of human resource capacity, data burden, and motivation issues (some staff had been volunteering) as factors affecting the system. The Program's activities were designed to increase the effectiveness of the health system at both the national and county levels, and to improve access to essential medicines and health commodities

at health service delivery points. The goal of CSH efforts in supply chain was to have informed decision-making as well as increased utilization of quality health services. For instance, adequate stock information (consumption data available) helps policymakers make resupply decisions that avoid or reduce stock-outs. For this, the form needs to collect and report the information required and the data needs to be regularly reported and analyzed. To achieve these objectives, efforts focused on several aspects of the supply chain, including working at the central level to improve the LMIS and roll it out to counties, and developing the eLMIS. Mentoring support to counties was also a critical capacity-building effort.

Achievements and Results

i. Support to Central MOH

Based on the 2015 landscape analysis, the CSH Program provided support to the SCMU to begin

Photo by Cindy Shiner

Forms behind the intake desk at Phebe Hospital, Bong County.

improving the system. One focus was to reduce the frequent stock-outs at the facility level and to minimize opportunities for diversion. To address the issues, CSH focused on improving the LMIS system; a good LMIS system provides a documented trail of where the drugs or supplies went.

The existing LMIS had reporting and inventory management tools, but CSH was tasked with reviewing and updating these to reduce the problems encountered with the large number of tools with their resulting data burden, and the difficulty for staff to complete them accurately. CSH worked with the MOH to establish an LMIS sub-working group under the supply chain TWG that could serve as a stakeholder coordinating mechanism to drive the LMIS. Working under the direction of the MOH, the CSH Program proposed revisions to the reporting tools based on broad supply chain stakeholder input. In addition to redesigning the LMIS paper-based tools, the

Program also contributed to the development of related job aids and standard operating procedures (SOPs) to assist with the system's implementation.

In the process, the number of forms required to be completed was reduced as a few were combined. The revised tools consisted of stock status report and requisition forms, a daily dispensing register, an emergency order form, internal requisition and report (from storeroom to the facilities), and BIN cards/stock cards. The new process reduced the required reporting from 12 to 4 times a year, thereby easing the reporting burden on facility and county staff. Beyond reducing the number of forms, the data entry requirements were also adjusted to eliminate unnecessary fields. Once the forms were developed and approved by the MOH, the Global Fund funded the printing.

CSH developed training materials and modules for the revised LMIS and a training of trainers (TOT) took place in 2016. Following the TOT, MOH's supply chain partners were assigned counties in which they would support the roll-out of the tools and the training of county-level staff. CSH was asked to roll it out in five counties, the three base and two of the EEF counties; 502 facility-level staff were trained on the paper-based LMIS in these five counties. Americares was responsible for Grand Bassa, and CSH engaged collaborating partners to support the LMIS roll-out in the rest of the counties nationwide. Those trained at the TOT included county pharmacists and others who then became responsible for training the rest of the facility staff. The nationwide roll-out was completed in 2017.

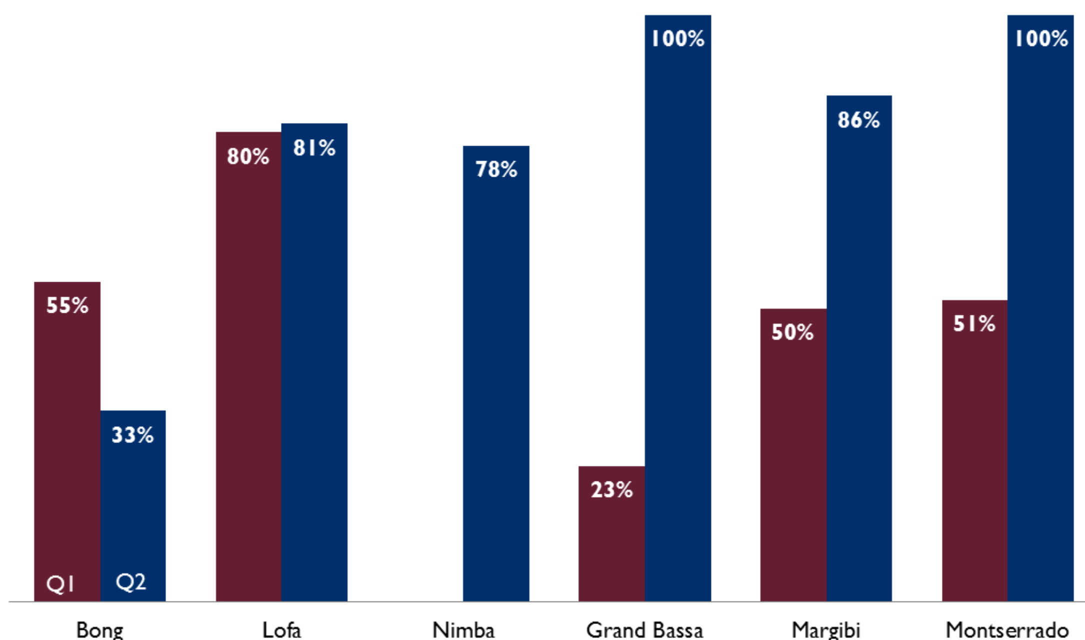
Apart from the forms themselves, the reporting was not happening regularly and consistently to allow proper use of data for forecasting and procurement. No one at the SCMU was even tracking if reports were coming in from the counties or not. The SCMU also lacked the capacity to effectively use the data; often the paper reports went into a file and so problems may not have been rapidly identified or addressed. As part of the plan to address this gap, roles and responsibilities regarding reporting were clarified; M&E and supply chain teams were mandated to work together at the district and county levels to ensure reports were collected and submitted. The M&E team began doing the data entry, and the completed forms were then sent to the supply team to review and publish.

The revised LMIS paper-based forms and systems were institutionalized across the country in FY18Q2, with the following results:

- 66% of CSH-supported health facilities reported
- 55% of health facilities reported on time
- 65% of health facilities provided complete data

Overall, the majority of the health facilities in the six counties supported by CSH have improved in their usage of the revised LMIS tools.

Figure 8: Proportion of facilities submitting on time LMIS reports, by county, FY18 Q2 and Q3



ii. eLMIS development

Some of the problems mentioned earlier (i.e. the limited ability to track reporting status, limited ability to analyze data and use it to resolve problems or make decisions about purchasing), could not readily be resolved with an updated paper-based system, so the MOH looked for other options to improve. With the paper-based tools, data came in bits and pieces with no means of analysis and use for decision-making. In addition, there was a lack of uniformity of the systems and tools, including the types of data being captured, creating confusion for health workers implementing the LMIS at the facility level. After the roll-out of the new LMIS forms, stakeholders were looking for guidance on how to move to an electronic platform in order to make the system more efficient and more usable for decision-making, reporting, etc.

To respond to this request, CSH developed an eLMIS concept note that was shared with all supply chain stakeholders. Elements of the enabling environment, such as technology and infrastructure, were considered to ensure that remote facilities that lacked good infrastructure were not left out. Global experiences and lessons from different countries going through a similar process, such as Swaziland, Namibia, Bangladesh, Mali, Ethiopia, and the West Africa Region, were taken into account. Stakeholders and donors such as UN agencies (WHO, UN Population Fund, and UNICEF); USAID; development partners; CHT members; and health facility staff were involved. While satisfying the supply chain information needs was the immediate goal, the need for widespread data exchange with existing and upcoming HIS and sharing and using data through an interoperable platform was one of the guiding principles used during the revision process. The concept note incorporated stakeholder input and was adapted to move forward within the broader LMIS reforms. Once CSH had stakeholder agreement, the TWG started to make the eLMIS

design Liberia-specific with the aim of revising all of the LMIS components (data, tools, processes, and people).

After the eLMIS was designed, a user acceptance test was done to make sure it was in line with the requirements. After this was done, the final changes on the system were completed and it was officially launched in April 2018. A final eLMIS user manual and technical guide were created. Training materials were developed and a TOT conducted for 45 MOH master trainers, as well as a training for 15 eLMIS system administrators. CSH assisted with rolling out the eLMIS to the six counties (Montserrado, Bong, Lofa, Nimba, Margibi, and Grand Bassa). Three central-level trainers—two from the HMIS, Monitoring and Evaluation, and Research (HMER) Unit and one from the SCMU—facilitated roll-out trainings between May and June 2018 for 138 users. For future trainings, an online training site (http://training.liberiaelmis.org) was developed, allowing the MOH to train new users and provide refresher training to existing users without affecting data in the main site. The master health facilities list (from DHIS2) has been uploaded into eLMIS so that both Liberia's DHIS2 and the eLMIS are drawing from a common registry—the beginning of true interoperability. The commodities coding has been completed and will be uploaded by the end of July 2018. Users are appreciative of the platform as it is innovative and the first of its kind in Liberia.

iii. Capacity-building at county level

CSH also worked closely at the county level on supply chain management, with supply chain mentors posted to each county. These mentors supported the counties in the implementation of the revised LMIS and worked with county pharmacists, supply chain coordinators, dispensers, OICs, storekeepers, and other health workers that manage health commodities to adequately prepare reports and submit them in time for informed decision-making.

CSH finalized storage guidelines and developed distribution plans for health facility commodities re-supplies. The storage guidelines were implemented in Bong, Lofa, Nimba, Margibi, and Grand Bassa county depots. Supply chain mentors provided technical support to the county depot staff through regular mentoring to improve storage and inventory management by ensuring that commodities are stored under the appropriate condition to reduce wastage and that inventory are managed to show accountability of stocks and movement and utilization from the depot. The Program also provided resources to improve record and storage management (e.g. eight air conditioning units procured for three CHT depots). With program support, depot staff conducted monthly physical inventory with technical support from supply chain mentors at five county depots to assess commodity status— reducing wastage and identifying expired commodities—and report to the central level.

In the CSH counties, the Program conducted quarterly supportive supervision to oversee the LMIS implementation. The mentors also helped resolve issues and ensured follow-up on action items. Project supply chain mentors accompanied their counterparts to do supportive supervision at the district or facility level. Sometimes the visits were informed by findings coming from the JISS, but the supply chain mentors and counterparts also conducted supervisory visits on their

own to address issues and check how things were running. Supportive supervision had always been part of the role of the county supply chain team; the MOH has a supportive supervision checklist, but there were often challenges with logistics and transport. The CSH Program was able to provide technical and transportation assistance, which allowed for more intensive support to the facilities and districts. The supply chain mentors worked closely with the county pharmacist and the supply chain team and helped them develop skills for counseling and supportive supervision. The Program did ongoing mentoring and coaching for the county staff on how to mentor and coach, and shared guidelines in the field. As a result of all of this support, capacity has been built in the counties on how to use the forms, and they are in a good position to be able to follow up on their own when they have knowledge gaps. When issues were identified, such as people not filling out or using the forms correctly, the county supply chain team was able to assist with onsite coaching and mentoring.

As a result of the efforts to improve supply chain reporting and management at the county level, there is now uniformity in distribution of drugs and supplies (quarterly), availability of user-friendly tools for workload at the facilities (reduced data burden), and reduced frequency of reporting (from monthly to quarterly). There are opportunities for continued training on the LMIS and mentoring by in-county trainers using standardized training materials across all 15 counties.

Transition and Sustainability

To help continue progress that has been made under CSH, the MOH should look to coordinate with partners, including PACE and AMERICARES, maybe Japan International Cooperation Agency (JICA), or Academic Consortium to Combat Ebola in Liberia (ACCEL)/CDC, which is working on commodities. AMERICARES is supporting health system strengthening with specific emphasis on improved supply chain management in 15 health facilities in Grand Bassa using similar methods and strategy initiated by CSH.

USAID and CSH held meetings with Chemonics and later with the MOH SCMU, HMER Unit, and the CHTs of the three counties to discuss transitioning of LMIS and eLMIS activities. A detailed transition plan was put in place, but TA will still be required to support CHTs, DHTs, and health facilities to compile accurate and complete LMIS data that will feed into the eLMIS system and to link eLMIS data with the drug distribution system at the National Drug Stores. Chemonics will provide limited ongoing technical support for the eLMIS implementation, including TA to the six USAID-supported counties to enter the first LMIS data into the eLMIS, to the MOH to analyze the first set of data in August and share reports with stakeholders, and to the MOH to schedule roll-out of the eLMIS to the remaining nine counties.

Recommendations

Although advances in supply chain management were made at the county level during the Program, more support is needed for CHTs to fully take ownership of activities, such that they see implementation as theirs and not the partners'. Also, staff attrition at the health facility level provides the need for continual, intensive, on-the-job training in an effort to maintain technical

skills/knowledge amongst LMIS tool users. The county pharmacist should be supervising and take a more vigorous approach. Often, because CSH was in the counties, the country teams would rely on the Program for support rather than doing it themselves. Counties must take the lead in supervising and monitoring as well as in ensuring the reporting forms are printed and distributed. County health officers should take pride in showing that every component of the team is working well. If supply chain is lagging, but doing well on HMIS, they should raise concerns. The CHT should be encouraged to look at the health system at the county level in a holistic manner and focus on parts that are not working. They can then identify what the causes are and what is needed to resolve any issues.

In spite of the work done to get systems in place, there are still stock-outs of commodities at both the county and health facility levels. With the redesign of the tools, there is still a need for data quality reviews to ensure accurate data is being reported; if the data is not correct, incorrect decisions will be made. In order for the national level to be able to procure the right amounts to have them available in the stores, accurate consumption data is needed. Continued roll-out of the eLMIS can support this effort.

Stronger and sustained coordination will be required between the HMER and SCMU Units at the MOH to ensure effective implementation of the eLMIS.

Objective 4. Strengthen the health management information system

Health information systems are key to good planning and decision-making for health programing. As one of the underpinning health building blocks, good quality data must be collected, analyzed and used to make decisions on how to allocate limited resources. With the support of the CSH Program, the MOH has worked to improve the M&E system and promote data quality. Good health statistics are a critical resource for M&E of the MOH's Investment Plan for Building a Resilient Health System. Therefore, increased and regular investment in a quality HIS is a critical need. By working closely with the MOH, CSH was jointly able to achieve the following high-level outcomes:

> Interoperability is defined as the ability of a system or product to work with other system/s or product/s with minimum special efforts on the part of user or customer.

- A five-year Liberia Standards-based Health Information Exchange Roadmap (2016-2021) which defines and establishes a clear and defined workplan to achieve HIS interoperability, including development and adoption of standards; development, design, and implementation of registries, terminology, governance, and policies; and standard operating procedures, interoperability frameworks, and architecture.

- By June 2018, 94% of districts (33 of 35) in the six CSH-supported counties were entering their own health facility data into DHIS2 instead of county-level staff struggling to obtain and enter the relevant data each month.

CSH Builds Capacity of County Health Teams to Collect and Manage Data

The data clerk from the Gbehlay Geh district, Goffa Barwon, sat on a bench in the immunization room at the YMCA clinic in Yekepa in Nimba County, reviewing the number of IPV-1 vaccinations given in the past three months. With him was the nurse aide responsible for providing immunizations and reporting the data on the monthly HMIS forms. Together, they scanned the register and counted each child that had received the IPV-1 vaccination in the quarter under review. They scanned each row with the tip of their pens and jointly counted aloud – a process that takes hours to complete, as they have to manually count 13 different immunizations. This means that data clerks and nurses must examine the register for 39 times giving their full attention to complete a quarter and assure data quality. , giving their full attention.

After completing the IPV1 vaccinations, Goffa noted to the nurse aide/vaccinator that one register had only one IPV column, but the IPV vaccination schedule requires that two shots be administered to infants under a year old, at two and four months, or four weeks apart for those older children catching up on their vaccinations. The nurse aide mentioned that she only recorded the IPV1 vaccinations because there wasn't a space in the register for IPV2 documentation. Goffa counseled her to divide the wide column of the register in half, making space for a check mark for the IPV2 vaccination. As a result of this recommendation, the immunization unit will now be able document both IPV1 and IPV2 moving forward.

In order to make informed health decisions, providers need data that is easily accessible and reliable. In an effort to support data quality improvements at all levels of the health system, MOH has instituted a multitiered system of data validation; Goffa's visit to the clinic was just one piece of this system.

The CSH Program worked with the MOH to improve data quality in multiple ways, including via support from M&E mentors embedded at the county level. The M&E mentors worked with the CHTs to ensure data validation is conducted for key PBF indicators, such as review of immunizations. In Nimba, the CSH Program's M&E mentor, John Nenwah, worked to instill practices like mentorship and problem-solving during data validation visits. He ensured the data clerks all received formal training from the MOH, supported by CSH, in how to use the data validation visit tool.

Nenwah then worked individually with each of the clerks to ensure they could identify data discrepancies using the tool and provide constructive feedback to the health facility staff to help solve problems and decrease the likelihood of data errors in the future. In addition, Nenwah and the CHT collaborated to put in place a series of best practice data quality checks to ensure data quality was in line with the MOH policy.

Background and context

The Ebola epidemic exposed the extent of the fragmentation of health information collected from different sources for different purposes. The post-Ebola phase required a re-focusing from emergency disease surveillance to sustainable disease surveillance and routine public health management. There are many different data systems within the MOH that needed to be harmonized, and capacity for data collection and use was weak. For example, there were several separate health information systems including iHRIS and LMIS—that needed to be improved and ultimately made interoperable with the HMIS. Many different partners were working in the HIS area, generating the need for the MOH to put in place standards for HIS and interoperability that all partners in country would need to comply with. Strengthening interoperability to improve use of data for decision-making aligns with the priorities stated in the MOH Investment Plan for a Resilient Health System, which guided the CSH Program.

> CSH has also supported the implementation of Liberia's HIS Strategy (2016-2021) Objective 13 to achieving HIS subsystem interoperability at the central level.

Central-level guiding systems are critical to a functional nationwide HIS system, but data from the national HMIS is only effective and operational if the data management system at the county, district, and health facility levels is accurate, reliable, complete, and timely. At the county level, prior to the CSH Program, challenges faced included shortages of reporting forms, low prioritization of timely reporting from the counties into the national instance, lack of resources to conduct data validation, lack of Internet connectivity, and low data quality assurance skill levels of staff. This situation often meant that data were not being reported accurately, hindering the use of data for decision-making at various levels of the health system. There was also little focus on data quality and ensuring accuracy, or on using data for decision-making. In some counties, many partners working in the area of M&E had confused and fragmented data and data quality processes.

The focus of the CSH Program at the central level was primarily on the use of data for decision-making, interoperability, and streamlining of HIS systems. At the county level, CSH focused on data quality assurance and capacity-building. The Program was able to achieve the following high-level health system outcomes:

Achievements and Results

i. Central-level HIS strengthening

The CSH Program supported the MOH's plan to improve data quality and use. The CSH Program coordinated with the MOH and partners to finalize and validate the Liberian Health Information System Strategic Plan (2016-2021) and the two-year HIS Operational Plan, both drafted under the USAID MEASURE project. The Program also provided technical support to the HMIS Unit for the costing of the operational plan. CSH facilitated the mapping of partners involved in the HMIS strengthening process and conducted a validation workshop with all stakeholders to review HIS Strategic and Operational Plans, in collaboration with the MOH HMER Unit and other HIS donors

and partners, including MEASURE and Johns Hopkins University. CSH and HIS partners, including USAID, reviewed the final draft to submit to the MOH technical body for approval.

CSH assisted with the HMIS ledger revision—an important tool for data collection—and supported the national roll-out. CSH trained data clerks and supervisors on the revisions, and facilitated regular reviews and validations of health data.

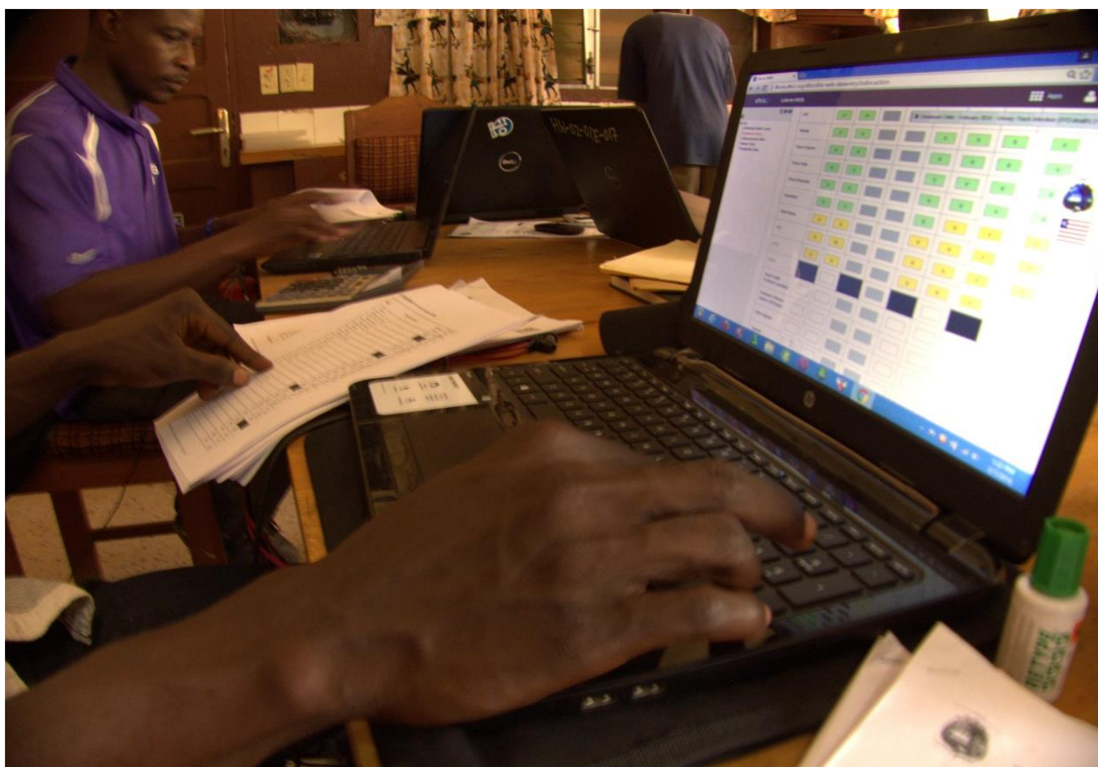


Photo by Cindy Shiner

Data clerks working in Bong County. CSH trained 35 data clerks in six counties to improve reporting accuracy and efficiency.

As part of the Liberia HIS (2016-2021) strategy implementation, CSH, together with the MOH, supported the development of the five-year Liberia Standards-based Health Information Exchange Roadmap (2016-2021). The components of the roadmap create the foundation for an effective interoperability ecosystem. It also includes implementation plans and milestone to track progress over time. The roadmap was shared with the MOH for review, validation, and adoption. CSH focused on guiding many of the key governance and data standard policies and guidelines. Examples of key foundational standards and systems led by CSH to implement the roadmap are detailed below.

One of the first steps in implementing the roadmap's strategy was the development of the Master Health Facility List (MFL). This list is a complete, authoritative listing of the health facilities in a Liberia country and serves as the "single source of truth" for uniquely identified information about the country's health facilities and serves as the primary source from which other facility lists in the country are drawn from. In an effort to develop necessary registries to achieve HIS

interoperability, the CSH Program, together with MOH and other key partners, developed a common MFL to be shared across all health information subsystems. The web-based Health Facility Register platform has been developed with the ultimate goal of uploading the MFL for ease of use, access, sharing, management, and governance.

Metadata registry means data standards for better statistics, data sharing and reusability, integration and interoperability resulting in better data for policy and planning.

A second step undertaken by CSH to implement the roadmap's strategy was a review to inform the development of data dictionaries to create a standardized approach for data management. CSH together with the MOH reviewed the current Indicator Register which highlighted substantial gaps, including a lack of

- One common, centrally managed and updated Health Indicator Metadata Registry and Data Dictionary for comprehensive definitions about data
- A written set of governance policies for the Health Indicator Metadata Registry and Data Dictionary
- Procedures for data management, including presentation, visualization, and dissemination for target audiences

A notable component of HIS interoperability was the development of policies and SOPs to govern the HIS interoperability ecosystem. CSH has worked with the MOH and partners to develop policies and SOPs to support HIS Interoperability work. The Program supported the development of two key governance policies within HIS interoperability technical support to MO: 1) MFL governance policy documents which clearly outline roles and responsibilities for managing the MFL and; 2) SOP on HIS interoperability. At the time of writing, the MOH is still reviewing these documents as part of validation and adoption.

CSH, together with MOH, developed a concept note that provided guidance on the development and use of a consistent set of data elements and indicator formats for documenting content and structure that would improve accessibility, use, and data sharing. The purpose was to have a robust metadata registry and data dictionary repository that will serve as a governance mechanism for the HIS system. At the time of writing, the concept note is pending review at MOH.

In collaboration with the MOH and key partners, CSH led the process to validate and adopt the Anatomical Therapeutic Chemical (ATC) Classification System, which is an international standard coding system for medicines.[2] The ATC classification standard is being incorporated into the eLMIS and other HIS dealing with medicines. The adoption and deployment of the ATC classification system standard into the eLMIS serves as a critical activity for interoperability between the national eLMIS and HIS systems. This allows the systems to exchange and share data across platforms and, more specifically, with the upcoming warehouse management system to exchange stock information in order to improve data quality and reduce the data reporting burden.

[2] https://www.whocc.no/atc_ddd_index/

CSH, the MOH, and partners adopted the WHO health worker classification into iHRIS. This work is part of the standards adoption efforts to realizing HIS interoperability. This also helped in the standardization of health work cadres which is key for planning and decision-making.

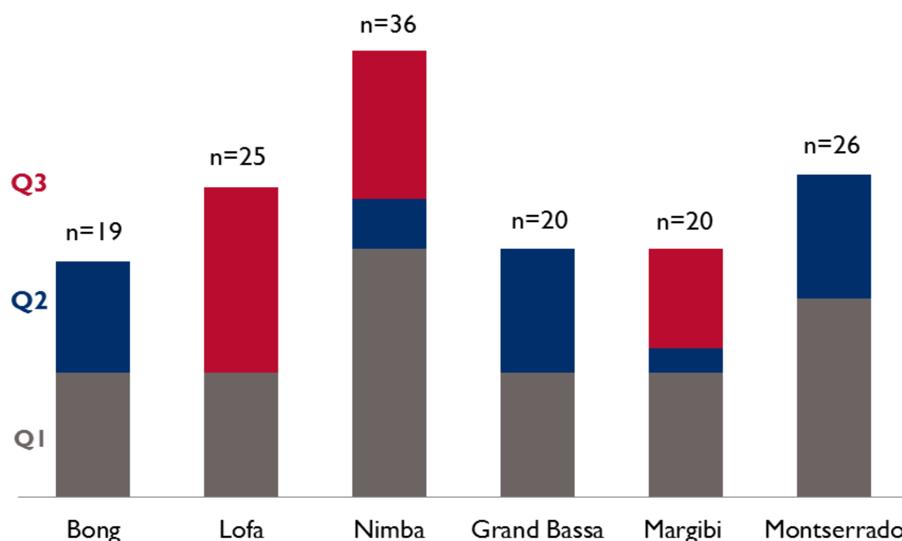
ii. County-level capacity-building

CSH addressed a bottleneck in the data reporting process: health facilities fill out the HMIS ledger form but often do not submit it with complete data or on time, therefore when it was submitted to the CHT, it was often late for entry into the national HMIS system. To address this, CSH embedded a data clerk (trained by the CSH M&E mentor) in every district whose primary responsibility was to liaise with health facilities to ensure completeness and accuracy of the HMIS ledger forms, then collect and then deliver the forms to the county M&E officer. The M&E officer would then do a secondary check of the form and enter the information into the DHIS2. The district data clerks were so helpful in this process that it was ultimately decided that they should do the data entry into DHIS2 each month and the M&E officer at the county level would check their work to ensure accuracy. From the first to the final quarter of the CSH project, there was an average of a 18 percentage point increase in complete and timely DHIS2 reports in Bong, Lofa, and Nimba. There was not an increase in complete and timely reporting in Montserrado, Margibi, and Grand Bassa, however the data validation and district data clerks were introduced much more recently and likely required more time in order to see any outcome-level improvements.

CSH M&E mentors worked with the CHTs to better clarify the roles and responsibilities of the M&E team and help prioritize data reporting and QA-related activities. CSH mentors provided onsite training and coaching, and assisted county staff to use the ledger and reporting forms.

CSH M&E mentors helped implement the SOPs for data validation. At the start of the CSH Program, data validation was being conducted, but it was not done consistently and the efforts were not centrally managed. For example, in Bong, Lofa, and Nimba, FARA was doing data validation but only in FARA-supported facilities. CSH helped to coordinate the schedules of all the implementing partners in these counties. The Program created guidance documents for the data validation visits which also included a role for the district data clerks to assure learning in their role. This was particularly important in the three base counties since the CSH Program was one of many partners supporting PBF data validation visits, but in the EEF counties, CSH was the only partner working to support the process. The figure below shows the number of data validation visit supported by the CSH Program in the final project year:

Figure 9: Total number of CSH-supported data validation visits (October 2017-April 2018), by county



CSH also had the mandate of working with the county teams to improve data use for decision-making. CSH updated a format for county performance review meetings to enhance use of data for decision-making. CSH M&E mentors assisted in preparation and facilitation of quarterly performance review meetings. The CSH Program continuously supported CHTs to conduct quality review meetings, provided technical assistance on utilization of quality data during those meetings to inform planning and decision-making, printed and distributed monthly HMIS reporting forms and HMIS ledgers and assisted in the update of operational and quarterly plans.

Transition and sustainability

Sustaining some of the systems and processes that the CSH Program put in place will be a challenge with the accelerated close out. There was not time to put a plan in place to transition data clerks to CHT budgets, which may make it difficult for this role to be continued, at least on the short term.

Much of the work in M&E strengthening and support took place at the county level, and some counties had good innovations and processes and systems put into place. Developing a process for these improvements and innovations to be shared among counties or funneled back up to the central level would be useful in further strengthening the HIS.

The main challenge in HIS was the uncoordinated efforts from many partners at MOH working on HIS and HIS interoperability components. CSH supported the MOH in ensuring that efforts were coordinated through the harmonization of all work plans from key partners with the MOH workplan and aligning all activities with the HIS interoperability roadmap and implementation plan. The draft HIS interoperability governance policy should also support the harmonization effort within HMER and key partners engagement. A lot of support is required to achieve HIS Interoperability. Most

partners working on HIS were in the process of leaving Liberia around the same time as CSH was transitioning out, making it difficult to support ongoing and pending activities.

Recommendations

The central HMIS system requires strong reporting from the health facility, district, and county levels, but adequate mechanisms are lacking to ensure data is collected and reported, posing challenges to data QA. In Liberia, the central MOH should begin regularly reviewing facility-level information for trends on whether specific facilities or counties are chronically failing to report key indicators. This would be a mechanism to enforce data entry.

The MOH should continue to invest long term in improving data quality via a two-pronged approach: routine data validation visits and training district data clerks to support this process. The MOH, CSH, and other implementing partners contributed to positive changes in data quality in Bong, Lofa, and Nimba over the life of the CSH project using this strategy. The placement of district data clerks to be the "front line" of data quality efforts coupled with the team-based approach to data review during data validation visits proved effective. The differences seen in data completeness and timeliness between base and EEF counties indicates this is a long-term change process, requiring additional investment in Margibi, Montserrado, and Grand Bassa to see similar data quality improvements.

MOH and partners should look for ways to shorten the data validation process to minimize the time required from clinic staff and reduce costs. This could be by randomly selecting fewer indicators making the process easier and less cumbersome.

Improving data reporting requires additional human resources. Currently, there are multiple registers and processes of recording data. Automating reporting at the initial visit, perhaps with a tablet, may eliminate the need for multiple entries of data into different records and forms. This could be entered from the beginning into DHSI2. Liberia should look at similar examples from other countries.

Objective 5. Increase the financial sustainability of services

CSH partnered with the MOH Health Financing Unit (HFU) through providing TA to strengthen its health financing policies and systems, build capacities among national- and sub-national-level stakeholders, and strengthen the evidence base to inform the country's path toward Universal Health Care (UHC). The Program's health care financing support was carried out through embedding a CSH Public Financial Management (PFM) Advisor with the MOH HFU, and R4D serving as a strategic advisor and analytical partner developing short-, medium-, and long-term interventions. The Program was able to achieve the following high-level health system outcomes:

- CSH-supported National Health Financing Conference enabled the MOH to gather a multi-stakeholder consensus around the Liberian Health Equity Fund (LHEF) concept and the roadmap toward the initiative.

- Finalization of the MOH Financial Management Policies and Procedures manual enabled the MOH and counties to review and install appropriate accounting, procurement, audit, asset, and risk-management procedures.

Background and context

With momentum from the 2017 National Health Financing Conference and a new administration in place, Liberia is well-positioned to strategize on how to target limited resources to improve the health status of its citizens through efficient, effective, and equitable health spending. CSH supported Liberia's "stepping stones" toward UHC, laying the foundation for reform. These "stepping stones" were designed to build evidence and increase capacity in preparation for the broader reform and vision: the Liberian Health Equity Fund (LHEF), a contributory scheme to provide health coverage to the population, as the end goal. CSH provided substantial technical inputs into the policy note defining the LHEF, and has supported health financing reform through this stepping stones approach.

Photo by MSH

CSH facilitated the planning and convening of National Health Financing Conference in 2017

USAID's Public Financial Management Risk Assessment Framework (PFMRAF) conducted in 2012 identified a number of challenges in the MOH's financial management system. The report highlighted challenges in six PFM areas: environmental control, budget preparation, budget execution, audit recommendations, procurement processes, and fixed asset and warehouse management. At the county level, good internal financial controls with separation of duties were lacking, and planning of budgets and expenditures was not transparent. All the financial functions were concentrated in individuals, without inclusion of representatives from different technical areas in planning and managing financial processes. The CSH interventions planned with the central MOH were designed to enhance the MOH's oversight, management, and planning in PFM. CSH assistance included the development or revision of tools and resources to help strengthen the financial management systems and reporting.

Achievements and Results

i. Health Reform.

CSH supported the MOH in achieving numerous milestones toward LHEF. Among other things, CSH helped build the evidence base for health finance reform, build capacity of the MOH HFU, and support a dialogue about policy reform among key stakeholders. Specifically, CSH achieved the following:

Supported the stepping stones approach to health financing reform—With renewed momentum after the Ebola outbreak, a new vision, concept, and policy framework for the LHEF was necessary. CSH partnered with the World Bank to develop an LHEF policy note which, as of June 2018, is being reviewed by the new MOH administration for approval. The document outlines challenges and opportunities currently facing Liberia's health financing systems. It also provides a plan for implementing stepping stone initiatives and a roadmap for scaling them up for LHEF.

Facilitated the planning and convening of a National Health Financing Conference in Monrovia, Liberia, in August 2017. At this forum, CSH and partners presented key highlights of the evidence base created (such as the consumer preference market research, listed below) and facilitated discussions around how those results could be used to inform health finance reform and the country's next steps toward the LHEF. The conference enabled the MOH to gather a multi-stakeholder consensus around the LHEF concept and the roadmap toward the initiative.

Facilitated membership of the Joint Learning Network for UHC—CSH facilitated the entry of Liberia as a core member of the Joint Learning Network, which gives the MOH access to a cross-country platform through which it can share the knowledge and experience of other countries working to achieve UHC.

Supported design of Revolving Drug Fund (RDF) pilots and developed an RDF financial model—RDF has been viewed as one of the key stepping stones toward the LHEF, as a short-term response to frequent stock-outs of essential medicines at the community level. CSH supported the MOH in conceptualizing the RDF model in a financially sustainable way, including concept development, support to the RDF Operations Manual and its financial model—an interactive tool to determine the financial requirements to launch and sustain RDFs. The HFU has since submitted official requests for funds to capitalize RDF pilots in select districts of Liberia.

Conducted stakeholder analysis training—CSH facilitated training of MOH staff to enhance policy development and dialogue. MOH staff have successfully applied these skills in conducting RDF stakeholder consultations and convening the National Health Financing Conference in 2017.

Updated a model to cost the EPHS for primary health care—CSH supported the update of costing estimates of delivering the EPHS at levels I and II of primary care clinics in 2016.[3] The results have informed the costs of RDF pilots. In 2018, CSH conducted another rapid update of

[3] This built on previous costing work done by USAID's Rebuilding Basic Health Services (RBHS), Health Systems 20/20 (HS2020).

these costing estimates based on actual utilization data and updated input costs. The results provide valuable information to inform broader health financing reform, resource implications for LHEF design, and potential resource gaps to be anticipated at the primary health care level. Furthermore, this evidence can guide dialogue with policymakers and government ministries when negotiating resource envelopes for financing primary health care services.

During this exercise, CSH coupled the service costing data with analysis of costs to manage USAID/Liberia's FARA to the Government of Liberia—a partnership that provides funding to select counties to deliver EPHS services. The analysis informed the development of unit reimbursement amounts for the deliverables in updated FARA-2 contracts.

Supported MOH in conducting the consumer preference market research—CSH researched Liberians' out-of-pocket spending patterns and willingness to contribute into a pre-paid system in five counties through a competitive sub-contract to The Khana Group. The research found that respondents are willing to pre-pay for health care services—if the services are available, of reliable quality, and the finances are managed appropriately. While expressed willingness to pay may differ from actual behavior, the results do suggest that a contributory health scheme may be successful, pending available and quality services, and proper governance.

The results of this analysis were presented at Liberia's Health Financing Conference in 2017. This served as the basis for policy discussions on the free health care policy and the feasibility of introducing a cost-sharing arrangement with health service users in the country.

ii. Public Financial Management

CSH collaborated closely with the central MOH to support the development of several national systems and tools to standardize how the MOH was collecting, reporting, and managing health information. The support focused on the central level to get key resources (Public Financial Management Policies and Procedures Manual, Procurement SOPs) and guiding documents and policies revised and approved.

CSH helped develop a county PFM assessment tool to review performance. Through a collaborative approach, CSH developed the tool and provided PFM training for all 15 counties. CSH also conducted PFM capacity-building assessments in Bong, Lofa, and Nimba counties and used the findings to design tailored PFM capacity-building interventions and workplan in each county. The CSH Program met with county administrators to develop workplans for improving their capabilities in the governance of the local health system.

In addition to tailored workplans, once the financial management resources were revised and approved at the central level, the CSH Program helped to disseminate and develop capacity at the county level, working closely with the CHTs to reinforce and revise systems and processes for financial management. The Program helped establish the relevant committees (i.e. budget, procurement, liquidation) and get the required staff in place to begin implementation. To ensure appropriate division of tasks in the county systems, CSH collaborated with CHTs (Bong, Nimba, and Lofa) to establish and make functional county budget committees and county procurement

committees, and ensured there were county procurement officers hired and working in all three counties along with logistics officers. These actions were required in the revised financial management manual and were among the financial risks identified for mitigation.

At the county level, one person centrally managed most of the financial management, procurement, warehousing, and logistics with the same person responsible for purchasing, storing, and distributing. CSH worked on a plan to divide these responsibilities, making one person responsible for each function. To allocate funding for these positions, the budget committees took on the task of reviewing and revising the budget to cut in some areas and identify enough funds to bring on a procurement officer, warehouse officer, and logistics manager. These positions were put in place in the three base counties funded through the county budgets. Eventually, these are expected to become permanent positions at the MOH.

CSH helped to ensure the teams had the tools and resources they needed to provide oversight of the financial system at the county level. To help the counties establish internal systems so that they would be able to track, monitor, and report on their expenditures, CSH worked with financial staff at the CHT to organize the existing files and put them in a new filing system that made it easier to locate financial documents. This helped facilitate regular reporting and has reduced delays in reporting. Furthermore, CSH assisted the counties to automate their financial systems through procuring and training county staff on Quickbooks software. Financial accounting had previously been done manually and submitted in hard copy to the central MOH, resulting in additional reporting delays.

To promote collaborative problem-solving at the program level, CSH sponsored two PFM peer review learning sessions (PRLSs). PRLS covered selected PFM topics, including budget execution, reports and liquidations, warehouse management, organizing and managing financial records, and risk-management practices. One was held with teams from Bong, Nimba, and Lofa. At one of the PRLS sittings, Bong County presented its detailed budget planning model. It was the first county to do this, and it indicated how the county identified the funds to bring on the additional staff so staff from the other two counties could learn and use or adapt what Bong had done.

Finally, CSH worked with the MOH's senior compliance manager to implement the risk-mitigation plans (RMPs) that had been pending for several years. The Program provided TA to the central-level Office of Financial Management (OFM) to work on RMP implementation identified during the PFM Risk Assessment for the FARA. With CSH technical and logistical support, the MOH Procurement Unit was able to completely address all the risk items under its control. CSH also supported FARA and the MOH OFM in the review and mitigation of the identified risks. Overall, the number of outstanding audit findings was reduced (risks mitigated) by 73%.

Transition and sustainability

Health reform: MOH considers health finance reform a priority and has an interest in developing the evidence base to inform policy decisions, but many units in the MOH are overextended (notably HFU), so the process is slow.

PFM: With only one PFM mentor, based in Bong County, for all counties, the mentor needed to visit counties regularly but this could only take place once a quarter per county. Due to accelerated Program closure, systems and processes were just starting to be implemented, not long enough to ensure institutionalization. The next investment was on work practices, as there are not supervisors to regularly check in on financial staff to be sure they are at work, submitting reports, etc. Currently, if a report is not in, no one asks for it except for donors.

Recommendations

Despite challenges noted above, Liberia has managed to achieve notable progress toward UHC. There is a continued momentum for health financing reform and recognition of the need for further developing the evidence base to inform policy decisions around such a reform. The change of administration in late 2017 slightly delayed activity implementation at the MOH but did not significantly affect its health systems and financing trajectory. There is good potential to leverage the "pro-poor agenda for prosperity and development" of the new GOL and accelerate progress toward UHC.

Strategic and advisory support for the new administration and health stakeholders is necessary to keep up the momentum toward the LHEF and further technical assistance required to expand the evidence base. Furthermore, select targeted interventions listed below can help create the enabling environment for the LHEF to succeed.

Liberia needs to carefully consider domestic resource-mobilization opportunities for the health sector. Introduction of a prepaid and pooled financing mechanism, like LHEF, may help advance several of Liberia's health systems goals, but the success of any coverage scheme will depend on the availability of public funds to subsidize care for those not able to afford contributions, who may require services the most.

Limited resources need to be spent efficiently and effectively. The costing analysis noted above demonstrated that delivering the full scope of EPHS at the primary level may not be affordable. Furthermore, high out-of-pocket expenditure suggest that Liberia's free health care policy is currently unable to afford EPHS in its current form. The MOH may need to select priority, high-impact interventions within the EPHS to ensure that the limited resources are spent in the most efficient manner and yield good value for money.

Additional monetary gains can be achieved by introducing efficiencies within the system. As the draft LHEF policy note suggests, health care financing patterns need to introduce provider payment methods that are strategic and focused on incentivizing improved quality of care. The policy note also suggests implementing a revised resource allocation formula that would enable more informed and equitable distribution of resources across counties.

Service delivery systems and quality should be improved if Liberians are expected to pay for health services or contribute to pooling mechanisms. The consumer preference study highlighted that citizens *are* willing to pay for health services, but this willingness was contingent

on the ability to access these services and improved quality of care. Hence, service delivery and supply chain systems need to be strengthened prior to revoking the free health care policy and legalizing contributory initiatives, including the RDF.

MOH and CHT capacities should be maintained and further enhanced. The most notable successes of the CSH Program were achieved through MOH HFU leadership and its ability to utilize the tools developed and use the evidence generated for the design or the advocacy for UHC reforms. Continued investments in MOH leadership, governance, and transition of capacities to the Unit will build a strong foundation for sustainable project investments in the future.

Objective 6. (Formerly Objective 1) Develop leadership, management, and governance capacity of the MOH

Strong L+M+G are central to a resilient health system. CSH supported this objective in the first two years of the Program by building capacity in management and leadership of health authorities at the national and county levels, supporting better planning and effective policy dialogue, and supporting the development of effective regulation and mechanisms for accountability. While the Program's support in this area was shortened, the investment in developing capacity has been picked up and carried forward by other donors (i.e. GIZ) and institutions trained (the Development Education Network of Liberia [DEN-L]), thus demonstrating the strong interest in this area of work and sustainability of the interventions.

The Program was able to achieve the following high-level health system outcomes:

- Creation of an institutional "home" for L+M+G within the MOH Governance and Decentralization Unit (GDU), which is guided by a comprehensive leadership and management capacity-development plan aligned with the MOH priority needs.
- Strengthened governance of county health boards (CHBs). The CHB operational manual has been used in eight additional counties since the orientation of Bong, Lofa, and Nimba in 2016. The Global Fund supported the MOH GDU to conduct the additional orientations.
- Capacity was developed in the Leadership Development Program Plus (LDP+), and use of the intervention continued beyond the end of Program support. The LDP+ has been taken up by GIZ with a focus on improving leadership and management capacity in five counties in southeast Liberia. DEN-L (one of two training institutions trained on the LDP+ by CSH) was contracted by GIZ to deliver the LDP+ in these counties.

Improving Accountability in Health Care Service Delivery through County Health Boards

As part of Liberia's post-Ebola recovery, the MOH in 2015 identified six priority investment areas to improve health service delivery and build a resilient health system, including leadership, management, and governance (L+M+G). L+M+G is identified in the MOH National Investment Plan 2015–2021 as critical to improving service delivery at all levels of the health system, thus enhancing decentralization efforts. One key activity under the L+M+G pillar is strengthening CHBs nationally to improve sector-wide coordination, civil society participation, and local ownership in the management and implementation of health care service delivery. CSH, in collaboration with the MOH and other partners, supported the development of CHBs to improve accountability and participation of key actors as part of a multi-sectoral approach.

CSH Program and the MOH in October 2015 conducted a functional capacity assessment of CHTs and CHBs in Bong, Lofa, and Nimba counties to understand their operations in the context of MOH policies and plans. The assessment revealed that although the MOH had prioritized the CHBs they were not functioning efficiently. CHBs provide oversight of CHTs and include members from ministries of local government, education, agriculture, gender, children and social protection, and others, as well as representatives from civil society, private nonprofit organizations, media, and youth and women's groups. CHTs are made up of a senior management team with oversight of districts and communities in the health system.

C. Paul Nyanzee was frustrated As the Nimba County Community Health Department Director (CHDD) he helped conduct Nimba's CHB meetings. After the Ebola crisis, Nyanzee and other county health officers, who manages CHTs activities, had been required to restructure the boards and appoint members, but clear guidance on their functions was unavailable. Two versions of terms of reference were circulating, and officials held the board meetings largely only for information sharing.

"We were told to conduct board meetings and have been doing it for years but without any direction," Nyanzee said.

After the assessment, CSH collaborated with the MOH to develop a comprehensive Leadership, Management, and Governance capacity development plan which incorporated several interventions to improve LMG practices at the MOH central and county-level based on the findings from the assessment. As part of the implementation of the plan, CSH provided technical assistance to the MOH central in developing a standardized County Health Board Operational Manual, and conducted board orientations in Bong, Lofa, and Nimba in February 2017 using the manual. Thirty-one board members received training on four board governing principles: cultivating accountability, engaging with stakeholders, setting shared direction, and overseeing resources and the roles and responsibilities of members as stipulated in the operational manual. As part of the learning process, board members conducted role play of CHB meetings. These orientations also provided the opportunity for three staff at the central MOH (GDU) to be mentored as facilitators to roll out CHB orientation to other counties. Following the orientation of those three counties, CSH provided TA to the MOH to compile a board orientation facilitation guide, which was used in addition to the operational manual to orient CHBs in additional six counties (Grand Gedeh, River Gee, Sinoe, Maryland, Bomi, Gbarpolu).

The CHB operational manual provides clear guidance on the operation of CHBs. In addition, CHB orientations build momentum for oversight of CHTs, set strategic direction on priorities, and improve mutual accountability among stakeholders and key actors as well as help improve stewardship of resources with civil society input. Proper functioning of CHBs will improve the performance of CHTs and decision-making processes.

"This orientation and operational manual have provided us the direction and guidance to do [conduct board meetings] right and hold each member accountable," Nyanzee said. "We now have a document that will remind us of what we should be doing and who should participate."

Photo by MSH

A county health board at work

<u>Background and context</u>

During the inception of the USAID CSH Program in 2015, the Program's technical team conducted numerous consultations and discussions with MOH senior management, various units within the MOH, the superintendents' offices, and CHTs in Lofa, Nimba, and Bong, and key partners and donors supporting the MOH in similar technical areas. The aim was to focus and align all targeted leadership and management initiatives with the MOH priorities as outlined in the MOH Investment Plan for Building a Resilient Health Plan of 2015-2021.

From initial consultations with MOH counterparts (Deputy Minister of Planning, FARA Manager, Director of Decentralization, Director of County Health Services, Project Director – European Union TA/ EPOS) CSH highlighted that L+M+G did not have a "home" in the MOH (designated unit or counterpart) with the responsibility of coordinating the implementation of L+M+G priority interventions. As such, the MOH Deputy Minister for Planning appointed the GDU with the mandate to lead the implementation of all leadership and management priorities.

L+M+G interventions changed over the life of the Program. CSH had a mandate to develop leadership and governance at the national level and to support decentralization at the county level. The scope also included strengthening the professional associations' abilities to regulate. After the Program's mid-term evaluation, work under this objective was reassessed in June 2017 and a decision made to end these activities at the end of PY3 (September 2017).

Achievements and Results

The Program was tasked to work with the MOH GDU to improve leadership and governance at the central and county levels. CSH collaborated with the MOH GDU to conduct L+M+G assessments at the central and county levels, and then worked closely with the MOH (central and county) to develop a comprehensive Leadership and Management Capacity Development Plan aligned with the MOH priority needs. This plan focused on the MOH's unit/departmental level rather than the central MOH and county level. CSH coordinated quarterly meetings to review MOH progress on investment priorities as it coordinated support among partners. The following achievements were priorities in the plan:

- CSH helped establish a TWG to provide guidance to the Unit and ensure that the L+M+G aspects of the Investment Plan were implemented according to its priorities. CSH worked with the MOH to develop the TOR for the TWG and conduct an in-house validation workshop to start up the TWG with an approved TOR. Chaired by the Assistant Minister of Planning the MOH, CSH participated on the secretariat and supported coordinating regular meetings.

- CSH worked with GDU to develop TOR for the CHBs, an operational manual for the boards, and a facilitator guide on how to use the manual. The manual was developed in consultation with Bong, Lofa, and Nimba counties, with the Liberia Governance Commission, the Ministry of Internal Affairs (MIA), and the chairs of county boards responsible to the MIA. CSH developed the GDU's facilitation skills in order to orient the boards to the operational manual and oversee the functioning of the CHBs.

> The LDP+ is a QI intervention. It is the enhanced version of the LDP first delivered by MSH in 2002. The LDP+ builds on the unique features of the LDP: an experiential learning and performance improvement process that empowers people at all levels of an organization to learn leadership, management, and governing practices; face challenges; and achieve measurable results.

- CSH developed capacity of MSH's legacy program—LDP+. The CSH Program trained 67 local facilitators from across the health sector to deliver MSH's LDP+ to enhance the capacities of health leaders and managers, and to institutionalize the LDP+ methodology and practice. Local facilitators included assistant ministers and technical directors from the central MOH, county health officers, community health department directors from Bong, Lofa, and Nimba CHTs, senior facilitators from the LIPA, facilitators from DEN-L, and participants from three health regulatory authorities (Liberia Medical and Dental Council [LMDC], Liberian Board of Nursing and Midwifery [LBNM], Liberia Pharmacy Board [LPB]). The LDP+ was to be rolled out to the three base counties to improve performance through a critical mass of local facilitators to guide the implementation of the LDP+ at the county level; however, CSH support for this activity ended with the refocusing of program objectives.

- CSH provided technical assistance to improve health regulatory boards' ability to provide oversight and licensing of their respective professional areas. The Program worked with the LMDC, LBNM, and LPB. CSH supported boards to achieve the following:
    - **Adoption of the National Pre-service Standards for Nursing and Midwifery Education:** CSH supported the LBNM to conduct a three-day workshop with 31 participants from the MOH and all nursing and midwifery schools in order to review, finalize, and endorse the standards to assess schools for accreditation. Following this workshop, CSH provided technical assistance to LBNM to conduct accreditation exercises at 18 public and private training institutions along with their clinical sites.
    - **Adaptation of global performance standards for pre-service education:** CSH introduced standards for pre-service education (i.e. school infrastructure and management, curriculum, clinical practice, faculty, and student facilities) to the LBNM, which adapted them to be used to assess and monitor the quality of nursing and midwifery training education.
    - **Strengthened board governance:** To strengthen boards, the CSH Program provided board member governance training for LMDC, LBNM, LPB, and Social Work. The Program also included board staff in the LDP+ training so they could take on mentoring roles in the process.
    - **Revised strategic plan:** CSH supported the LBNM to conduct its mid-term strategic plan review in the post-Ebola context. The plan was revised and realigned to a one-year operational plan with a framework to track progress, which ended in June 2018.
    - **Development of board resources:** CSH developed continuous professional development (CPD) SOPs and logbook for the boards. TOR were also drafted for the CPD committees of the boards and were provided for review and adoption.
    - **Strengthened public resources:** CSH also developed websites for LPB and LBNM so they could have a place to provide correct information for the public, such as who is licenced and how to receive licensure, etc. CSH covered short-term subscriptions for each with the boards taking on full ownership at the close of the program.

Additionally, the CSH Program worked closely with the MOH County Health Services and FARA units to update and improve the Contracting-in Readiness (assessment) tools. CSH drew on MSH's experience and approach to systematic capacity assessment and adapted its Program for Organizational Growth, Resilience and Sustainability (PROGRES) tool. The revised tool included all areas to be assessed, benefitted from automation and dashboards, and included a way forward with an action plan. Content for the tool was reviewed in close collaboration with central MOH units in order to incorporate key performance standards for each of the health system building blocks and promote ownership. CSH circulated a zero draft of the tool with consolidated input from all units of the MOH for final review and approval. The tool was reviewed initially by the MOH and its partners in the FARA meeting in April 2018 and a decision reached that all MOH units will develop checklists to further define performance of counties. Due to the accelerated closure of

CSH, the MOH will carry forward the final revisions of the tool and then it will be used to assess CHT performance as a measure of their readiness for contracting in.

Transition and sustainability

As the support to L+M+G ended early, the Program was not able to implement all activities as planned. The challenge started with having to identify the "owner" of L+M+G within the MOH—both at the central and county levels. Although the GDU was appointed to coordinate the implementation of LMG activities, it did not have a budget for such a role. At the county level, there was not a defined responsible person in the CHT. Therefore, implementation became the sole responsibility of CSH to advance. Activities were often delayed or were not started due to funding requirements and level of expectations from MOH counterparts. For L+M+G interventions to be successfully implemented and sustained, a designated staff person is needed at the county level to start activities and to follow up and assure they became part of the normal work process. L+M+G should be made part of the MOH training offerings and become a standard for career advancement and performance evaluation.

Although anecdotal evidence, CSH has learned that the CHB operational manual has been used in eight additional counties since the CSH-supported orientation of Bong, Lofa, and Nimba in 2016. The Global Fund supported the MOH GDU to conduct the additional orientations. In addition, capacity developed in the LDP+ was used beyond the end of Program support. In addition to being taken up by GIZ in five counties in southeast Liberia, the MOH, through the Global Fund, also is also using LDP+ resources to strengthen the Fund teams (HIV, TB, Malaria).

Objective 7. (Formerly Objective 2) Strengthen MPW capacity to manage water supply infrastructure Improvements

Photo by Cindy Shiner

Children rest at a well in rural Bong County. The local community shares the water source with a nearby clinic. Most Liberians rely on unprotected, unchlorinated hand-dug wells and community hand pumps as their main source of water.

<u>Background and context</u>

In Liberia's post-EVD context, improving IPC meant improving access to clean and safe drinking water, especially in rural areas. The Ebola crisis underscored the critical role of water, sanitation, and hygiene (WASH) in stemming the spread of disease in Liberia. Most Liberians rely on unprotected, unchlorinated hand-dug wells and community hand pumps as their main sources of water. Their access to sanitation facilities is equally limited—primarily to public sanitation blocks—and open defecation remains common. These water and sanitation challenges are at the heart of Liberia's high rate of diarrhea, and an important factor in the spread of disease.
During the initial stages of the Program, USAID requested consultations with stakeholders in the WASH sector and within the GOL to identify priorities. One of the first activities the CSH Program supported on request from the MPW was the Joint Sector Review (JSR 2014/15) to evaluate past performance, identify challenges, and give traction to WASH work.

The CSH Program engaged significantly in WASH activities in FY15 and FY16, through partner DIG. The program's core support was initially around the following: percent of MPW (financial) risk mitigation plan actions implemented (based on PRMRAF Risk Mitigation Plan); number of

policies, laws, agreements, regulations, or investment agreements (public/private) that promote access to improved water supply and sanitation; public sector expenditures on drinking water and sanitation as a percentage of national budget; and percent of planned water points completed (constructed or rehabilitated) by the MPW. These indicators were heavily centrally driven with the intent of influencing policy formulations and resource allocation. However, progress around these indicators was always slow and resulted in revisions.

A decision was reached to transition from short-term technical assistance to a long-term technical assistance embedded at the MPW to support the WASH activities. USAID and CSH agreed on a very limited scope of work for FY17. In FY17, CSH provided some support to the MPW and other partners to plan and implement the national Water Point Mapping Survey to update the national Water Point Atlas and the data collected during the last survey in 2011.

With decreased WASH funding under the CSH Program, and reduced USAID emphasis on this objective, no further activities were conducted under this objective in FY17. USAID requested that this objective be discontinued as of FY18.

Achievements and Results

During FY16, CSH devised a comprehensive capacity-building plan to strengthen the capacity of the central MPW to manage water supply infrastructure improvements to provide access to safe water in rural areas.

i. WASH sector review

The WASH Sector Strategic Plan 2012-2017 identifies an annual JSR as a priority activity in the Sector Operations Matrix to be convened by the National Water, Sanitation, and Hygiene Promotion Committee with the involvement of the MPW, MOH, and Ministry Lands, Mines, and Energy. The National Water Sanitation and Hygiene Promotion Committee is the implementer of the JSR with the MPW as lead ministry, to be supported by other ministries and agencies and partners. The GOL conducted three major JSRs in 2013, 2014 and 2015. The third review, of relevance to the CSH Program's WASH work, was conducted in July 2015.

ii. Water point mapping and assessment

The MPW had last carried out a comprehensive water point mapping exercise in 2011, resulting in the production of the comprehensive Liberia Water Point Atlas with approximately 10,000 water points mapped nationwide. However, it was estimated that at least 50% of those 10,000 water points were non-functional by 2016. Updating the water point data and collecting first-hand information on issues affecting the sustainability of water points was therefore identified as a priority for the government, and the survey exercise was expected to be repeated every five years.

In FY17, CSH provided support to the MPW for technical planning and decision-making sessions to update the 2011 Water Point Atlas. The CSH Program provided financial and operational

support for the USAID-supported counties. Over 200 MPW staff and volunteers participated in the survey, carried out in each village/hamlet across Liberia, and as a result 20,000 water points were recorded. The survey also collected data on water availability (seasonal/year-round), water point management by the community, water fee collection, and GPS points.

Transition and sustainability

The Water Point Atlas was aimed at informing the Liberia five-year WASH plans, including the sector strategic plan, the sector investment plan, and the capacity-development plan. Strengthening the WASH secretariat for a more coordinated approach to funding and mobilization of additional resources for the sector will ensure implementation of its strategic plan and sustained development. Supporting the secretariat to ensure access to government budgetary allocations distributed across various ministries and agencies would mean a predictable internal funding stream and also improve off-budget spending.

CSH Program support for the WASH sector is an "outlier" within the spectrum of traditional health system strengthening and presented some challenges. Management of Liberia's WASH sector is dispersed among several ministries, posing a challenge to accessing national budget resources. For example, access to rural water supply is part of the mandate of the MPW, while access to urban water supply is for the National Water and Sewer Corporation. Establishment and implementation of a coordination framework was and is still in its early stages.

Improving Management of Malaria

The National Malaria Control Program (NMCP)'s major goal is to reduce the burden of illness and death due to malaria among Liberians. The USAID/PMI support to NMCP through the CSH Program focused interventions around program management and planning, program monitoring (through the quarterly EUVs), increasing access and use of quality data for decision-making (supporting CHT performance review meetings and NMCP M&E plan revision), and entomological monitoring (technical support to the NMCP/MOH research agenda-setting conference). Over the life of the project, the CSH Program contributed to:

- Provided technical support for the revision and finalization of MIP technical guidelines (1,500), facilitators manual (250), and participants manual (1,000)
- Provided technical support for the revision and finalization of Malaria Case Management technical guidelines (1,500), facilitators manual (250), and participants manual
- Trained 36 master trainers (two per county and six from NMCP)
- Revised EUV sampling framework, improved quality of EUV data, and conducted six rounds of EUV surveys

Background and context

Given the high burden of malaria disease in Liberia, improving the country's capacity to manage the illness was key for achieving the program's main objective of improving the health status of Liberians. Protocols and treatment guidelines were not updated leading to lack of quality care for case management in malaria and malaria in pregnancy, especially at health facilities: The National Malaria Control Program (NMCP) had not achieved its goal of expanding access to case management of malaria and malaria in pregnancy. The CSH Program worked to achieve a number of key malaria-related results, mainly through developing the Leadership, Management, and Governance (L+M+G) capacity of the MOH at all levels and improving supply chain management.

Under Objective 1, CSH provided technical support for the revision and finalization of Malaria in Pregnancy (MIP) technical guidelines, provided technical support for the revision and finalization of Malaria Case Management technical guidelines, and conducted trainings of master trainers. The National Guidelines for MIP and Malaria Case Management were updated to align with the current drug policy and provide health care workers and communities with clear instructions in the recognition, diagnosis, and management of malaria cases at their respective levels of care (household, community, private sector [pharmacies and medicine stores] and the formal health care system) observing IPC precautionary measures.

Under Objective 5, the CSH Program took over the national End User Verification (EUV), funded by the President's Malaria Initiative (PMI), to assess malaria commodity availability and malaria case management.

Achievements and Results

i. Support to Central MOH – EUV

The CSH Program took over the national EUV and conducted six rounds of the study on malaria case management and availability of key malaria products and other selected essential commodities in five counties, using an updated survey tool and data entry platform. The CSH Program worked closely with the NMCP and CHTs to carry out the full implementation of the EUV. Dissemination of the preliminary results of the EUV at the county level provided an opportunity for CHTs and partners to be more involved in the process and to provide direct feedback, identify challenges, and take action to address them as a way to ensure county ownership, sustainability, and cost efficiency. However, there was a larger need to involve the CHTs in the planning process as well as participation in the wider dissemination of the results of the final analysis of data.

Photo by Cindy Shiner

A new mother in rural Bong County. CSH provided technical support for the revision and finalization of Malaria in Pregnancy technical guidelines.

The findings highlighted an overall availability of commodities at the county depots and stock-outs of the same products at the facility level, demonstrating a real need for more active county supervision and a strengthened re-supply mechanism from depots to health facilities to ensure that products are distributed in a timely manner. Findings from the study also highlighted training gaps in stock and malaria case management at the health facility level.

The EUV established a mechanism of accountability for supply chain management and provided a snapshot of the state of malaria case management at the service delivery points in order to improve and strengthen the system where needed. The findings of the EUV helped to address specific issues, such as health facility capacity gaps, supply of artemisinin combination therapy (ACT) and sulfadoxine-pyrimethamine (SP), and issues with coordination between the health facility and the county depots.

ii. MIP support

The CSH Program worked with Liberia's NMCP to review and revise malaria case management and MIP technical guidelines in light of recent WHO recommendations. The guidelines are an integral part of Liberia's National Malaria Control Strategy, which also includes universal coverage with long-lasting insecticide-treated nets. They have been finalized to align with the current drug policy in the resilient post-Ebola virus disease health care system and provide health care workers and communities with clear instructions in the recognition, diagnosis, and management of malaria at their respective levels of care (household, community, private sector [pharmacies and medicine stores] and the formal health care system) observing infection prevention and control precautionary measures. Facilitator and participant training manuals were also updated to be consistent with the documents and promote quality care. The completed revised MIP guidelines

and case management training guidelines will be used to close capacity gaps in staff performance.

Transition and sustainability

A series of EUV transitional meetings was held between USAID, Chemonics, and CSH to develop a plan for the transition of the EUV activity from CSH to Chemonics. CSH conducted a one-day training on the EUV processes for Chemonics and NMCP staff as part of the transition process. At the end of the training, CSH handed over all of the data collection and analyses tools, including phones and software (KoBoCollect) username and password to Chemonics so it could continue with quarterly implementation of the EUV.

Recommendations

The MOH should revisit the EUV implementation strategy to allow for follow-up on progress by health facilities. For example, counties can be supported to follow up and resolve issues identified from the EUV. County-level staff participation in the EUV data collection exercise should be encouraged to ensure county ownership and sustainability.

4. Challenges and Lessons Learned

CSH noted challenges during implementation towards achieving project goals in an effort to learn what worked well and what could be improved upon. Many of these challenges were discussed as part of annual workplanning as well as during monthly implementation in order to troubleshoot and adapt activities accordingly. Regardless of efforts to address challenges head on, some persisted over the project's three and a half years and should be taken into account for future programming.

CSH technical challenges included:

- It took much time and effort to establish ownership at the central and county levels. Coaching and mentoring strategies were readily integrated at the county level; however, the central MOH needed to take on ownership of activities in order to be sustained.
- CHTs' limited financial resources may negatively influence whether the JISS tool continues to be used as there are no resources for printing and supervisory visits. Similarly, CHTs limited resources may negatively influence conducting the iHRIS outreach supportive supervision activities.
- There is a risk that the QMU focuses on a few donor-led/supported activities at the expense of an integrated quality oversight.
- Donor support is not fully aligned with the MOH priorities. Coordination among donors is also a challenge (e.g. absence of a memorandum of understanding in most cases).
- A constant challenge was navigating the competing activities of multiple stakeholders and partners across sectors.

- Interventions will have limited success without strong DHTs as the implementing arm of Liberia's decentralized health system. DHTs must be able to continue regular, required supervision using the revised JISS tool.
- Since decentralization is not uniform across the sectors, the health sector is more advanced than other ministries and agencies. This results in limited management and authorization at the county level in other collaborating/cross-cutting sectors, resulting in delays.
- Liberia's slow rebuild of logistic services—banking, ICT, infrastructure and road network—as crucial determinants of outcomes in health system strengthening interventions, slows down progress gains.
- There was little time to properly transition positions (such as data clerks) into CHT budgets. There needs to be a plan for TA to manage and maintain a systems check so that everything goes well, particularly the paper-based LMIS as it transitions to the electronic version (eLMIS).

CSH lessons included the following:

- On-site mentoring demonstrated more sustainable results relative to traditional group-based training.
- Leveraging resources with other partners allowed CSH to have wide-reaching results than would otherwise would not have happened.
- Co-planning with ministry counterparts increased ownership of activities and appears to ensure sustainability.
- Mentorship required being an example in work attitude, time-consciousness, and responsible social life. The MOH and county teams have competing priorities, and MOH staff at the county level must understand what is expected of them during the mentoring process.
- CSH embedded TA for health care finance did not work well but specific timed virtual and in-country short-term TA by R4D and later by MSH Senior Technical Director for Health Care Finance, appeared to be more desired and effective.

CSH overall recommendations for consolidating and sustaining capacity gains include:

- Constitute the MOH Coordination Team into a standing committee in order to build on and continue CSH investment.
- Continue efforts to assure completeness, accuracy, and timeliness of HMIS and related sub-systems and use of analyzed data to inform MOH decisions.
- Continue to strengthen the QMU to spearhead regular supportive supervision (i.e. JISS) and commit to follow-up of remedial actions. QMU should lead the feedback process and follow up on JISS action items with CHTs for continuous quality improvement.
- Encourage the MOH to adapt USAID's human and institutional capacity development strategy which prioritizes mentorship and coaching above traditional methods of training.
- CSH's strategic approach to embed mentors should be adopted as a best practice, recognizing that training in itself is not the best method for capacity-building because of

challenges with communication, information, and motivation, for example. Replicate this approach in other counties as part of strengthening processes and systems.

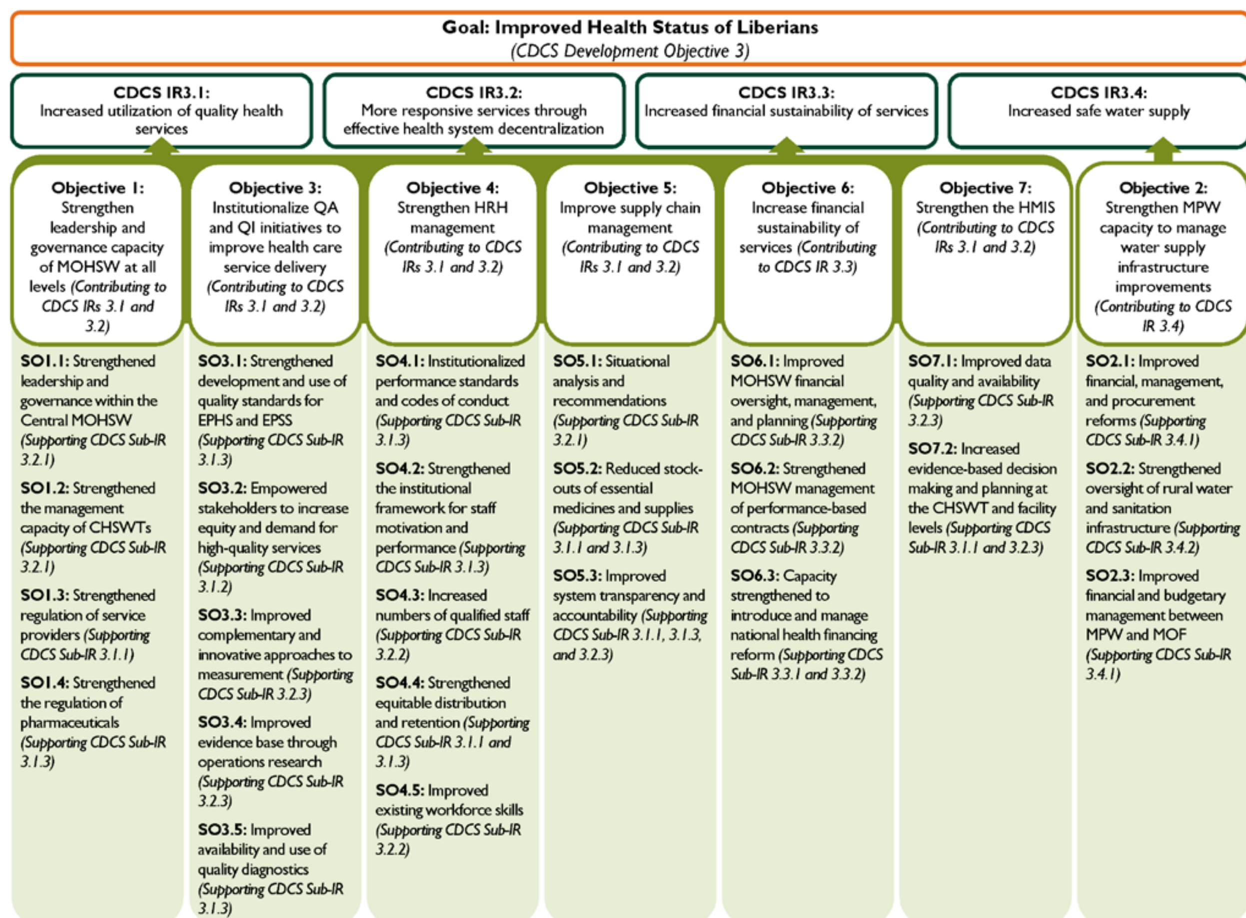
- CHTs should be provided internet support for continued integrated information systems (iHRIS, eLMIS, HMIS at a minimum) performance.
- Strengthen ongoing paper-based LMIS which is critical for successful implementation of eLMIS and distribution of health commodities based on consumption data.
- Continue to strengthen HMER and SCMU coordination and collaboration which is necessary for successful and sustainable LMIS implementation.

As part of close out efforts, the CSH Program and USAID held transition meetings with relevant MOH departments and units as well as with some of the deputy ministers. At least three meetings were held with each of the CHTs to discuss project close-out, outstanding requirements, and obtaining county needs that CSH may support before final close-out. Based on these meetings, CSH prepared a detailed transition report detailing plans across objective areas. The program prepared a technical document inventory so that the MOH and USAID would have easy access to all resources that CSH contributed to and/or developed (Annex 2). CSH held meetings with other implementing partners - Chemonics and Jhpiego – to further work on LMIS, eLMIS, and the scholarship program as well as transferred relevant materials to continue developing health system capacity and contributing to stronger systems for health in Liberia.

Annexes.

Annex 1. Initial Results Framework

The results framework shows the linkages between the expected results of the project and objective 3 of the Liberia Country Development Cooperation Strategy (CDCS) – improved health status of Liberians – and the four intermediate results (IRs) of DO 3.In addition, the activities of CSH program contributed directly to the goals, objectives, and results of USAID Forward, Global Health Initiative (GHI), and USAID/Liberia Health Strategy, the key United States Government (USG) policy frameworks and initiatives that are implemented in Liberia. The project results were also aligned with the priorities of the MOH as outlined in the National Health and Social Welfare Policy and Plan (NHSWPP) 2011 – 2021.



Annex 2. Technical documents inventory

This inventory of 59 technical documents was compiled by USAID CSH Program as part of close out activities. These are documents that the program either contributed to (such as MOH policy documents) or developed (such as the County Health Board Manual) over the last three years. There were also documents that CSH helped to validate (i.e. National HIS Strategic Plan) but have not yet been finalized by the MOH and so are not included. A similar sub set inventory was prepared for the MOH as part of the program's transition activities. The MOH plans to upload select documents to their website for easy access by their staff and general public.

All files can be found on a Google Drive:
https://drive.google.com/drive/u/1/folders/13VoW6nB9gg7MDublMB_0xsuimojSmZMt?ogsrc=32

Leadership, Management and Governance (10 technical documents)
1.Leadership and Governance Development Plan – Liberian MoH Central level
2. LBMN Summary of Continuing Professional Development for Nurses
3. Mid-term Review of the LBNM Strategic Plan Assessment Report
4. Quarterly Monitoring Pre - Service Quality Improvement Standards for Nursing and Midwifery Schools in Liberia
5. County Health Board Orientation Facilitator's Guide
6. County Health Board Operational Manual
7. MOH Quality Assurance Training Standards
8. Malaria Case Management Guidelines
9. Technical Guidelines for Malaria in Pregnancy
10. Rapid County Capacity Assessment Reports for base and EEF counties
WASH (5 technical documents)
1.Rapid Assessment: Liberia's Ministry of Public Works
2.MOH Rapid Training Needs Assessment 2016
3.MPW Capacity Building Plan For More Effective Management of Water Supply Infrastructure
4.Preliminary Gender Analysis for Objective 2
5.Solutions to Improve the Management of the Waterpoint Atlas Report (PY2)

QA/QI (9 technical documents)
1.Joint Integrated Supportive Supervision (JISS) Tool
2.National Quality Improvement Core Clinical Performance Standards for Assessing All Health Facilities in Liberia
3.QMU Concept Note
4. Quarterly Monitoring Pre-Service Quality Improvement Standards for Nursing and Midwifery Schools in Liberia
5. Liberia National Healthcare Quality Strategy (NHQS)
6. Improving the Quality of Maternal, Newborn, and Child Health Care Services in Liberia
7. Laboratory Assessment Tool
8. Lab Supportive Supervision Checklist
9. Laboratory Assessment Reports for base and EEF counties
Human Resources (8 technical documents)
1. Situational Analysis of In Service Training in Liberia
2. Strategic HRM and HR Records Management Course
3. MOH Scholarship Guidelines 2017
4. Mentorship program and implementation report
5.Standard Operating Procedure for Continuing Professional Development for Liberia Health Professionals
6. MOH Staff Handbook
7. MOH Rapid Training Needs Assessment 2016
8. Verification of Health Worker (HW) Personnel Files and the iHRIS Database- Final Report
Objective 5: Supply Chain Management (10 technical documents)
1.Technical Review of Liberian Pharmaceutical Services and Supply Chain System for Medicines and Health Products
2.LMIS Technical Design Document
3.LMIS HIS Operational Plan

4.LMIS Training Guide
5. LMIS Training Guide for Facilitators
6. Electronic Logistics Management Information Systems (eLMIS) -User Guide
7. Liberia eLMIS Technical Guide
8. eLMIS A Step by Step Data Entry and Publishing Guide
9. eLMIS flyer
10. EUV Reports (4)
Health care financing (15 technical documents)
1.MOH Financial Management Policies and Procedures Manual
2.TOT Curriculum for PFM (in PPT)
3.SOPs for MOH Procurement
4.Fixed Assets and Warehouse Management Standard Operating Policies and Procedures Manual
5. MOH Financial Management Policies and Procedures Manual
6. Concept Note on the Design of a Revolving Drug Fund Pilot Program in Liberia
7. Health Financing in Liberia Consumer Preference Market Research
8.Roadmap for the Liberia Health Financing Reform (PY3)
9. MOH Stakeholder Analysis Training
10. County PFM Capacity Building Assessment Tool
11. PFM Manual
12. Policy Note on LHEF
13. PBF Operations Manual
14.Costing of the Essential Package of Health Services
15.Country Health Team PFM Assessment
Health Management Information System (2 technical documents)
1.Liberia Standards based Health Information Exchange (HIE) Roadmap
2. Master Facility List