Annex C: Case Study on Mentorship and Enhanced Supervision for Health Care and Quality Improvement (MESH-QI)

This case study is part of the USAID-funded Human Resources for Health in 2030 (HRH2030) Program's Enhanced Supervision Approaches: Phase I Landscape Analysis Report. It is based on cited literature, including a comprehensive implementation guide, as well as key informant interviews with PIH undertaken in person in August 2018 and by phone in November 2018. It has been reformatted and edited.

Introduction

Mentorship and Enhanced Supervision for Health Care and Quality Improvement (MESH-QI) is an enhanced supervision approach established in 2009 and implemented since 2010 in two health districts in Rwanda by Partners in Health (PIH), its sister organization *Inshuti Mu Buzima* (IMB), and later adapted and scaled nationally in collaboration with the Rwandan Ministry of Health. PIH and local partners have also adapted MESH-QI for implementation in Liberia and Malawi. Funded through the Doris Duke Charitable Foundation's African Health Initiative, it was initially piloted to support primary health care nurses and improve the quality of integrated management of childhood illness (IMCI) and antenatal care (ANC).

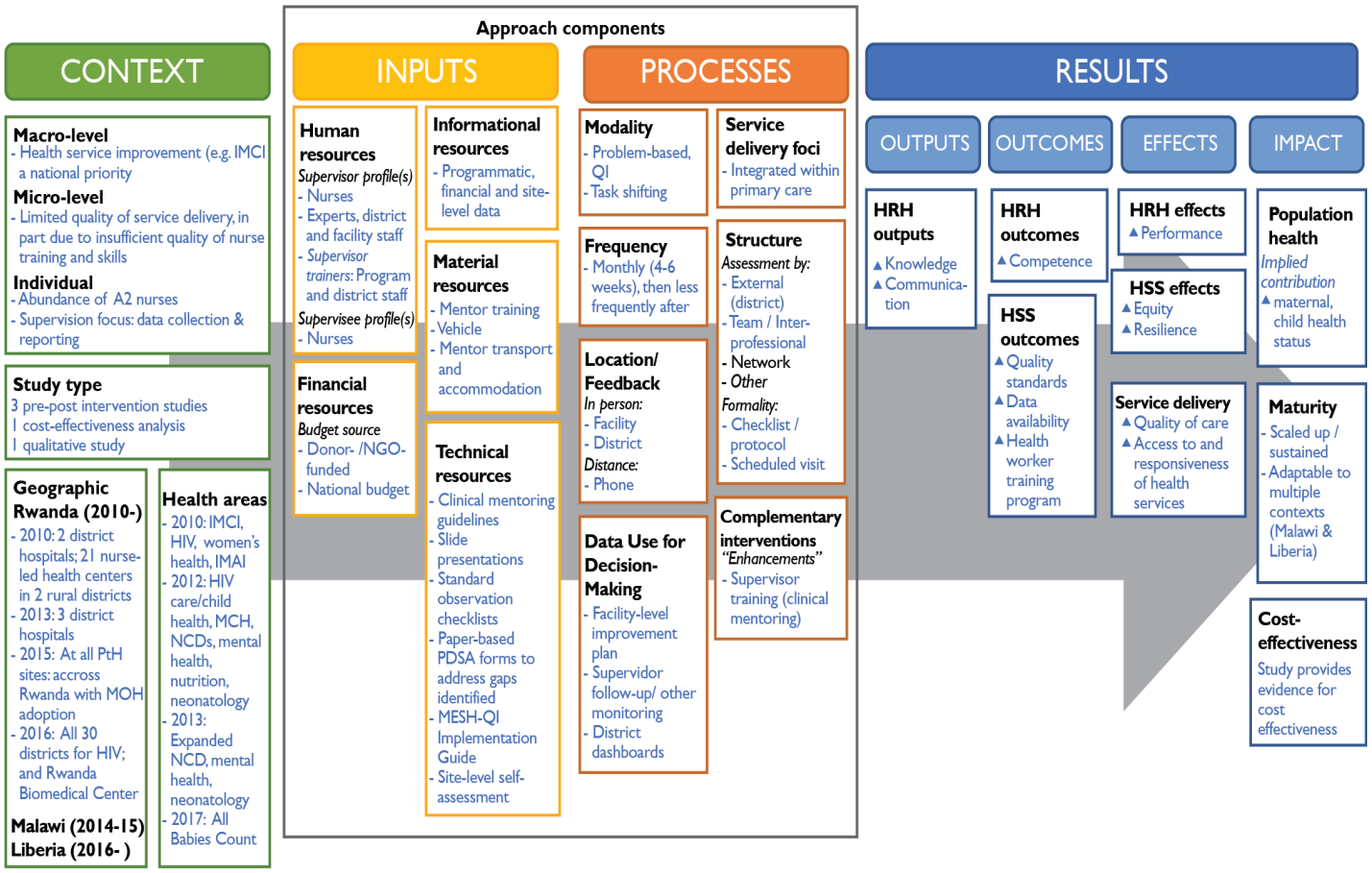
MESH-QI "enables mentors to visit health centers to provide one-on-one clinical mentorship for nurse mentees; on-site education sessions for facility staff; quality improvement (QI) coaching; and data collection, all to improve programs and the quality of patient care" (Manzi, Kirk and Hirschhorn, 2017) MESH-QI has since been documented to improve the quality of RMNCH, IMCI, HIV, nutrition, mental health, and non-communicable disease (NCDs) services in PIH-supported districts; the approach has been adapted and scaled by the Ministry of Health (MOH) of Rwanda nationally. (Anatole, Magge and Redditt, 2012; Manzi *et al.*, 2014; Manzi, Kirk and Hirschhorn, 2017; Manzi, Mugunga, Nyrazinyoye, *et al.*, 2018).

Using the HRH2030 enhanced supervision landscape analysis conceptual framework and taxonomy, the MESH-QI implementation context, inputs, processes, and results are classified (as shown in Figure 5) and further described in the sections below.

CONTEXT

Macro-Level Factors: At the health system level, the MOH has sought to strengthen the health care delivery system in selected remote and underserved districts in the country. A proxy for health systems effectiveness is the infant and under-five mortality rates, which were both high. In 2006, IMCI emerged as a national priority to address infant and child health. The MOH worked with partners, including PIH, to develop an IMCI protocol, which was among the first service areas for implementing MESH-QI. The MESH-QI approach was rooted in the principle principle of complying with existing national and global health sector policies and guidelines and addressing MOH priorities to implement the IMCI protocols effectively. Globally, Rwanda is remarked as a country context in which political will has shown to be a

FIGURE 5. MESH-QI ENHANCED SUPERVISION IMPLEMENTATION IN RWANDA



Source: HRH2030 2019. Adapted from Dieleman et al. 2009, GHWA, and informed by Campbell et al. 2013.

strong enabling factor to facilitate effective change and policy implementation, including in the health sector.

Micro-Level Factors

At the workplace or health facility level, Rwandan primary care health centers (HCs) faced challenges including: high costs of centralized didactic training, limited clinical supervision (which mostly focused on data collection and reporting), and supply-chain issues. These factors contributed to the limited implementation of MOH evidence-based clinical protocols, such as IMCI, in care delivery in many HCs. Health center IMCI services were limited in quality, poor training coverage, and effective supervision models difficult to sustain. First, there was a shortage of HC nurses formally trained in their assigned clinical area, partly due to high turnover and partly due to the abundance of A2-level nurses, with only a high school degree. In 2006, the MOH stopped training and deploying A2-level nurses out of concern that their skills were insufficient for delivering quality care, and instead shifted to upgrading A2-level nurses' skills. The MOH and PIH identified the need for all nurses to gain competency across services, while recognizing the concern that task shifting without adequate support could diminish the quality of care.

Geographic Area

From 2010 to present, MESH-QI implementation has expanded in Rwanda from being implemented in two district hospitals (Kirehe and Rwinkwavu) and 21 nurse-led HCs in two rural districts (Southern Kayonza and Kirehe). (Anatole, Magge and Redditt, 2012). In 2013, the Butaro District Hospital implemented MESH-QI. By 2015 all PIH-supported sites across Rwanda were using MESH-QI, as well as across MOH sites, as the Rwanda Biomedical Center had adapted MESH-QI for national scale. By 2016, all 30 districts in Rwanda used MESH-QI approach to enhance the quality of HIV services.

In 2014, MESH-QI was implemented in Malawi, as well as in 2016 in post-Ebola Liberia. These implementation experiences are documented under the Maturity section.

Health Area

MESH-QI has been used to enhance the existing primary health care supervision system as well as emerging, more

specialized health needs. In 2010, health areas included maternal and child health, HIV, and integrated management of adolescent illness (IMAI). In 2012, MESH-QI expanded to non-communicable diseases (NCDs) and mental health. Building on successful implementation of the MESH-QI program, a neonatal mortality reduction initiative known as "all babies count (ABC)" was designed and implemented in Kirehe and Kayonza district hospital catchment areas. In collaboration with MOH, PIH is expanding ABC initiative in other district hospital catchment areas as part of the Ministry of Health's plan to reduce maternal and neonatal deaths. Per key informants, this is part of the MoH's unconventional plan that calls for activities to promote engagement of leadership and management in the quality of maternal and newborn care, and particularly in data review and use for quality improvement.

Study Type

MESH-QI implementation and results have been documented in five peer-reviewed journal articles—including a case study, qualitative study, and three pre-post intervention studies—summarized in the table below.

In addition, in 2017, PIH published the detailed MESH-QI Implementation Guide (Manzi, Kirk and Hirschhorn, 2017). It describes the main components and processes for MESH-QI and documents how the approach has been implemented.

INPUTS

Inputs for the MESH-QI approach were classified by type: human resources, financial, informational, equipment, supplies and technical inputs.

Human Resources

Supervisor – In Rwanda, MESH-QI clinical mentors are embedded within the existing MOH district-level supervisory team and report to district hospital leadership to avoid creating a parallel system and promote sustainability. The mentors were selected by PIH/IMB are Rwandan nurses with a post-secondary nursing degree (i.e., A0- or A1-level) and several years of experience and formal training in their clinical area, so considered peer mentors. Mentors were recruited following the national hiring procedures and based on World Health Organization (WHO) clinical mentoring guidelines. (Anatole, Magge and Redditt, 2012) Key informants noted that within MESH-QI implementation, "supervisor" has increasingly been transformed to "mentor" as it has more positive connotations. Translated into Kinyarwanda,

CITATION	DESCRIPTION
Anatole, M., Magge, H. and Redditt, V. (2012) 'Nurse mentorship to improve the quality of health care delivery in rural Rwanda', Nursing Outlook. Elsevier Ltd, 61(3), pp. 137–144. doi:10.1016/j.outlook.2012.10.003.	This initial **case study** documents the process and outcomes of training Rwandan nurse-mentors in QI and mentoring techniques. It describes how the approach was integrated into the MOH's district supervisory team to provide ongoing, on-site individual mentorship to health center nurses and to drive systems-level quality improvement activities.
Magge, H. et al. (2014) 'Mentoring and quality improvement strengthen integrated management of childhood illness implementation in rural Rwanda', (May). doi: 10.1136/archdischild-2013-305863.	This **pre-post intervention study** measures change in quality of care (QOC) after didactic training followed by 12 months of MESH support. Change in QOC support measured by case observation using a standardized checklist. Study sample was children age 2 months to 5 years presenting on the days of data collection (292 baseline, 413 endpoint). This intervention and study occurred in all 21 nurse-led health centers in two rural districts in Rwanda, Southern Kayonza and Kirehe, serving an estimated population of 530,000.
Manzi, A. et al. (2014) 'Clinical mentorship to improve pediatric quality of care at the health centers in rural Rwanda: a qualitative study of perceptions and acceptability of health care workers', 14(1), pp. 1–9. doi: 10.1186/1472-6963-14-275.	A **qualitative study** using focus group discussions and an in-depth interview was conducted to investigate perceptions of the MESH program across health system stakeholders. It took place from January to March 2012. Forty health workers from Kirehe and Southern Kayonza Districts participated, including two hospital managers and two mentors.
Manzi, A. et al. (2018) 'Beyond coverage: improving the quality of antenatal care delivery through integrated mentorship and quality improvement at health centers in rural Rwanda'. BMC Health Services Research, (December). doi: 10.1186/s12913-018-2939-7.	This **pre-post intervention study** evaluated the effect of MESH-QI on the completeness of danger sign assessments in routine ANC services, measured by expert nurse mentors using standardized observation checklists. Checklists completed from October 2010 to May 2011 (n = 330) were used as baseline measurement and checklists completed between February and November 2012 (12–15 months after the start of MESH-QI implementation) were used for follow-up. A mixed-effects linear regression model was used to assess the effect of the MESH-QI intervention on the danger sign assessment score, controlling for potential confounders and the clustering of effect at the health center level.
Manzi, A., Mugunga, J. C., et al. (2018) 'Cost-effectiveness of a mentorship and quality improvement intervention to enhance the quality of antenatal care at rural health centers in Rwanda', International Journal for Quality in Health Care, pp. 1–6. doi: 10.1093/neuros/nyx506.	This **pre-post intervention study** included a **cost-effectiveness analysis** of MESH-QI intervention from provider perspective in Kirehe and Rwinkwavu District Hospital catchment areas. It measured the incremental cost per ANC visit with complete danger sign and vital sign assessments. Two rural MESH-QI intervention districts (Southern Kayonza and Kirehe) were compared with standard district ANC supervision practices in Rwanda.

"mentor" translates to "those who improve understanding", whereas "supervisor" translates to "investigator." Recently developed MOH national guidelines in Rwanda also use "mentorship" instead of "supervision" (i.e., national mentorship guidelines).

Supervisee – Supervisees (also referred to as mentees) were hospital and HC nurses, most of whom were trained to the A2 level.

Supervisor trainers – Senior clinical, Monitoring and Evaluation (M&E), and quality experts, to deliver continuous coaching and mentoring support to the clinical mentors.

Financial

Since 2009, the approach has been donor-/NGO-funded, in part by the Doris Duke Charitable Foundation's African Health Initiative: Population Health Implementation and Training Partnership (Anatole, Magge and Redditt, 2012), and PIH. Adaptation and scale-up within MOH districts were funded by the national health sector budget. In 2018, initiatives were being implemented in seven additional districts in Rwanda under a program focusing on neonatal health care. Further, the ministry launched its national HIV and Maternal and child health mentorship programs.

Informational Resources

Resources to inform the specific situation at a facility include clinical records, national health management information system (HIMS) reports, district health sector strengthening plan, as well as data monitored by the QI PDSA approach.

Material Resources

In addition to the materials required for mentor training, resources required include: mentor transport and overnight accommodation at HCs, as well as printed clinical observation forms and other standardized tools (see below). Providing overnight accommodation for mentors was noted to be an implementation challenge (Manzi, Mugunga, Iyer, *et al.*, 2018) however it is optional when there is a reliable transport system, or when health centers are accessible.

Technical Resources

Standardized technical resources used to implement the MESH-QI supervision process include:

- National mentorship guidelines established as the program scaled up and adapted to additional service areas:
    - 2011: For nurse mentors focusing on IMCI, women's health, HIV and a pilot project on integrated management of adolescent health (IMAI);
    - 2012: expansion of MESH-QI to support NCD and mental health program,
- Standardized tools adapted from existing resources reflecting MOH Rwanda guidelines for care.
    - **Clinical case management observation checklists** to document nurses' adherence to clinical protocols during direct patient care, including the IMCI protocol nationally developed in 2006.
    - Case recording forms; baseline assessment data tools; technical advisor monthly report; clinical protocols; training materials) See sample checklists.
        - IMAI
        - IMCI
        - Infectious disease
        - Non-communicable disease
        - Women's health
    - Teaching aids such as clinical case studies, simulation exercises, and clinical vignettes
    - Mentor activity log
    - Quarterly health center survey to measure presence of essential IMCI-related equipment and medications
- MESH-QI Implementation Guide (Manzi, Kirk and Hirschhorn, 2017). It describes in detail the main components and processes for MESH-QI, noting the importance of customizing it to contexts and organizational goals by using a self-assessment survey.

PROCESSES

Modality & Intervention Type

The MESH-QI approach focuses equally on **clinical mentorship**; **systems-focused QI**; and **data-driven improvements to quality of care**. The Guide suggests "these three building blocks interrelate to establish an effective implementation model to improve care and engage caregivers, teams, and leaders." (Manzi, Kirk and Hirschhorn, 2017). After immediate feedback is provided, mentors and mentees formulate joint actions plans using the Plan-Do-Study-Act (PDSA) methodology.

MESH-QI is designed around **systems-focused QI** to address broader issues such as inadequate staffing or inefficient procedures (Manzi, Kirk and Hirschhorn,

2017). During supervision, mentors work with teams to formulate joint action plans and other team-based QI projects using PDSA techniques to respond to various gaps. (Anatole, Magge and Redditt, 2012)

Clinical mentors conduct **side-by-side observation** and **mentoring on clinical case management** by "accompany[ing] mentees in their clinical duties, working with mentees to manage complex cases, enhance physical exam skills, and strengthen clinical reasoning." (Anatole, Magge and Redditt, 2012) To facilitate this work and provide information for QI, they use clinical observation checklists to document nurses' adherence to clinical protocols during direct patient care.

The MESI-QI Implementation Guide recommends that mentors spend about 80% of their time conducting mentoring visits. On average, clinical mentors spend 68% of time providing mentoring, 10% conducting feedback meetings, 7% providing clinical service, 12% conducting didactic trainings, and 3% on holiday or other activities. Mentors in Rwanda are reported to observe an average of 52 IMCI cases, and 40 maternal health cases per month (Anatole, Magge and Redditt, 2012). According to (Magge *et al.*, 2014) health centers received an average of 11.8 mentoring visits during the study intervention period.

Location, Frequency & Feedback

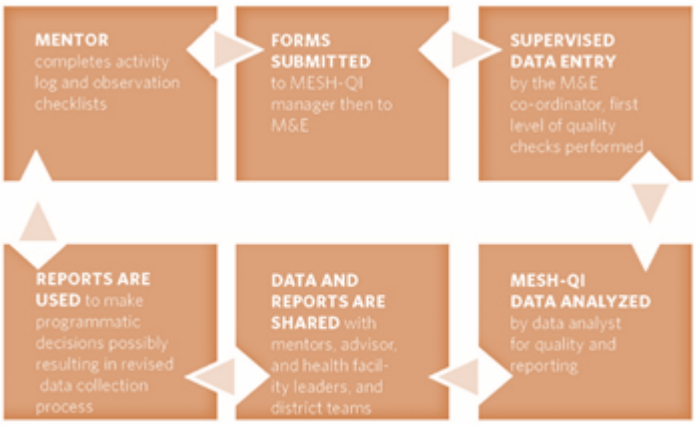
Supervision visits take place **in hospitals and at health centers** in rural health districts. Mentors conduct intensive visits to each HC in their assigned district every four to six weeks. When possible, they stay for two to three days, staying overnight at facilities to optimize mentoring time by minimizing travel time to remote facilities and to strengthen relationships with HC staff. After the first six months of mentoring, the frequency and duration of visits were tailored to meet individual HC needs. When MESH-QI implementation began in November 2010, it started with four HCs at a time, achieving full-district coverage within five months. Mentors are expected to also be available by **phone** for **distance mentoring support** as needed.

During their visits, mentors provide **immediate feedback on individual and systems performance** and review overall findings and recommendations with nurse-mentees and the HC director. Constructive, supportive feedback is shared to build a trusting relationship and model professional behavior. One-on-one mentoring is "supplemented by group teaching sessions, including clinical presentations, case discussions, skills demonstrations, review of documentation practices and group mentoring on QI." (Anatole, Magge and Redditt, 2012) "Immediate and non-judgmental correction of a mistake or missed step… plus general feedback" on site was appreciated by mentees and considered a "key beneficial strategy for MESH[-QI] to address challenges in classification and treatment." (Manzi *et al.*, 2014)

Mentors also share monthly **district-based debriefing meetings at district hospitals**, which has helped to "discuss strategies to fix gaps." (Manzi *et al.*, 2014)

Figure 6 shows the data feedback loops designed within MESH-QI. According to the implementation guide, "the data flows and the controls in place ensure quality collection and a continuous improvement loop." (Manzi, Kirk and Hirschhorn, 2017)

FIGURE 6. MESH-QI MENTOR COMMUNICATION LOOP



Service Delivery Foci

All the studies reviewed on MESH-QI evaluated specific, but often **integrated**, disease or program service delivery improvements within primary health care and hospital settings. See the health areas under the Context section, and service delivery improvements in the Results section.

Structure

Clinical checklists observed **individual** supervisees within services, while additional QI coaching took place across **interprofessional** facility teams. Supervision was carried out by an **external supervisor** except one study where the supervision occurred internally within the facility. In five of the MESH-QI studies, supervision was done in teams while in one study, the supervision was individual. In terms of the "formality" the MESH-QI approaches reviewed were based on a scheduled visit and the use of checklists during supervision.

Data Use for Decision Making

According to key informants, Rwanda MESH-QI implementation relies on paper-based records and program data. Advancements were made in the MESH-QI

implementation in Malawi to include electronic checklists and other digital records.

The MESH-QI Implementation Guide recommends establishing a "clear reporting and communication structure… of what gets reported to whom, when and how [to] ensure data and information are shared and available for use by all relevant leadership." (Manzi, Kirk and Hirschhorn, 2017, page 23). Supervision data help formulate joint action plans, including team-based QI projects using PDSA methodology to respond to identified gaps.

Aggregated program data are also analyzed routinely across HCs and districts to monitor changes in quality and nursing practices, inform future mentoring activities, guide data-driven QI projects, and identify high- or low-performing HCs for changes in support. District-wide findings are shared with key health center, district-level, and PIH staff during monthly district reporting and supervision meetings in order to develop joint action plans to address priority issues.

Complementary Interventions

Complementary interventions to enhance the MESH-QI approach include:

Supervisor training (clinical mentors): two-day workshop adapted from the I-TECH Clinical Mentoring curriculum (I-TECH, 2008), plus continued mentoring and support in systems-based QI, including monthly on-site mentoring in first three months, then every two months thereafter. This ensured the quality of the supervisors and their ability to effectively coach. Post-training follow-up and ongoing supervisor coaching occurred.

Supervisee training: Formal, pre-service didactic training lasts one week at decentralized district health facilites. Formal training of health center nurses to meet minimum standard of 60% coverage of nurses per health center (average 8 to 15 nurses per health center). When possible, didactic trainings were shortened, decentralized to the district and HC levels, and made more practical. The goal was to increase the focus on practice-based learning, to reduce cost, and to decrease strain on HCs related to prolonged nurse absences while they attended longer training sessions in the capital city.

"Whole-of-system" approach: Implicit in the systems-focused QI is an approach to address health system challenges by engaging relevant leadership.

RESULTS

HRH Outputs

After implementation from MESH-QI has demonstrably **improved skills, knowledge and attitudes of health workers** and **improved communication during clinical consultations:**

- For IMCI consultations, there was an increase in percentage of nurses communicating with caregivers to advise on fluids and feeding (8.4% to 96.3%, p<0.001); and to advise on when to return (34.2% to 99%, p<0.001). (Magge *et al.*, 2014)
- "Interactive, collaborative capacity building": MESH-QI was cited as building confidence for IMCI nurses to handle more complex cases, and the trust established with mentors "improv[ed] mentees' openness to learning. (Manzi *et al.*, 2014)
- Related to results on health worker competence below, nurses conducting ANC visits were delivering more complete assessments (Manzi, Nyirazinyoye, *et al.*, 2018). However, the documented literature does not distinguish if this increase is filling a "know-do" gap (i.e., improving the application of nurses' knowledge in their practice), or if knowledge gaps were filled and/or attitudes improved.

HRH Outcomes

Improved health worker competence (Magge *et al.*, 2014)

- Correct IMCI classifications improved (56.0% to 91.5%, p<0.001), and correct pneumonia, diarrhea and fever classifications improved (58.7% to 98.7%, p<0.001)
- Proportion of children seen using an IMCI case recording form increased from 65.5% to 97.1% (p<0.001)
- Proportion of children treated by an IMCI-trained nurse increased from 83.2% to 100% (p<0.001).
- Variability in quality of IMCI as explained by the nurse performing the consultation decreased from baseline to endpoint.
- From (Manzi, Nyirazinyoye, *et al.*, 2018): "Observed ANC visits where nurses checked all vital signs and fetal wellbeing assessment items (fundal height, heart rate, movement, and position) improved significantly (1% to 55%, 37% to 89%, respectively, p < 0.001). Completeness of counseling improved significantly as well (2.2% to 51.0%, p < 0.001). Medical history assessment including previous surgeries, current medications, use of traditional medications, tobacco, and alcohol, domestic violence, and checking and documenting HIV status had less improvement, although the change was significant (2.1% to 14.0%, p < 0.001)."

HSS Outcomes

Improved quality standards of health services

- From Anatole, Magge and Redditt, 2012: For IMCI visits, the percentage of consultations correctly classified increased from 34.6% at baseline to 53.3% (p=0.0001). For IMAI visits, the percentage of consultations correctly classified increased from 40.5% at baseline to 53.5% (p=0.0001).
- From Magge *et al.*, 2014: IMCI integrated assessment index improved from 0.64 to 0.96 in children above 2 years of age, and from 0.61 to 0.92 among those below two years of age (p<0.001).
- From Manzi, Nyirazinyoye, *et al.*, 2018: "Complete assessment of all danger signs at ANC visits improved from 2.1% at baseline to 84.2% after MESH-QI (p< 0.001). Similar improvements were found for 20 of 23 other essential ANC screening items. After controlling for potential confounders, the improvement in danger sign assessment score was significant. However, the effect of the MESH-QI was different by intervention district and type of observed ANC visit. In Southern Kayonza District, the increase in the danger sign assessment score was 6.28 (95% CI: 5.59, 6.98) for non-first ANC visits and 5.39 (95% CI: 4.62, 6.15) for first ANC visits. In Kirehe District, the increase in danger sign assessment score was 4.20 (95% CI: 3.59, 4.80) for non-first ANC visits and 3.30 (95% CI: 2.80, 3.81) for first ANC visits."

HRH Effects

As illustrated by the HRH outcome results, in five of the MESH-QI studies health worker *performance* was impacted while in one study, health worker *productivity* was impacted by MESH-QI.

HSS Effects

Improved equity: While this measure was not explicitly demonstrated, the team felt improved equity was implied when increasing the skills of (mostly A-2 level) nurses at nurse-led facilities in rural HCs, where the QOC would otherwise be lower than at HCs and hospitals staffed with A0 and A1-level nurses and other more highly trained health workers, such as doctors. Improved availability of drugs, such as the example noted in Magge *et al.*, 2014.

Service Delivery Effects

Improved quality of care: See the HSS effects evidence cited above that demonstrates improvements in service delivery attributable to MESH-QI.

Improved access to and responsiveness of health services: The IMAI mentor observed that nurses across HCs had difficulty managing sexually transmitted infections (STIs) due to knowledge gaps and medication stock-outs. In response, he implemented an HC-based STI training plan and collaborated with district authorities to address the irregular drug supply. (Anatole, Magge and Redditt, 2012)

Population health

While decreases in infant and under-five mortality cannot by any means be exclusively attributed to MESH-QI, it may have contributed. Infant mortality declined from 50 deaths to 32 deaths per 1,000 live births between the 2010 Rwanda Demographic and Health Survey (RDHS) and the 2014-15 RDHS. Under-5 mortality has declined from 76 deaths in 2010 RDHS to 50 deaths per 1,000 live births in 2014-15 RDHS. (National Institute of Statistic of Rwanda (NISR), Ministry of Health (MOH) [Rwanda] and International, 2016)

Maturity

Scaled up / sustained: Key informant interviews in 2018 confirmed that the MESH-QI approach has progressively grown and has continued to be applied at different levels of the Rwandan health system. Currently in Rwanda, the approach has been adopted by the MoH in the national "mentoring program."

Adaptability to multiple contexts

MESH-QI was applied with success in other resource-constrained settings in new countries and health service areas in recent years. As there was less documented about these approaches, they are summarized below.

Malawi

MESH-QI activities took place in Malawi around 2014 and 2015 with a focus on the training of clinical officers and nurses who are responsible for most health centers and who are MoH employees. The training is coordinated by two mentors, one from MoH and the other from PIH. Since early 2018, MESH-QI in Malawi has been implemented in Neno district hospital, which supports eight health centers. In Malawi, MESH-QI checklists have been shifted from paper-based to electronic/tablet-managed versions that have been incorporated to Commcare-based applications for ANC, malaria and other clinical checklists.

Liberia

MESH-QI has been applied in Liberia since April 2016 under a post-Ebola HSS program called the Integrated Clinical Mentorship and Improvement Collaborative. It was funded by the United States Centers for Disease Control and Prevention (CDC) through the Global Health Security Agenda (GHSA). This largely supported health centers for ANC, infection prevention and control (IPC) and other MHC

and primary health care programming. The newest application of MESH-QI in Maryland County located in Southeast region. As of early 2018, this application is in inpatient QI coaching. In Liberia, mentors are the physicians, physician assistants, clinical officers, pharmacists and trained nurse midwives (currently mentors are PIH employees). These mentors train local Liberian clinicians who are tasked with the responsibility todeliver direct care at the hospital and conduct mentorship visits at health centers. In a post-emergency setting and with budget constraints, it may have been more challenging to ensure the sustainability of the approach, though key informants report MESH-QI remains an approach to raise the standards of care and support implementation of the evidence-based practices and tools like WHO Safe Childbirth and Surgical Safety checklists.

However, results from the hospital and health centers have demonstrated significant improvements in eight health areas, including maternal and child health and infectious diseases.

At health centers, the percent of MCH service points including antenatal care, well baby clinic and labor and delivery areas with essential hand hygiene (soap, water or sanitizer) facilities improved significantly in both Maryland and Grand Kru Counties, 31% to 66% and 62% to 70%, respectively (p=0.02). Similarly, significant increases in percent of observed antenatal care with HIV test performed were reported in Maryland and Grand Kru countries, from 5% to 54% and 35% to 61%, (p<0.001). Although not statistically significant, we found improvements in the percent of observed providers with appropriate hand hygiene practices in Maryland from 34% to 59% and Grand Kru, from 31% to 48%, (p=0.07). However, results in 19 clinics have demonstrated improvement in eight health areas, including maternal and child health and infectious disease. (Ogongo *et al.*, 2016)

At the hospital level, preliminary results demonstrated a significant increase in percent of patients informed of danger signs in maternity from 31%-97%, (<0.001) (Anyango *et al.*, 2019)

Cost Effectiveness

Per Manzi, Mugunga, Nyirazinyoye, *et al.*, 2018, the total annual cost of standard ANC supervision was 10,777.21 USD at the baseline, whereas the total cost of MESH-QI intervention was 19,656.53 USD. Human resources (salary and benefits) and transport drove the majority of program expenses (44.8% and 40%, respectively). Other costs included training of mentors (12.9%), data management (6.5%) and equipment (6.5%). The incremental cost per ANC visit attributable to MESH-QI with all assessment items completed was 0.70 USD for danger signs and 1.10 USD for vital signs.

As reflected in the landscape analysis, it is exceptional within the literature that an enhanced supervision approach was documented from development through implementation, scale, and adaptation to additional contexts.

References

Anatole, M., Magge, H. and Redditt, V. (2012) 'Nurse mentorship to improve the quality of health care delivery in rural Rwanda', *Nursing Outlook*. Elsevier Ltd, 61(3), pp. 137–144. doi: 10.1016/j.outlook.2012.10.003.

Anyango, S. *et al.* (2019) 'RISE Plus : An Intervention to Address Quality Gaps in Maternal and Newborn Health in Post Ebola Liberia By : Consultant Obstetrician & Gynecologist / Maternal Health Lead , Partners in Health Liberia Overview ':, *Global health innovation conference, Unite for Sight, Yale, CT*. Available at: https://www.uniteforsight.org/conference/ppt-2019/Sarah Anyango PDF.pdf.

Manzi, A. *et al.* (2014) 'Clinical mentorship to improve pediatric quality of care at the health centers in rural Rwanda : a qualitative study of perceptions and acceptability of health care workers', 14(1), pp. 1–9. doi: 10.1186/1472-6963-14-275.

Manzi, A., Mugunga, J. C., Nyirazinyoye, L., *et al.* (2018) 'Cost-effectiveness of a mentorship and quality improvement intervention to enhance the quality of antenatal care at rural health centers in Rwanda', *International Journal for Quality in Health Care*, pp. 1–6. doi: 10.1093/neuros/nyx506.

Manzi, A., Mugunga, J. C., Iyer, H. S., *et al.* (2018) 'Economic evaluation of a mentorship and enhanced supervision program to improve quality of integrated management of childhood illness care in rural Rwanda Economic evaluation of a mentorship and enhanced supervision program to improve quality of integrate', (March). doi: 10.1371/journal.pone.0194187.

Manzi, A., Kirk, C. M. and Hirschhorn, L. R. (2017) 'Mentorship and Enhanced Supervision for Healthcare and Quality Improvement (MESH-QI) Implementation Guide', *Partners in Health*, (October).

National Institute of Statistic of Rwanda (NISR), Ministry of Health (MOH) [Rwanda] and International, I. (2016) *Rwanda Demographic and Health Survey 2014-15*. Rockville, Maryland, USA. Available at: https://dhsprogram.com/pubs/pdf/FR316/FR316.pdf.

Ogongo, I. A. *et al.* (2016) 'Accelerating Post-Ebola Health Systems Recovery through Nurse Mentorship and Improvement Collaborative in Rural Liberia', *Global Nursing Caucus, Seed Global Health Conference, Boston, MA*. Available at: http://seedglobalhealth.org/wp-content/uploads/2016/10/Abstract-Oral-Presentations-Posters-w_-Abstracts_final-1-1.pdf.

Health workers in Grand Yoff General Hospital, Senegal. Photo credit: Michelle Byamugisha, Chemonics (2018)

Program Partners

- Chemonics International
- American International Health Alliance (AIHA)
- Amref Health Africa
- Open Development
- Palladium
- ThinkWell
- University Research Company (URC)

About HRH2030

HRH2030 strives to build the accessible, available, acceptable, and high-quality health workforce needed to improve health outcomes.

Global Program Objectives

1. **Improve performance and productivity of the health workforce.** Improve service delivery models, strengthen in-service training capacity and continuing professional development programs, and increase the capacity of managers to manage HRH resources more efficiently.
2. **Increase the number, skill mix, and competency of the health workforce.** Ensure that educational institutions meet students' needs and use curriculum relevant to students' future patients. This objective also addresses management capability of pre-service institutions.
3. **Strengthen HRH/HSS leadership and governance capacity.** Promote transparency in HRH decisions, strengthen the regulatory environment, improve management capacity, reduce gender disparities, and improve multi-sectoral collaboration for advancing the HRH agenda.
4. **Increase sustainability of investment in HRH.** Increase the utilization of HRH data for accurate decision-making with the aim of increasing investment in educating, training, and managing a fit-for-purpose and fit-for-practice health workforce.

HRH2030
HUMAN RESOURCES FOR HEALTH IN 2030

www.hrh2030program.org

This material is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of cooperative agreement no. AID-OAA-A-15-00046 (2015-2020). The contents are the responsibility of Chemonics International and do not necessarily reflect the views of USAID or the United States Government.

@HRH2030Program @HRH2030

251 18th Street, S Arlington, VA 22202 | Phone: (202) 955-3300 | Fax: (202) 955-3400 | Email: info@HRH2030Program.org