UNFPA
SIERRA LEONE

# **Situational analysis** of quality improvement in maternal and neonatal health care, Sierra Leone

2018

Editor: Anita Palathingal
Design and Layout: Stephanie Tailleux
**Front cover** @Sulaiman Stephens

# CONTENTS

# ACKOWLEDGEMENTS

The United Nations Population Fund (UNFPA) would like to recognize the forward vision of the Sierra Leone Ministry of Health and Sanitation in identifying maternal and neonatal health as a priority towards achieving their goal of providing quality health care services for the population of Sierra Leone. The Reproductive and Child Health Directorate established a stakeholder group to provide input and guidance in the implementation of maternal and newborn quality of care, which was led by Drs. Santigie Sesay and Sulaiman Conteh. This forum provided valuable insight into the current quality of maternal and child health in Sierra Leone and plans to improve the quality of care.

We would like to especially thank the stakeholders (listed in Annex 1) who took the time to meet with the Quality Improvement consultant and UNFPA team members to share their experiences. We extend a special thank you to UNICEF and WHO for their assistance in collecting data for the situational analysis.

Our sincere gratitude goes to the numerous UNFPA staff members in the Sierra Leone country office for the inputs provided and information shared. Dr. Sylvia Fasuluku is recognized for her valuable contribution in scheduling interviews and locating documents. Special appreciation goes to Dr. Kim Eva Dickson, UNFPA country representative in Sierra Leone, for providing oversight and guidance in completing this publication. UNFPA Sierra Leone covered the cost of this analysis including hiring an international Quality Improvement consultant to lead the process.

Finally, the principal author of this document, Joanne Ashton, and editor, Dr. Mohammed Elhassein, deserve special appreciation for their contributions.

# ABBREVIATIONS

| | |
|---|---|
| AYFS | Adolescent and Young Person-Friendly Services |
| BEmOC | Basic Emergency Obstetric Care |
| BEmONC | Basic Emergency Obstetric and Newborn Care |
| BFHI | Baby-friendly Hospital Initiative |
| BPEHS | Basic Package of Essential Health Services |
| CEmONC | Comprehensive Emergency Obstetric and Newborn Care |
| CHC | Community Health Centre |
| CHO | Community Health Officer |
| COHSASA | Council for Health Service Accreditation in South Africa |
| CQI | Continuous Quality Improvement |
| DHMT | District Health Management Team |
| EmONC | Emergency Obstetric and Newborn Care |
| ETAT | Emergency Triage Assessment and Treatment |
| FHCI | Free Health Care Initiative |
| HIV/AIDS | Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome |
| ICT | Information and Communication Technology |
| IPC | Infection Prevention and Control |
| ISQUA | International Society for Quality in Health care |
| JICA | Japanese International Cooperation Agency |
| MDSR | Maternal Death Surveillance and Recovery |
| M&E | Monitoring and Evaluation |
| MMR | Maternal Mortality Rate |
| MNH | Maternal and Newborn Health |
| MoHS | Ministry of Health and Sanitation |
| NHSSP II | National Health Sector Strategic Plan II (2017-2021) |
| PBF | Performance-based financing |
| P-D-S-A | Plan-Do-Study-Act |
| PIH | Partners in Health |
| QI | Quality Improvement |
| QoC | Quality of Care |
| RMNCAH | Reproductive, Maternal, Newborn, Child and Adolescent Health |
| SLDHS | Sierra Leone Demographic and Health Survey |
| SNCU | Special Newborn Care Unit |
| WASH | Water, Sanitation and Hygiene |

# EXECUTIVE SUMMARY

Poor quality of maternal and neonatal health services is a significant issue in Sierra Leone, in part due to the protracted civil war followed by the Ebola outbreak. As these events came to an end, the country was faced with the task of revitalizing a seriously impaired health care system. A variety of factors affected the quality of care (QoC), including an absence of clinical guidelines and quality improvement (QI) mechanisms as well as audits and regular reviews of performance in health facilities. In response to these issues, the Sierra Leone Ministry of Health and Sanitation (MoHS) created a vision for 2021 to have a health system of high-quality, accessible, affordable and equitable care for all Sierra Leoneans.[1] Thus, a focus on improving the quality of services is a clear priority within this five-year plan.

Short-term gains in quality have been reported over the past two decades through the work of many development partners in low- to middle-income countries around the world. However, the evidence does not verify that these improvements have been sustained. Little is known about the design of such initiatives and which approaches predominate or are most effective.[2] In 2002, Franco et al. laid out a conceptual framework to guide leaders of developing countries to institutionalize quality within the health care system.[3] Three essential elements of the framework are: an internal enabling environment, setting up structures to institutionalize quality, and support functions. This framework was used to review the maternal and newborn quality of care initiatives in Sierra Leone.

*"Poor quality of maternal and neonatal health services is a significant issue in Sierra Leone"*

## Internal enabling environment

An environment that advocates quality requires policies, leadership, core values and resources dedicated to improving QoC and services. Several documents have been produced in Sierra Leone to lay the foundation for a quality health care system.

## Policy initiatives

• In 2010, the MoHS published a Basic Package of Essential Health Services (BPEHS) and authorized free mother and child health services throughout the country.
• In 2011, performance-based financing (PBF) was introduced to encourage health care providers to increase the quality of services.
• In 2015, a Maternal Death Surveillance and Response (MDSR) National Technical Guideline was written.[4] A national MDSR Committee was established and MDSR is currently being implemented in all 14 districts in the country.
• After the Ebola outbreak, a National Health Sector Recovery Plan 2015-2020 was produced to guide the process of helping the health care system recover and start functioning again.
• The MoHS built upon the recovery plan and developed the National Health Sector Strategic Plan 2017-2022 (NHSSP II) that embraces QI.
• With concerns about ongoing high rates of maternal and neonatal mortality, the Sierra Leone National Reproductive, Maternal, Newborn, Child, and Adolescent Health Strategy (RMNCAH)-2017 2021 was also written to increase access to and utilization of quality evidence-based RMNCAH high impact interventions.[5]

## Leadership initiatives

• The Reproductive and Child Health Directorate has championed the implementation of a QoC strategy.
• A group of stakeholders are collaborating to improve maternal and newborn QoC.
• A draft set of Maternal and Newborn QoC standards are being adapted from the WHO.
• Terms of reference for a maternal newborn health (MNH) technical working group has been drafted.
• All the above proposals and plans, once final, will need to be approved and operationalized.

## Core values

• The RMNCAH strategic plan lists nine guiding principles that support QoC.
• Team-based decision-making is a key QI principle that was not clearly defined in the national plans.

## Resources needed

• UNFPA, UNICEF, WHO and other partners have supported the purchase of needed equipment, supplies and facility renovations to provide maternal and newborn care.
• Lack of staffing, drugs and supplies and computerization are limitations that continue to effect the QoC.

## Quality structure

• The MoHS has recognized the need for a formal structure to institutionalize quality, and plans to establish a dedicated NHSSPII Secretariat.
• An NHSSP II manager is to be appointed with the mandate to coordinate and follow-up the key components of the strategic plan across the directorates, programmes, District Management Health Teams (DHMTs) and partners.
• The MoHS has joined the Global Health Network and has developed a plan to initiate maternal and newborn QoC.
• The Model for Improvement has been proposed as the national QI model.
• Structures at the district and facility level have not been established, e.g., QI focal persons and committees.

## Support functions

The key support functions include capacity-building, information and communication and rewarding quality. Various partners have supported initiatives to improve MNH quality service delivery through the development of clinical guidelines, capacity-building, and monitoring and evaluation and QI initiatives (see Annex 2, for supporting organizations).

### Capacity-building

• QI training in selected facilities and districts has been provided by various partners during the past two decades. A standardized QI training programme does not exist.
• Eleven individuals have been trained as QI trainers.
• The MoHS developed a harmonized EmONC training package in 2017. This was used to train 40 master trainers and 240 service providers.
• Thirteen accredited national Emergency Triage, Assessment and Treatment (ETAT+) mentors and 40 clinicians have been identified as national faculty trainers. ETAT+ has been incorporated into the standard training of house officers at Ola During Children's Hospital.
• Seventeen Baby-friendly Hospital Initiative (BFHI) master trainers were trained and training will be carried on throughout the country.
• In 2017, the Directorate of Nursing and Midwifery and the Nursing and Midwifery Board developed a nurse-midwifery policy and standards for midwifery accreditation. A third school of midwifery was opened in October 2017 in Bo District.

### Information and communication

• Indicators to measure progress in attaining the strategic objectives have been defined in the NHSSP II and RMNCAH Strategic Plans.
• The accuracy and completeness of data collection and analysis is a recognized challenge and efforts are planned to improve these processes so that effective decisions can be made.

### Incentives and recognition

• In 2011, PBF was created as an incentive to improve access and the quality of basic services provided in the Free Health Care Initiative; however, this programme has not reached its full potential.
• Recognition of QI work by featuring it in outlets such as newsletters, public recognition and best practice fora is not seen widely enough.

The MoHS and development partners have demonstrated joint political will in implementing the strategic plans to improve QoC. The work of organizing a QI structure is just beginning; there will be much to do over the next few years to put all elements in place. A few of the biggest challenges are the availability of resources – human, supplies, equipment, etc. The MoHS is aware of the needs and is working to address them. A recent Service Availability and Readiness Assessment will answer some questions around availability, readiness and quality. Overall, Sierra Leone's national strategic planning for improving QoC is on track; the next step is to support implementation of the plans. Several QI approaches have been introduced through partnership projects in the past few years. However, the level of institutionalization of systems for designing, measuring and improving quality of clinical outcomes has not come to fruition. These components of QI remain fragmented and the country's capability has not been built for leading, managing and implementing these approaches.

# INTRODUCTION

**WHO defines Quality of Care as:**

**"The extent to which health services provided to individuals and populations improve desired health outcomes. To achieve this, health care needs to be safe, effective, timely, efficient, equitable and people-centred."**

Sierra Leone's maternal and neonatal mortality rates remain some of the highest in the world. Sierra Leone's maternal mortality rate (MMR) is 1.97 per 1,000 women, with a ratio of 1,165 per 100,000 live births. Maternal deaths account for more than a third (36 per cent) of all deaths of women aged 15 - 49.

Table 1 presents the 2013 Sierra Leone Demographic and Health Surveys (SLDHS 2013) reproductive health indicators. Results from the the DHS 2013 showed that the MMR in Sierra Leone have not significantly changed from 2008. In addition, Sierra Leone's neonatal mortality rate is 39 per 1,000 live births. Pre-term births, asphyxia and sepsis are the top three causes of neonatal deaths in the country.[6]

These results seem surprising in that six in 10 births were attended by a skilled provider, mostly a nurse/midwife (44 per cent) or maternal-child health aide (14 per cent); 2 per cent of cases attended by a doctor (SLDHS, 2013); and 54 per cent of births took place in a health facility (SLDHS, 2013). However, it was also noted that health care staff are unevenly distributed across the country: for instance, more than 40 per cent of practising midwives are based in the capital city of Freetown, serving only 15 per cent of the country's population.

A range of factors contribute to maternal and neonatal mortality rates (NMR). The landmark Lancet Every Newborn Series (2015) identified that most deaths occur during a 24-hour time frame from labour through the immediate postnatal period. Poor quality of care during that time frame has been identified as a significant factor in contributing to the deaths. High-impact interventions have been identified in the Every Newborn Action Plan [7], which if consistently implemented, could prevent 84 per cent of maternal deaths, 77 per cent of newborn deaths, and 70 per cent of stillbirths.[8]

**Table 1. Reproductive Health Indicators**

| Reproductive Health Indicators | |
|---|---|
| 1. Fertility rate per woman | 4.9 |
| 2. Maternal mortality rate (per 1000 women) | 1.97 |
| 3. Maternal mortality ratio (maternal deaths per 100,000 live births) | 1,165 |
| 4. Neonatal mortality rate (per 1,000 live births) | 39 |
| 5. Stillbirth rate (per 1,000 total births) | 25.7 per 100 live births |
| 6. Contraceptive Prevalence Rate | 16.6 |
| 7. Adolescent birth rate (births per 1,000 women age 15-19) | 125.1 |
| 8. Antenatal care from a skilled provider | 97% |
| 9. Antenatal care (4 or more visits) | 76% |
| 10. Caesarian section delivery | 3% |
| 11. Deliveries in a health care facility | 54% |
| 12. Births attended by skilled birth attendant | 59.7% |
| 13. Children breastfed within one hour of birth | 54% |
| 14. Postnatal care within 4 hours of delivery | 57% |

*Source: Sierra Leone Demographic and Health Surveys (SLDHS) 2013, except for stillbirth rate that was obtained from the Maternal Death Surveillance and Response Annual Report 2016, Directorate of Reproductive and Child Health, MoHS Sierra Leone.*

The Sierra Leone Ministry of Health and Sanitation (MoHS) has set goals for 2021 to reduce the following mortality rates:

- MMR from 1,165 to 650 per 100,000 live births;
- NMR from 39 to 23 per 1,000 live births;
- Stillbirth rate from 25.7 to 18 per 1,000 live births.

To achieve these goals, it will be crucial to improve the QoC for women who deliver in health care facilities. UNFPA and WHO have been providing technical assistance to the MoHS to conceptualize, standardize and roll out QoC in Sierra Leone with the goal of institutionalizing QI within the country. The Government of Sierra Leone joined the Global Quality of Care network in December 2017, which includes 10 countries assuming leadership to improve the QoC of women and babies. The vision of the QoC Network is that every pregnant woman, newborn and child receives quality care. The aim is to decrease facility deaths by 50 per cent for maternal, newborns and still births within five years, in the participating countries.

**Objective of the analysis**

This situational analysis provides information about the institutionalization of QI in Sierra Leone with a specific focus on maternal and neonatal QoC. This information will assist in identifying the major problems and gaps that constitute the foundation for the planning, implementation and evaluation of maternal and newborn QoC.

# METHODOLOGY

The situational analysis was conducted in two parts. First, a document review was completed, and this was followed by a qualitative study involving interviews with the key stakeholders to bring an experiential perspective to the analysis.

## Desk review

Between April and June 2018, the QI consultant performed an internet search of published articles to place QoC within the context of the African continent. In addition, the desk review included documents related to general and maternal/newborn QI available from the Sierra Leone MoHS, such as strategic plans, and targeted priority programmes involved in QI activities. The desk review was complemented by information obtained through reports of assessments conducted, which investigated the status of Emergency Obstetric and Neonatal Care (EmONC), Adolescent and Young Person-Friendly Services (AYFS) standards, and the BFHI. These assessments covered infrastructure, equipment and human resources required to provide quality patient care and services.[9,10]

## Stakeholder interviews

For the interviews, stakeholders were identified that were engaged in implementing activities to improve the quality of maternal and neonatal care. Meetings were held in May 2018 with key stakeholders (see Annex 1) to discuss their QI approaches and activities. Through these discussions, additional documentation of QI activities was shared. This information was used to support this analysis. Key questions posed included:

1. What activities has your organization been involved in to improve the quality of maternal and newborn care?
2. Which quality approach/model was used?
3. What was the approach to train staff in QI techniques? Which techniques were used?
4. What were the results of the quality activity? Were the results sustained?
5. What were the challenges that you faced in carrying out the quality activity?

# DATA ANALYSIS

The information gleaned from the review of published articles regarding QI initiatives on the African continent was organized chronologically to show the progression of QI advancement in African countries. The framework for analysing the institutionalization of health care quality in Sierra Leone was the Institutionalization of Quality Assurance Model depicted in Figure 1 below.

**Figure 1: Institutionalization of quality assurance model**

Franco et al. designed the Institutionalization of Quality Assurance Model based on extensive experience in implementing quality assurance (a term that evolved into quality improvement) in developing countries throughout the world.[11] The key elements were organized into three categories: enabling environment, structure and support functions.

An **enabling environment** includes written policies that support quality, effective leadership, core values that emphasize quality, and the resources required to conduct and support quality activities. A **quality structure** requires clear roles, responsibilities and accountabilities for QI. There is no single structure that has proven to be the most effective; however, a permanent system needs to be in place to support and guide the activities – nationally, regionally and locally. **Support functions** include building the capacity of staff in the knowledge and skills of QI and clinical expertise in the field of practice. Communication of quality activities – both successes and failures – is recognized as an important means of scaling up effective approaches to improving quality of care and services. This shared learning needs to be frequent and ongoing.

The last element is rewarding quality work. Staff desire and require incentives as motivation to keep going. QI is not a project or one-off initiative – it is a systematic approach to identifying problems and finding solutions to improve QoC that becomes a way of thinking that is integrated into the fabric of the health care system.

# FINDINGS

The results are reported in three sections: (1) QI initiatives on the African continent, (2) the institutionalization of QI in Sierra Leone and (3) quality initiatives in Sierra Leone. The focus of the findings in Sierra Leone was on activities that improve the QoC of mothers and newborns.

## Quality improvement initiatives on the African continent

Maternal and infant morbidity and mortality rates remain high in many African countries. One of the greatest challenges in most countries is the poor quality of service at every level of the health system. In the early 1980s, WHO advocated for effective primary health care and encouraged Member States to establish systematic quality measures that addressed effectiveness, safety and impact of services.[12]

In 1985, the International Society for Quality in Healthcare (ISQUA) emerged after a WHO working group on training in quality assurance. The organization's mission is to drive improvement of quality and safety of health care worldwide. This organization is well known for setting standards for organizations that accredit health care facilities to ensure that health care accrediting bodies meet quality standards.

In 1994, Zambia took the lead in Africa and started a national hospital accreditation programme with the support of the United States Agency for International Development (USAID). A research study was conducted to describe the development of the programme.[13] The conclusion was that the initiative had failed because the accrediting council lacked legitimacy and budget authority and there was indecision on incentives and feedback. This study was a caution to other countries considering an accreditation programme to avoid similar pitfalls. At the same time, the Faculty of Medicine at the University of Stellenbosch in South Africa launched a pilot accreditation programme that evolved into an independent, not-for-profit accreditation organization, the Council on Health Services Accreditation of South Africa (COHSASA). COHSASA is a well-respected internationally accredited agency that has broadened its reach within the region. In 1995, the Regional Committee Resolution AFR/RC45/R3 required Member States to implement a national quality programme as a component of health sector reforms.[14]

In 1996, WHO held a regional meeting in Brazzaville, Congo on QI, with a series of in-country meetings thereafter. One of these meetings was held in Kampala (Uganda) in 2000, in conjunction with the Quality Assurance Project (CHS/QAP) in Maryland (USA) and the Regional Centre for Quality of Health Care of Makerere University.[15] This activity created interest among many of the 16 participating countries, including Sierra Leone, to focus on QoC. WHO followed these activities by publishing a global review of quality and accreditation in health services in 2003.

Since then, several international development organizations have supported countries in organizing QoC programmes. The initial approach was primarily the use of QI tools to identify and solve problems by investigating the root cause of those problems.[16]

Different models were designed using the same basic elements: team empowerment, focus on systems/processes, use of data and client focus. A typical lead-in is creating quality awareness at the national and regional/district levels, followed by forming quality teams in health facilities, building staff capacity in use of quality methods and facilitating problem-solving.

QI is a crosscutting concept that can be used to address QoC issues in any service. Therefore, Ministries of Health have sought assistance from their partners to tackle HIV/AIDS, maternal and neonatal mortality, malaria and other priority issues. The 'success' of these projects has been reported from evaluations showing improved outcomes during the duration of the project life. However, limited evidence is available to show that these efforts have been sustainable.[17] A review of QI articles from sub-Saharan Africa in 2009 indicated that finding published research reports of QI in Africa was difficult.[18] Ministries have recognized that institutionalization of QI has not been achieved and are beginning to realize that to achieve a culture of quality, a permanent structure is necessary.

With the advent of universal health coverage (UHC) and pay-for-performance schemes, QoC has become linked to financial reimbursement. As a result, accreditation has picked up momentum in the past decade as an approach to institutionalizing QoC. In 2010, the Joint Learning Network for Universal Health Coverage was launched to enable policymakers aiming for UHC to learn from each other's successes and failures. Of 10 countries, four African countries were initially involved in pursuing accreditation: Ghana, Kenya, Mali and Nigeria.[19] Also, COHSASA joined forces with the Joint Commission International and the PharmAccess Foundation to develop and support implementation of SafeCare standards – universal quality standards for clinics in developing countries. Countries adopting SafeCare standards include Kenya, Nigeria, Tanzania, Ghana, Lesotho and South Africa. (Currently, COHSASA and SafeCare are the only accreditation bodies in Africa that are accredited by ISQUA.)

Health care accreditation is typically associated with a 'whole site' approach; however, accreditation has been created for focused services, such as the National Adolescent-friendly Clinic Initiative in South Africa,[20] WHO laboratory accreditation[21] and BFHI.[22] Each of these programmes report improved QoC based on the established standards. In 2015, a Regional Consultative Workshop for Health Care Improvement was convened in East Africa and developed a framework to define the competency requirements, i.e., the knowledge, skills, attitudes and behaviours required to perform specific tasks in the improvement of care quality.[23] This strategy was designed to prepare health care workers through pre-service and in-service training to foster adoption of QI and enable a culture of quality.

QoC initiatives in African countries are on different trajectories. Although, few African countries are at the policy development level, some ministries have been working with partners to establish national QI structures and strategic plans. Few have progressed towards national quality programme implementation.[24] Countries that are progressing towards the institutionalization of QI are introducing quality expectations into all aspects of the health care system and building the capacity of their leaders, managers and staff in QI.

## Institutionalization of quality improvement in Sierra Leone

The introduction of QI as a concept to improve health care outcomes occurred in Sierra Leone before the year 2000, just prior to the civil war ending in 2002.[25] The aftermath of a prolonged civil war left Sierra Leone with serious challenges in restoring the health care system. Several QI initiatives were undertaken in that decade to improve the quality of maternal and neonatal health until May 2014 when the Ebola outbreak occurred. For the next couple years, the focus of the MoHS and partners was infection prevention and control (IPC). The epidemic ended in 2016 and new efforts have since been made to revive QI within Sierra Leone. Various partners have introduced QI approaches to improve the QoC. Each approach can realize positive results in the short term. However, the main flaw in the QI programmes initiated is the lack of sustainability of the QI process. Therefore, institutionalizing QI within the health care system remains an aspiration rather than a reality.

### Internal enabling environment

Institutionalization of QI within a country requires a significant commitment by the Government. National and district-level leadership is crucial to successful QoC programmes. This foundation is like building a house – without a solid foundation, the walls will crumble. Several strides have been made to meet the challenges of rebuilding the Sierra Leone health care system, including setting standards, assessing and renovating health facilities, training staff and implementing programmes to improve the quality of maternal and newborn care.

### National quality of care policies/strategies

**A vision:** The Sierra Leone MoHS created a vision for 2021, which emphasized the importance of improving the QoC, making it a clear priority within this five-year plan.[26]

### Strategic plans

In addition to the National Healthcare System Strategic Plan (NHSSP II), the MoHS developed a National Reproductive, Maternal, Newborn, Child, and Adolescent Health Strategy (RMNCAH) -2017 2021, with the overall objective of increasing access to and utilization of quality evidence-based RMNCAH high-impact interventions.[27] Strategy 2.1 (pp. 49 of NHSSP II) reinforces the Government's commitment to develop and support implementation of a national RMNCAH QI programme. Actions outlined include developing a QI model/approach, training health care workers, use of pay for performance as an incentive and establishing QI structures at all levels.

### Free health care Initiative

The Free Health Care Initiative (FHCI) was introduced in 2010 to provide free health care services for pregnant women, lactating mothers, and children under age five. The FHCI focuses on an essential package of health care services to ensure improvements in maternal and child health.[28] Witter, et al.[29] evaluated the process and effectiveness of this initiative suggesting that availability of staffing and drugs is critical. A key recommendation was to **"Bring a relentless focus to bear on quality of care."** The evaluation also pointed out that "from health staff through to managers, non-governmental organizations, civil servants, and donors, there has to be clarity of functions, a supportive environment, and responsibility taken for performance (or lack of it)."

### Sexual and reproductive health strategic plan for adolescents and young people

UNFPA has created a plan of action focused on youth called the Sexual and Reproductive Health Strategic Plan for Adolescents and Young People.[30] Its main goals are the following:

1. Enable evidence-based advocacy for comprehensive policy and programme development, investment and implementation;
2. Promote comprehensive sexuality education;
3. Build capacity for sexual and reproductive health service delivery (including HIV prevention, treatment and care);
4. Take bold initiatives to reach marginalized and disadvantaged adolescents and youth, especially girls and;
5. Promote youth leadership and participation, quality values and leadership.

### Quality values

The RMNCAH strategic plan lists nine guiding principles that support QoC (pg. 35): (1) implementing evidence-based interventions, (2) continuum of care approach, (3) prioritization and phased approach, (4) focusing on results, (5) gender response and rights-based approach, (6) equity-focused, (7) centred on health system strengthening, (8) partnerships coordination and efficiencies, and (9) multisectoral approach. These stated principles are consistent with key principles of QI: client focused, data driven, and focused on systems/processes.

The principle that appears lacking in each of the strategic documents is the use of a team-based QI approach. A study conducted in Connaught Hospital in the capital city of Freetown revealed that team work and effective communication between health care professionals in the different departments within the hospital was lacking. Further, the nurses' autonomy was observed to be heavily influenced by the power dynamics of the hospital hierarchy, which inhibited their freedom to express their opinion regarding roles or policies.[31]

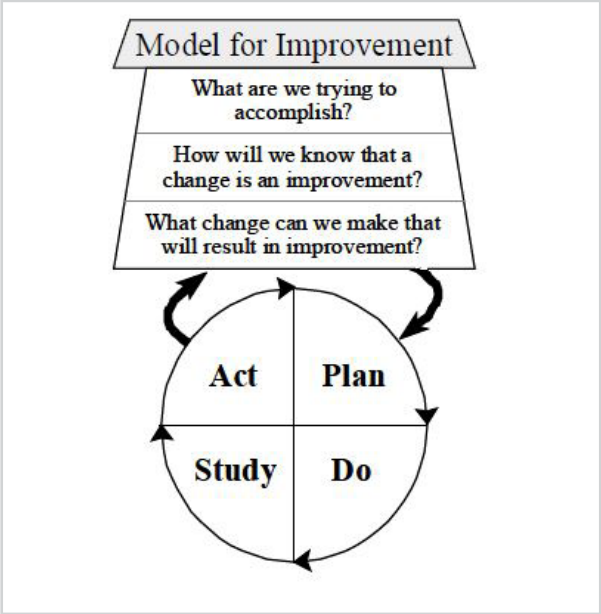
### Maternal and newborn quality of care global network

Representatives from the Sierra Leone MoHS, UNFPA and WHO attended a regional workshop in Tanzania in December 2017 to join nine other countries in the MNH QoC Global Network. Since that visit, the MoHS has been taking steps to follow through with the action plan written during the meeting. The MoHS Reproductive Health and Family Planning Director was appointed as the national QI focal person, and has taken up the challenge of organizing a structure to support the initiative. A QI landscaping activity was conducted with partners and a QoC stakeholder group was organized. The group met and was given an orientation in the MNH QoC; they were tasked with developing terms of reference for a QoC technical working group. This group will focus on MNH to test and learn the QI process; but, over time, the role of the technical working group will be to oversee all QoC activities in the country.

### National quality of care framework

The stakeholder group formed to organize the MNH QoC reviewed various QI models and proposed the adoption of the Model for Improvement as the national QI model (Figure 2). The Model for Improvement is the most widely recognized QI approach used internationally in health care. This model will be used by all partners implementing QI activities so that a standardized approach is used throughout the country.

**Figure 2. Model for improvement**




The four steps of this process include:

1. Identify what needs to be improved by asking "What are we trying to accomplish?"

2. Analyse the problem and answer the question "How will we know that change is an improvement?"

3. Develop a hypothesis about solutions by asking "What changes will result in improvement?"

4. Implement the hypothesized solutions by applying Plan-Do-Study-Act (PDSA) to see if they result in improvement.

The fourth step, PDSA, is a systematic way of implementing identified changes, measuring effects of the changes and deciding whether to abandon, modify or implement the change. The PDSA cycle is an evolution of the scientific method, which is the bedrock of medical practice.[32]

### National maternal and newborn health standards

The stakeholder group also reviewed the WHO Standards for Improving Quality of Maternal and Newborn Care in Health Facilities and made recommendations for adaptation to the local country context. From this meeting, the initial draft of the Sierra Leone National MNH Standards was written.

A larger stakeholder QoC orientation, hosted by Sierra Leone (MoHS and partners- WHO, UNFPA, UNICEF) with participants from Sierra Leone and a few neighbouring countries, was held from 30 May to 1 June 2018. The purpose was to orient stakeholders on QI, and to mobilize, establish and institutionalize QoC for mothers, newborns, children and adolescents in Sierra Leone. During that meeting, the draft of the Sierra Leone MNH Standards was reviewed, and recommendations made for the final set of standards to be adopted by the MoHS.

The Sierra Leone MoHS published several sets of national MNH standards and clinical guidelines/ protocols to guide clinical staff in providing quality care. [33]

- National Family Planning Manual
  - 2016 Facility Assessment for Reproductive Health Commodities and Services in Sierra Leone
  - 2017 Training on Short-Term Family Planning Methods -Facilitators' and Participants' Manuals;
- National ETAT Programme (2017);
- National Emergency Obstetric and Neonatal Care (EmONC) clinical protocols (WHO supported the development of 19 new protocols and updated eight previous protocols developed with support from UNFPA. They also printed reference booklets of the protocols in 2017.);
- National Infection Prevention and Control Guidelines (2015); and,
- Standards for the special newborn care units (SNCU) to be developed along with WHO.

A study in a rural paediatric hospital in Bo District revealed non-compliance with standard treatment guidelines by clinicians that impacted on patient outcomes. This study recommended the implementation of routine monitoring and evaluation (M&E), and improving rational drug use and the QoC.[34] This study points out the need to develop a communication and implementation plan for all new and revised clinical guidelines/ protocols, and ensure that the plan is carried out.

**Box 1.Summarized strengths and weaknesses of QoC leadership and structure**

**Strengths:**

- Sierra Leone Basic Package of Essential Health Services (2015-2020)
- Free Health Care Initiative (2010) for pregnant women, lactating mothers
- Health Sector Recovery Plan (2015-2020)
- MDSR guidelines (2015), committees and actions
- NHSSP II Strategic Plan (2017-2020) supports the development of a comprehensive national QIprogramme
- RMNCAH policy and strategic plans (2017-2021) supporting QoC
- Development of EmONC clinical protocols/guidelines with reference booklets for each (2017-2018)
- Participation in the MNH Quality of Care Global Health Network
- QoC technical working group being organized
- National MNH standards being finalized
- Model for Improvement under approval

**Weaknesses:**

- Team-based QI approach not evident in strategic plans
- National QI Unit (or secretariat) not yet established
- National QoC package not developed

**Resources for quality improvement**

Human resources, financial resources, drugs, supplies and functional equipment are all resources that effect implementation of standards and QI. Some of these are essential and others amplify the ability of QI teams to function. Health worker shortages remain a persistent challenge in Sierra Leone, which directly affects the QoC provided. The Clinton Health Access Initiative is working with the MoHS to develop a human resources mapping and production plan and a rural retention and resource plan. Both plans might be expected to support the need for increased staffing to improve the QoC.[35]

In 2013, UNFPA supported the Government of Sierra Leone by refurbishing health facilities and by upgrading these facilities to BEmONC and CEmONC centres.[36] However, a follow-on UNFPA assessment in 2015 noted a lack of adequate space, inadequate water supply, and lack of infrastructure for waste management as well as lack of power supply as key challenges in health centres.[37] A plan to continue facility renovations for BEmONC and CEmONC health facilities was put in place and UNFPA with other partners have been continuing with the implementation of the plan.

Time, transportation and materials are important resources needed to support QI activities. The District Health Management Team (DHMT), facility leaders, and health facility staff must have time to devote to QI activities. Implementation of QI requires sustained leadership, training and support, effective measurement and data systems, changes in practice, and cultural receptivity to change. QI teams need to be formed, trained and supported to make improvements. Stakeholders interviewed suggested that time constraints exist due to staffing deficits and competing activities. The competing activities often result from lack of coordination of training schedules and priority setting among partners. In addition, transportation is limited for supervisor support and learning activities. (During the rainy season, many roads throughout the country are impassable.)

Supportive materials such as flipchart paper, markers, checklists and QI guidance documents are basic requirements for QI teams; computers with internet access are also valuable assets when investigating current evidence and benchmarking. The health care clinics do not have adequate supportive materials or access to computers and internet. In 2011, Sierra Leone was listed as one of the slowest and lowest rates of internet penetration and usage in the world.[38] Sierra Leone is like other West African countries with a relatively successful mobile market but limited internet availability and use. Connectivity is an integral part of the country's National Information and Communication Technology Policy, which seeks to develop Sierra Leone "into a knowledge-based information society with a vibrant ICT sector." In 2013, Sierra Leone started the use of commercial cable, which is increasing the availability of high-speed internet in the country.[39]

**Box 2. Summarized strengths and weaknesses on QoC resources**

**Strengths:**

- Donor-support to provide transportation and materials to conduct QI activities

**Weaknesses:**

- Facility-level QI teams and plans do not exist
- Time constraints due to staffing and competing priorities/activities
- Limited resources for transportation for supervision and learning sessions
- Lack of internet access and computerization

## Organizing a quality structure

A national QI structure is yet to be established in Sierra Leone; however, the National RMNCAH Strategy ( 2017-2021) sets the expectation for the development of QI structures at the central, district and facility levels. MoHS staff have been participating in UNFPA/WHO/UNICEF-sponsored workshops to gain the knowledge needed to lead this effort. Donor-supported consultants have provided intermittent assistance to train staff, conduct assessments and facilitate planning activities. Nonetheless, expertise to create a structure for the institutionalization of QI remains a limitation in Sierra Leone.

## Support functions

Three essential support functions for institutionalizing quality are: building capacity, information and communication, and rewarding quality.

### Building capacity

As with any profession, there is a body of knowledge and skills required to gain expertise in QI. QI is a problem-solving methodology. And, there are a variety of QI tools that can be used to investigate the cause of a problem, seek solutions and measure the results of the actions taken. Building the skills of health care workers to provide quality maternal and newborn care requires both training in QI methodology and clinical skills building, including coaching and mentoring, supportive supervision and shared learning

The RMHCAH Strategic Plan (Objective 2.1.2) proposes training health workers to provide quality services and use PBF to incentivize the use of QI indicators. Strategy 2.2 supports the "implementation of proven systematic QI procedures, approaches and practices for improving quality of RMNCAH services with special focus on ETAT, respectful maternity care and MDSR."

### Maternal and newborn quality of care training

Extensive training of primarily nurses and midwives has been conducted during the past decade (see Table 2 for details). This training corresponded with the implementation of the FHCI, and, it assumed that when women began delivering in health facilities, the maternal and newborn mortality would decrease. But it did not. This outcome suggested that other factors needed to be considered. These factors could not be solved with training; instead, they required additional investigation of causes and solutions. Hence, QI training was introduced to identify the gaps in quality and to work with facility teams to find solutions.

### Quality improvement training

Training in QI has been provided through donor projects to prepare facility teams in addressing specific clinical problems using systematic problem-solving techniques. These projects led to clinical improvements that may or may not have been sustained because measurements typically stopped at the end of the project. Integration of QI methodology did not occur when the support ceased. Each project used a different QI model, and, a standardized QI training programme has not been established in Sierra Leone (Table 2).

### Coaching/mentoring

A thin line exists between coaching and mentoring that will not be pursued in this document. In both cases, the coach or mentor provides technical and motivation support. Also, both roles require time to acquire and master the skills. To improve QoC, coaches/mentors are needed to advance clinical performance and develop QI expertise.

An Emergency Triage, Assessment and Treatment (ETAT) mentorship programme is active in all district hospitals. A similar programme for mentorship for EmONC will be rolled out in 2018. Both are being led by the MoHS with support from UNFPA, UNICEF and WHO. UNICEF is also training mentors in the SNCUs. Furthermore, Partners in Health and CUAMM offer on-site professional staff who provide clinical mentoring/coaching in obstetrical and paediatric care. During stakeholder interviews, concerns were raised about losing trained staff through staff rotation between units and facilities.

The Japanese International Cooperation Agency (JICA) supported Kambia District (2008-2011) in implementing a 'comprehensive supportive supervision' approach, which they reported was not fully implemented due to a lack of budget and human resources, in part due to unclear expectations from decentralization.[40] The MoHS recognized the need to enhance supportive supervision and included an activity in the Human Resources for Health Strategy 2017-2021 (pg. 35, section 2.5.1) that states: "Develop and implement a plan for standardised clinical mentoring and supportive supervision programmes and practices, focusing on the nursing and midwifery workforce." Currently UNICEF is supporting the MoHS in the districts of Bombali, Tonkolili and Port Loko to improve their data management through supportive supervision.[41]

QI coaching has typically been provided by partners while conducting a QI intervention. A cadre of QI coaches has not been developed in Sierra Leone.

### Shared learning

The RMNCAH strategic plan speaks to the importance of shared learning. Shared learning entails person to person interactions. ICAP has implemented a systematic approach to shared learning with the groups they are supporting, via QI trainers, through quarterly meetings and frequent contact (e.g., weekly phone calls, Whatsapp or email).

**Box 3. Strengths and weaknesses of QI and clinical care capacity-building**

**Strengths:**

- ETAT and EmONC clinical training programmes with coaching and mentoring

**Weaknesses:**

- Lack of communication and coordination between stakeholders that are providing QI training
- A national QI training programme not established
- Lack of QI trainers and coaches
- Trained staff rotating among different units and facilities affecting team function & coaching/ mentoring
- National/regional best practice forums have not been established

### Information and communication

Information and communication of QI includes such activities as documenting QI results in reports, publications and posters and submitting data to the health management information system. Sierra Leone has a Results and Accountability Framework that describes the monitoring and evaluation requirements to support health services management and using information for evidence-based decision-making. A set of indicators has been defined for inputs, outputs, outcomes and impacts. The operationalization of the framework is intended to be realized through the PBF scheme that was introduced in 2011.

### Maternal and newborn health monitoring and evaluation

NHSSP II included a set of proposed MNH indicators (Section VI, Monitoring and Evaluation) focused primarily on mortality and access. In addition, an M&E framework was established in the RMNCAH strategic plan (RMNCAH Strategy Monitoring and Evaluation, Appendix 10.1). The M&E will be at two levels: level one, monitoring implementation of the strategy; and level two, M&E in achieving the set impact of the strategy and coverage targets.

At the health facility level, partner projects have facilitated quality teams to identify quality gaps, and to analyse and determine local actions to resolve existing problems (refer to QI programming). Indicators are established for the improvement interventions, which often showed positive results. However, facility staff have limited knowledge and skills in monitoring trends and using data for decision-making.

For the expanded view of M&E, accreditation of health facilities is a key long-term strategy in NHSSP II. As the process evolves, a multiplex of indicators will likely be developed to measure compliance with standards, e.g., the proportion of health facilities accredited and hospitals with QA/QI units.

### Maternal death surveillance and response

WHO and partners established the Maternal Death Surveillance and Response (MDSR) approach in 2012 to reduce preventable maternal deaths. The process involves the identification and review of maternal deaths followed by the interpretation of the aggregated information on the findings, and acting to prevent future deaths. In July 2015, an MDSR National Technical Guideline was written in Sierra Leone and a national MDSR Committee was established.[42] The MDSR is currently being implemented in all 14 districts in the country. Each district has an MDSR committee that includes the district medical officer, district superintendent, district sister (also usually the MDSR focal point) a representative of the community and district surveillance officer. All district hospitals also have a Maternal Death Review (MDR) committee. The district committee meets at least once a month to review maternal deaths and offer recommendations and data analysis. QI efforts are being linked to this process.

### Quality improvement research

Few systematic research studies have been conducted to study the effectiveness and factors contributing to the effectiveness of QI programmes.[43] Therefore, there remain many questions yet to be answered about the best approaches to QI programming and effective approaches for institutionalizing QI within developing countries. Research investigating the effectiveness of QI activities in Sierra Leone has not been done.

Sierra Leone's academic scientific research output is ranked below countries like the Gambia, Guinea Bissau, Mauritania, and Guinea. The Sierra Leone research community is hampered by the lack of research and publication facilities, such as internet access and subscriptions to academic journals. In addition, Sierra Leone has no research funding council to fund and direct research and knowledge dissemination.[44] Therefore, research related to quality of care has not been a priority.

**Box 4. Strengths and weaknesses of indicators and research**

**Strengths:**

- Sierra Leone Results and Accountability Framework
- National Health Information Management System with key MNH impact indicators

**Weaknesses:**

- Lack of facility staff knowledge and skills in data management and use for decision-making
- Lack of research and publication facilities within Sierra Leone

### Incentives and recognition

There are various ways to motivate staff, such as supervisory support, personal and public recognition for efforts and successes, and career development. Individuals and groups are motivated differently. Some demotivators revealed through interviews with nurses at Connaught Hospital included: lack of equipment, adequate space and opportunities for further professional development. The nurses expressed a desire to to be part of a strong health system and to learn and be able to provide high-quality care. Low salaries, poor career opportunities and bureaucratic recruitment processes were identified as barriers for further development of skills and knowledge.[45]

In 2011, PBF was introduced in Sierra Leone to encourage health care providers to increase the quality of services provided in the Free Health Care Initiative. As with many other African countries, pay for performance is the main model for incentivizing staff to improve QoC. The World Bank funded the Reproductive and Child Health Project Phase 1&2 between 2010 and 2017 in Sierra Leone. The PBF scheme was implemented nationwide and covered 1,200 primary health care facilities and six hospitals.[46] Grants were administered quarterly to all 19 local councils in the country to finance facility inputs such as vehicles, equipment, drugs, facility improvements and health worker training. They were given based on the facilities meeting a set of maternal and child health service coverage outputs for facility-based deliveries, e.g., ANC attendance by pregnant women.

PBF was designed to contribute about 10 per cent of the funds to the health workers' salary. A study revealed that the workers valued this perk; although distribution management problems created some demotivation.[47] Facilities used some of the PBF funds to improve basic infrastructure and obtain needed equipment, consumables and drugs during stock-outs. The project was judged as 'moderately successful'. However, with a potential increase in motivation among workers reported, and 'seemingly high patient satisfaction', the MoHS and World Bank (donor) plan to evaluate further implementation of the programme (NHSSP II, pg. 55).

**Box 5. Strengths and weaknesses of incentives and recognition**

**Strengths:**

- PBF programme initiated in two districts that pay incentives based on quality indicators

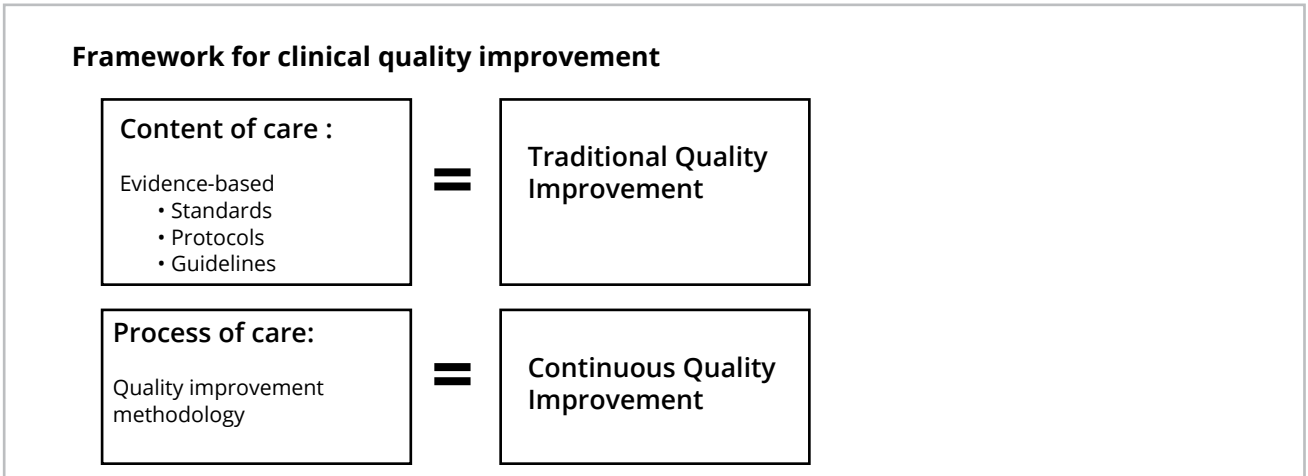
**Weaknesses:**

- Personalized and creative incentives not established
- PBF payment delays and management glitches

## Quality initiatives in Sierra Leone

Most of the QI activities in Sierra Leone have been clinical capacity-building, which concentrates on training staff to improve job performance based on current evidence-based guidelines. In this approach, a baseline assessment (clinical audit) is typically conducted to determine whether the guidelines are being met. The gaps in performance are then used to plan and provide staff training. This traditional QI approach is critical to building professional knowledge and skills. However, it does not address the problems within the system that also impact the QoC, e.g., supply management or poor attendance at antenatal care visits. Staff may be well prepared to carry out their duties, but when faced with a system problem, they often do not have the problem-solving tools or authority to improve the process of care. Thus the addition of a continuous quality improvement (CQI) approach to address these other issues as depicted in Figure 3.[48]

**Figure 3. Framework for clinical quality improvement**




*Source: Adapted from Batalden and Stoltz, "A framework for the continual improvement of health care" (see endnote 48).*

CQI includes a unique set of competencies. Maina, G.E., et al., proposed a core competency framework for QI for East Africa which included three domains: (1) principles and concepts of improvement science, (2) designing, planning and managing the QI process, and (3) leadership and support of the QI process. [49] Staff gain new skills in identifying and solving problems and measuring indicators to track improvements. The health care workers require this additional set of knowledge and skills to institutionalize QI in Sierra Leone.

Various partners have worked with the MoHS to improve the QoC of mothers, newborns and children over the past two decades. Table 2 provides an overview of some of the key initiatives.

**Table 2. Maternal and newborn quality improvement initiatives in Sierra Leone**

| Maternal and newborn quality improvement initiatives in Sierra Leone | | | |
|---|---|---|---|
| **Timeline** | **Maternal care** | **QI approach** | **Description of activity** |
| 2008 | EmONC | Standards-based audit | An EmONC assessment was conducted that revealed that 14 of 38 hospitals (37 per cent) met the required signal functions and qualified as EmONC services. No CHCs met all the criteria to provide BEmONC services. [50] The MoHS set goals to increase the number of facilities that provide BEmONC and EmONC. |
| 2009 | EmONC | Standards-based audit with a QI team | The Liverpool School of Tropical Medicine introduced a QI package, in conjunction with an EmONC training programme, using a standards-based audit approach that was linked to the maternal death and surveillance results. QI committees were started in the hospitals and leaders trained. An emphasis was placed on use of data and assisting teams to develop graphs/charts and interpret data. |
| 2015 | EmONC | Standards-based audit | A Facility Improvement Team assessment showed an increase in compliance with key obstetric signal functions from 63 per cent in 2010 to 92 per cent in 2012; the score in 2015 was 82 per cent.[51] Of 13 hospitals assessed, Pujehun Government Hospital was the only facility certified to be compliant in all but one of the signal functions, namely drugs. None of the 65 BEmONC facilities met all the criteria; lack of equipment, blood and laboratory services and staffing were the lowest ranking scores. |
| 2016 | EmONC | Standards-based audit<br><br>Clinical capacity-building | UNFPA performed a rapid assessment in 30 health facilities, including a review of staff training in EmONC: Helping Babies Breathe and Helping Mothers Survive (HMS); Lifesaving Skills (LSS); IPC; AYFS; and family planning, both short-term and long-term. Five hundred and twelve maternal and child health services health personnel received at least one type of training, among all facilities assessed. The majority received training in IPC (36 per cent), and a few received training in AYFS (10 per cent), Helping Babies Breathe and HMS (11 per cent). Medical officers and public health assistants received less training in any course, whereas most of the midwives, nurses, maternal child health aides and community health officers (CHOs) received training. |

| Maternal and newborn quality improvement initiatives in Sierra Leone | | | |
|---|---|---|---|
| **Timeline** | **Maternal care** | **QI approach** | **Description of activity** |
| 2017 | EmONC | Standards-based audit | A more extensive assessment was undertaken by UNFPA for 187 health facilities including all hospitals (both private and public) and 50 per cent of the CHCs. The purpose of the assessment was to identify needs and gaps that would better inform programmatic efforts for increasing quality, coverage, and utilization of EmONC services as well as critical support systems at all referral levels. |
| 2017 | EmONC | Clinical capacity-building | The MoHS developed a harmonized EmONC training package with support from partners (UNICEF, UNFPA, WHO etc.). This was used to train 40 master trainers and 240 service providers on EmONC competency with UNFPA's support in 10 districts. WHO also supported similar training in the remaining four districts. |
| 2012–present | Maternal QoC | Clinical capacity-building<br><br>BEmONC Mapping<br><br>Quality Collaboratives | UNFPA supported CUAMM-Doctors in Africa to provide direct care, mentoring/training of staff and guidance in management/administration. They started work in Pujehun District with a focus on providing continuity in mother and child health care, including assisted deliveries, transport for paediatric and obstetric emergencies, and on-the-job mentoring by working in the hospital on call shifts.<br>A mapping exercise was conducted, based on WHO existing maps, together with the DHMT Western Area of all hospitals, BEmONC, CHC and some community health posts (CHP) facilities to understand the referral patterns.<br>CUAMM identified one of the main gaps in maternal QoC as transport to care. Improvements were reported in the MNH referral system (e.g., vouchers for paediatric emergencies, covering travel expenses, free call centre with a midwife answering questions and deciding whether to refer a mother or not). They also improved blood bank services (through working with the National Blood Transfusion Center at Connaught Hospital). And, they have been collecting data on neonatal deaths. |
| 2014–present | Maternal QoC | Quality collaboratives | An international midwife working with Partners in Health (PIH) introduced the Model for Improvement in the Kono District. PIH is building the capacity of M&E staff. PIH is involved in three QI initiatives using the Model for Improvement. The QI approach includes clinical training, procurement and distribution of essential equipment, development of QI teams, clinical mentorship and QI coaching. The 'decision to incision' project focuses on reducing the time from the decision to do a C-section to the incision time. Data is reviewed at a monthly MDSR meeting. The partograph project targets improving use and accuracy of partographs for making good decisions. And the missed dose project aims to ensure that all patients in the maternity ward receive timely, correct doses that are documented. |

| Maternal and newborn quality improvement initiatives in Sierra Leone | | | |
|---|---|---|---|
| **Timeline** | **Maternal care** | **QI approach** | **Description of activity** |
| 2014–present | HIV/AIDS<br><br>Infection control | Quality collaboratives | ICAP (Columbia University) offers the most formal QI health care programme in Sierra Leone, which has two QI advisors that use the Model for Improvement and rapid problem-solving. They have a standard process for preparing quality teams to make improvements. There are two phases to their activities. The first is the design phase. They start with a one-day QI sensitization meeting for stakeholders, followed by baseline data collection regarding the area of interest. The results are shared with all stakeholders including the facility staff, which results in prioritizing quality gaps, developing indicators and a workplan.<br><br>The implementation phase includes the first learning session, which is a five-day intensive training. The content includes training in QI and clinical care/service delivery. ICAP staff members mentor facility staff on-site biweekly to obtain buy-in, organize QI teams and transfer skills. Facility teams, of usually five people, are formed and led by the in-charge. Follow-up phone calls and Whatsapp messaging are used to help keep the teams on track. Two more learning sessions take place that are attended by every partner involved in the topic area. At least three people attend from each of the eight facilities for which they are working.<br><br>ICAP is working with the MoHS and have implemented QI in four hospitals. They have at least four projects in each of the hospitals. Activities include working with the National HIV/AIDS Secretariat to implement QI in in tuberculosis and HIV, in 20 CHCs in Western Area Rural and Makeni. They will also be introducing a QI portfolio for reproductive and child health. |
| 2016 | Safer anaesthesia | Clinical capacity-building | Safer Anaesthesia from Education is a global training initiative, sponsored by the Association of Anaesthetists of Great Britain and Ireland (AAGBI) and the World Federation of Societies of Anaesthesiologists. Two courses were provided for anaesthetic providers in Sierra Leone: a three-day paediatric course and a three-day obstetrics course. In addition, a two-day course for midwives was run by the midwifery and obstetric visiting team. Forty-nine individuals from 16 hospitals attended; 19 completed the course. |

| Maternal and newborn quality improvement initiatives in Sierra Leone | | | |
|---|---|---|---|
| **Timeline** | **Newborn care** | **QI approach** | **Description of activity** |
| 2009 | BFHI | Clinical capacity-building | A training of trainers on BFHI was conducted and cascade training done, covering all districts, but there has been no follow-up on implementation. |
| 2014 | BFHI | Standards-based audit | The World Breastfeeding Trends Initiative assessed the progress of the implementation of the Global Strategy for Infant and Young Child Feeding at the national level. Sierra Leone stood at 62 per cent, ranking among 91 nations, with a score of 53 in meeting the Initiative's standards. |
| After 2014 | BFHI | Standards-based audit | An assessment was done for the three regional hospitals and Princess Christian Maternity Hospital/Ola During Children's Hospital for the establishment of BFHI. |
| 2017 | BFHI | Clinical capacity-building | The Directorate of Food and Nutrition, with support from WHO and UKAiD, organized a five-day training for hospital staff on BFHI.[55] Seventeen master trainers were trained who will cascade the training throughout the country. Plans include setting up a BFHI committee in the University Teaching Hospital and establishment of BFHI in district hospitals. |
| 2017 | SNCU | Clinical capacity-building<br><br>Infrastructure Improvements | UNICEF has been supporting the improvement in the QoC of critically ill babies. SNCUs were instituted in regional hospitals in Makeni, Bo and Kenema. The units were constructed within the existing facilities and supplied with equipment such as monitors, phototherapy machines, radiant warmers, oxygen concentrators, washing stations and incubators. Staff were allocated to the area and training in ETAT was provided. Some nurses received SNCU training at Ola During Hospital. |
| **Timeline** | **Child health** | **QI approach** | **Description of activity** |
| 2005 | ETAT | Clinical capacity-building | ETAT was initially implemented in Lunsar Hospital in the Northern Province of Sierra Leone in 2005. ETAT is a course to teach health care workers to triage all sick children when they arrive at a health facility and provide emergency treatment for life-threatening conditions. |
| 2016-2017 | ETAT | Standards-based audit<br><br>Clinical capacity-building | ETAT+ is being implemented through a national ETAT faculty, with support from UK aid, WHO and the UK-based Royal College of Paediatrics and Child Health.[ii]<br><br>ETAT training was expanded to 14 district hospitals beginning with a hospital assessment. Components of the programme include assessment visits with development of individual plans, skills improvement (through six months of clinical mentoring by a foreign clinician and Sierra Leonean mentor; and short and long courses), change in processes and monitoring. Thirteen accredited national ETAT+ mentors and 40 clinicians have been identified as national faculty trainers. ETAT+ has been incorporated into standard training of house officers as Ola During Children's Hospital |
| 2018 | ETAT | Clinical capacity-building | The plan is to expand from ETAT to include care for critically ill children admitted and to transition out of using external mentors. Mentorship will be mainly provided by Sierra Leonean mentors; creating a national faculty of trainers and establishing a centre of excellence.[58] |

| Maternal and newborn quality improvement initiatives in Sierra Leone | | | |
|---|---|---|---|
| **Timeline** | **Adolescent Health** | **QI approach** | **Description of activity** |
| 2011 | AYFS | Standard setting | A National School and Adolescent Health Programme was created within the MoHS and supported by UNFPA, WHO and other partners to develop Adolescent/Young People-Friendly AYFS standards. |
| 2017 | AYFS | Standards-based audit | UNFPA supported an assessment of 30 health care facilities (29 CHCs and one hospital) within all four regions. The objective was to determine the status of the structure, supplies, staffing and services for the provision of AYFS according to the standards. A report of the findings was intended to provide a baseline for QI. |
| 2018 | AYFS | Infrastructure Improvements<br><br>Standard setting | UNICEF is upgrading 100 adolescent-friendly health facilities; three SNCU will be established at regional hospitals (one at Ola During Hospital in Freetown). Standard procedures have been developed for use of the specialty equipment and UNICEF plans to support the development of standards for the SBCUs. |

| **Timeline** | **Cross-Cutting** | **QI approach** | **Description of activity** |
|---|---|---|---|
| 2014-Present | Infection Prevention | Standard setting<br>Capacity- building infrastructure improvements | In response to the Ebola epidemic, multiple organizations have been implementing activities throughout the country. Portable handwashing facilities, pit and flush toilets (including one in the maternity ward), hand pumps, water storage, waste management containers, burn pits and incinerators have been constructed. Water, Sanitation and Hygiene (WASH) Facility Improvement Fit Training has been provided, which is a risk-based management tool for improving WASH services in health facilities and to improve the QoC. [59] |
| 2016-present | Nursing Practice | Kaizen CQI | The Japan International Cooperation Organization (JICA) has trained about 200 health care workers at Ola During Children's Hospital in Kaizen. A three-pronged approach was used including 5-S, partnership nursing and double-checking. 5S (Sort, Set, Shine, Standardize and Sustain) is a method to improve the organization and cleanliness of the environment of care. Partnership nursing involves pairing an experienced nurse as a mentor to a less experienced nurse. as a mentor. Double-checking is a means for staff members to check each other's work to avoid errors.<br><br>Five nurses went to Japan in 2016 for an intensive three-week training. Japanese support for this initiative has come to an end; however, there is a proposal for a carry-on project at Ola During Hospital to improve medical equipment maintenance and strengthen leadership skills, including financial management. |

# DISCUSSION

This analysis was conducted to investigate the planning, implementation and evaluation of maternal and newborn QoC in Sierra Leone. The Institutionalization of Quality Model was used to identify gaps in integrating QI into the health care system.

## Internal enabling environment

The MoHS has laid the foundation for QI by drafting a vision, values and strategic plans that should drive the implementation of a QI system. Each of these documents and plans requires quality champions and knowledgeable leadership to become a reality. Implementing these plans will require financial resources to be included in the annual budget. Resources are needed for training, shared learning activities, transportation and ultimately, computerization.

## Organizing a structure

Although various QI initiatives have been carried out over the past two decades in Sierra Leone, a quality structure has not been created that can sustain the efforts. Development of a national quality unit is in the planning stages and is a necessary step toward sustainability. A maternal and newborn QoC technical working group and a Model for Improvement have also been proposed that if approved will provide consistency in implementing QI across the country. Changes in leadership at all levels effects the ability to maintain the momentum of integrating QI into the system; thus, minimizing these changes will improve the prospect of success.

### Support functions

Building the capacity of staff to provide quality maternal and newborn care is a strength in Sierra Leone. Multiple partners have been engaged in training in EmONC, ETAT and other preservice and in-service programmes. A major gap exists in QI training. QI training has been conducted over the past two decades using different curricula and approaches. This scenario has led to confusion and the lack of a standardized programme to prepare leadership and staff to participate in QI activities. Harmonization of the QI training and preparing leadership and QI coaches to create a cascade of learning throughout the country will create a synergy for QI.

Although there is insufficient evidence in the most effective supervision models, supportive supervision is the most common approach used in developing countries.[60] Supportive supervision has evolved in the past two decades emphasizing joint problem-solving, mentoring, and two-way communication between supervisors and those being supervised. Therefore, building the capacity of the DHMT and facility managers to create a culture of quality is a vital link to successful implementation of QI.

The value of dedicating time to sharing ideas and results of quality activities is underestimated. The science of improvement is grounded in the testing and learning cycles of implementing change. There is a benefit to multidisciplinary collaboration and addressing problems from different perspectives.[61] The importance of sharing information is clear – it can directly impact implementation of changes.[62] Therefore, finding creative ways to share ideas between staff members, district and national leaders such as social networking is worth investigating.

The pay for performance programme that was designed to offer an incentive to provide quality services has become dormant, which has impacted staff motivation. Low staffing levels and a lack of drugs and supplies also demotivate staff. That said, monetary rewards are not the key to motivating health care workers. Leadership roles, public recognition and training opportunities are powerful tools to encourage staff.

In summary, joining professional clinical knowledge with improvement knowledge will create synergy in improving the QoC of women and babies. A seamless, patient-centred high-performing system cannot be achieved without the building blocks that combine to form CQI. The Institutionalization of Quality Model provides a framework for laying down the blocks and the Model for Improvement provides a systematic approach for health care workers in the implementation QI.

# LIMITATIONS

The limitations of this paper include potential biases associated with the respondents' tendency to present results that favour their initiative. In addition, there was limited amount of published data in Africa and in Sierra Leone regarding maternal and newborn quality activities. The data published typically reports on QI activities, rather than research or descriptions of the effectiveness of implementing a QI system within a country.

# RECOMMENDATIONS

The WHO document "'Implementation guidance for national, district and health-care facility levels'" provides a complete set of actions to steer the development and institutionalization of the MNH quality of care programme. The following recommendations based on this situational analysis are in keeping with the MoHS strategic plans:

## Internal enabling environment
(Policies, leadership, values, resources)

1. Approve the adapted set of WHO Standards for Improving Quality of Maternal and Newborn Care in Health Facilities.
2. For QI to move forward, it is necessary to build expectations for QI into all health care workers (leaders, medical personnel and support staff) job descriptions and performance appraisals.
3. Grooming leaders to champion QI and make QoC their mantra is imperative.
4. Leaders would benefit from forums in which they can share quality management experiences and solutions.
5. A QI operational plan to move the NHSSPII and RMNCAH strategic plans forward is essential.
6. Resources need to be leveraged to fund some small amounts of money to motivate staff.

## Organizing a structure

1. The maternal and newborn QoC programme is the initial step toward designing the overall QI programme in Sierra Leone; and thus, careful development and implementation is imperative.
2. The proposed maternal and newborn technical working group, QoC steering committee and Model for Improvement need to be approved and implemented.
3. Use of existing committees when designing the QI structures as much as possible is recommended.
4. Developing a national quality unit, as proposed in the national strategic plan, is essential to institutionalizing QI.
5. A concerted effort be made to shift from hierarchal to team-based decision-making. Health care leaders and managers should be reoriented to assume the role of mentor and coach; and, to assist staff to in working collaboratively to improve the QoC.

## Support functions

### Capacity-building

1. QI is creating change; thus, all health care leaders and QI facilitators need an intimate understanding of change management strategies.
2. A standardized QI training programme will provide a more effective means for building capacity throughout the country.
3. Expertise in QI is limited in Sierra Leone; thus, external expertise will be useful initially to build internal expertise.
4. More effort should be placed in teaching, mentoring and supporting teams in -situ to solve their own problems through teamwork.
5. To avoid ongoing need for QI training for pockets of individuals, QI training needs to be included in professional health care training pre-service curriculum.
6. One of the strategies of the RMNCAH strategic plan is to establish regional Centres of Excellence as training hubs on RMNCAH high-impact interventions. The group designing the CoE would benefit from benchmarking the WASH Sector Learning Partnership's "Knowledge Network Resource Centre (KNRC)". *(http://www.washlearningsl.org/about-us/),* which is being created to standardize knowledge management procedures and processes, including defining national standards.

### Communication

1. Strategic objective 2 (Information System & Tools) calls for the development of a health information system that provides quality data, supported by analytical tools and facilitates its use at all levels to carry out data QI activities.
2. QI and infection prevention and control are directly linked; thus, mechanisms need to be in place for these programmes to communicate and coordinate plans and activities and avoid duplication of effort.
3. Regularly scheduled shared learning activities between facilities, e.g., quarterly or semi-annually, and regional/national best practice forums will be beneficial to more rapid problem-solving and scaling up best practices.

### Incentives

1. Incentive systems are most likely to be effective if they involve input from relevant stakeholders and fit the purpose for which they were intended. Thus, careful study of both financial and non-financial incentives is recommended.

The principles of transparency, fairness and consistency must be in place for staff to trust and buy in to the system.

## Initiating maternal and newborn CQI

1. Sierra Leone has some experience with QI but generally needs to continue creating awareness among health care workers and the communities they serve. Thus, the QI activities need to focus on actions that are doable, show rapid improvements and make a significant impact on patient outcomes. Smaller bundles of QoC interventions that can be tackled by a QI team over 18-12 months is preferable to initiating a full-scale certification/accreditation programme. Each of these smaller actions will be moving the facilities towards certification/accreditation.

2. Assessments carried out by various governmental levels and parties (non-governmental organizations, etc.) must be streamlined and coordinated to serve the purpose of improving quality.

3. Using the quality collaborative approach is a means of shared learning and results. Focusing groups on common aims has been shown to be more effective than working towards too many indicators at the same time.

4. Uniform data collection tools will be needed to monitor indicators for each of the interventions in the change package and a reporting system put in place (a dashboard is recommended).

5. Setting annual quality/patient safety goals has been a key strategy for WHO, e.g., surgical site checklist and hand hygiene, to focus on critical issues. Individual countries are introducing their own annual goals (or aims) to achieve priority targets.

6. The 5S method also has strong potential as an easy beginning step towards improving quality, as it is a method that can engage all staff members in cleaning and maintaining the environment. 5S directly supports the IPC programme. Its strength appears in the participatory small groups becoming sensitized and getting involved in self-assessment to identify and prioritize what they can do to improve quality quickly.

7. As the process for creating an accreditation programme evolves, MNH standards can be incorporated in the accreditation standards to facilitate institutionalizing them.

# CONCLUSION

The national strategic plans demonstrate that national leaders have embraced the importance of improving QoC within Sierra Leone. Building a culture of QI requires the development of a well-organized quality management system. NHSSP II and the RMNCAH strategic plans lay out the expectations for creating such a system; and, the MoHS is taking steps to organize a structure to support the initiative.

Studies have described several factors that can impede implementation of maternal health interventions. Lack of commitment by leaders and managers and insufficient resources are well-understood barriers to achieving quality. Other factors include issues such as economic status, literacy, and cultural beliefs (e.g., early marriages and dietary practices).[63] One study revealed that in rural Sierra Leone, family beliefs can take precedence over the availability of free care, e.g., traditional remedies and the use of traditional birth attendants. Thus, each of the factors need to be considered when planning quality strategies.

When planning to introduce quality initiatives, the planners need to place an emphasis on building the capacity of leadership prior to building facility teams. This approach will build confidence into advocate and support the programme. Change management is the core of a leaders' role; thus, developing knowledge and skills in managing change is central to the reducing resistance to change and ultimately, developing a culture of quality.

Current initiatives have tested their concepts and transferred some knowledge and skills at pilot sites with various levels of scale-up. However, without a consistent integrated structure for a quality system, the likelihood of sustaining the gains are low. A means to collaborate and communicate QI activities and results is urgently needed to create a shared learning environment. QI became the mantra in NHSSP II and the RMNCAH strategic plans. These documents lay out the steps for organizing a quality structure. Given that QI is a key strategy, securing dedicated internal funds for generic QI supportive interventions will be needed. The most successful programmes in reducing maternal mortality confront the problem using a multi-strategy approach. The key evidence-based interventions for decreasing maternal and newborn mortality have been identified and are being communicated worldwide. The next step is for partners to work together to support countries in implementing them.

# ANNEXES

## Annex 1. List of stakeholders

| Organization | Individuals | Positions |
|---|---|---|
| Ministry of Health and Sanitation | Santigie Sesay | Reproductive Health Directorate |
| | Sulaiman Conteh | Reproductive Health Directorate |
| | Ernest Jabbie | M&E Focal Point, QoC<br>Reproductive Health Directorate |
| | Mariama Momoh | Sr. Public Health Nurse<br>Reproductive Health Directorate |
| | Alimamy Kamara | MoHS |
| | Memuna Bome | Sr. Public Health Sister |
| | Sallay Carew | Sr. Public Health Sister |
| District Health Management Team – -Western Rural | Aminata Nurie | Supervisor |
| District Health Management Team – Bo | Gladys Sisay | Supervisor |
| UNFPA | Kim Dickson | Country Representative |
| | Mohammed Elhassein | Reproductive Health Technical Specialist |
| | Sylvia S.Y Fasuluku | Sexual Reproductive Health Coordinator |
| | James Akpablie | Reproductive Health Technical Advisor |
| WHO | Janet Kayita | Sr. Health Specialist |
| | Fatu Forna | Team Lead, Reproductive and Maternal Health |
| | Binyam Getachew | Medical Officer, Child Health<br>RMNCAH, BPEHS Cluster |
| | James Bunn | Child Health |
| | Patricia Titulaer-Van Ham | Technical Officer, Maternal Health |
| UNICEF | Asha Pun | MNH Specialist, Health Section |
| | Mariama Mustapha | Health Specialist |
| Partners in Health Sierra Leone | Jourdan Anne Schiffer McGinn | Director of Policy & Partnerships |
| CAP | Adewale Atunjup | Technical Director |
| | Irene Ogongo | QI Advisor |
| | Ginika Egesimaba | |
| | Getachew Kassa | QI Programme Coordinator |

| Organization | Individuals | Positions |
|---|---|---|
| Clinton Health Access Initiative | Donald Conteh | Human Resources for Health Advisor |
| CUAMM-Columbia University | Enzo Pisani | Medical Director |
| | Lavinia Turchetti | Administrator |
| Liverpool School of Tropical Medicine | Betty Sam | Sr. Technical Advisor |
| | Florence Bull | Technical Officer |
| Japan International Cooperation Agency | Kiyomi H. Koroma | In-house Consultant |
| SOLTHIS | Jirina Kafkova | Medical Officer |

## Annex 2. Organizations Supporting Maternal- and Child Health care in Sierra Leone

| Organization | |
|---|---|
| Africare | Mayame |
| CARE International | Medical Research Centre |
| Catholic Relief Services | Médecins Sans Frontières (MSF – Doctors without Borders) |
| Christian Children's Fund | National Catholic Development and Caritas Office |
| Concern | Partners in Health (PiH) |
| Department for International Development (DFID)-UK | Plan International |
| Doctors with Africa (CUAMM) | Solthis |
| Health Unlimited | Swiss Agency for Development and Cooperation |
| CAP (Columbia University) | United Nations (UN) |
| International Federation of Red Cross and Red Crescent Societies | United Nations International Children's Emergency Fund (UNICEF) |
| International Cooperation Italy (COOPI) | United Nations Development Programme (UNDP) |
| International Planned Parenthood Federations | United Nations Population Fund (UNFPA) |
| International Rescue Committee | United States Agency for International Development (USAID) |
| Irish Aid | World Food Programme (WFP) |
| Japan International Cooperation Agency (JICA) | World Health Organisation (WHO) |
| JHIEPGO (Johns Hopkins University) | World Vision |
| John Snow International | |
| Marie Stopes International | |

## Annex 3. Definitions

**Continuous Quality Improvement (CQI)** emphasizes continuity of effort and active identification of weaknesses as opportunities for improving quality.

**Indicator** is a measurable variable or characteristic that can be used to determine the degree of adherence to a standard or achievement of quality goals.

**Quality of Care** is the extent to which health care services provided to individuals and patient populations improve desired health outcomes. To achieve this, health care must be safe, effective, timely, efficient, equitable and people-centred.[65]

**Safe.** Delivering health care that minimizes risks and harm to service users, including avoiding preventable injuries and reducing medical errors.

**Effective.** Providing services based on scientific knowledge and evidence-based guidelines.
Timely. Reducing delays in providing and receiving health care.

**Efficient.** Delivering health care in a manner that maximizes resource use and avoids waste.

**Equitable**. Delivering health care that does not differ in quality according to personal characteristics such as gender, race, ethnicity, geographical location or socio-economic status.

**People-centred**. Providing care that takes into account the preferences and aspirations of individual service users and the culture of their community.

**Quality control** are mechanisms to monitor and regulate the provision of quality of care, such as accreditation and/or licensing of health -care facilities and/or health- care professionals.[66]

**Quality improvement** is a systematic, formal approach to the analysis of practice performance and efforts to improve performance. A variety of approaches – also known as QI interventions – exist to help collect and analyzse data and test change.[67]

**Quality measures** are criteria for assessing, measuring and monitoring the quality of care as specified in the quality statement. They are of three types:

- What must be in place for the desired care to be provided (e.g. physical resources, human resources, policies, guidelines);
- Where the desired process of care was provided as expected; and
- The effect of the provision and experience of care on health and people-centred outcomes.

**Quality planning** is a systematic process that translates quality policy into measurable objectives and requirements and lays down a sequence of steps for realizing them within a specified timeframe.

**Quality statements** are concise statements of priorities for measurably improving QoC around childbirth. They define the markers of quality derived from evidence on the thematic area and the resources required.

**Standard** is a statement of the desired achievable (rather than observed) performance or value for a given parameter.

Definitions obtained from:

- WHO. 'Standards for Improving Quality of Maternal and Newborn Care in Health Facilities, 2016'.
- WHO. 'A Network for Improving Quality of Care for Maternal, Newborn and Child Health. Implementation Guidance'. Working document Feb 2017.

# ENDNOTES

1. Sierra Leone Ministry of Health and Sanitation. 'National Health Sector Strategic Plan, 2017-2021'. Freetown, Sierra Leone.

2. A. Vasan, et al. "Support and performance improvement for primary health care workers in low- and middle-income countries: a scoping review of intervention design and methods," Health Policy and Planning, 32 (2017): 437–452. doi: 10.1093/heapol/czw144.

3. L.M. Franco et al. Sustaining Quality of Healthcare: Institutionalization of Quality Assurance. QA Monograph Series 2(1). 2002. Maryland, USA: Published for the U.S. Agency for International Development (USAID) by the Quality Assurance Project.

4. Sierra Leone Ministry of Health and Sanitation. 'Maternal Death Surveillance and Response (MDSR) National Technical Guideline, 2018 1st ed., Freetown, Sierra Leone.

5. Sierra Leone Ministry of Health and Sanitation. 'Sierra Leone National Reproductive, Maternal, Newborn, Child, and Adolescent Health Strategy 2017-2021'. Freetown, Sierra Leone.

6. UNICEF Global Data Base. Available at data.unicef.org, updated 22 February 2018.

7. World Health Organization. 'Every Newborn: an action plan to end preventable deaths'. 2014. Geneva, Switzerland.

8. K.E. Dickson, M.V. Kinney, S.G. Moxon, et. al. "Scaling up quality care for mothers and newborns around the time of birth: an overview of methods and analyses of intervention-specific bottlenecks and solutions," BMC Pregnancy Childbirth. 15 Supplement 2:S1. (2015). doi: 10.1186/1471-2393-15-S2-S1. Epub 2015 Sept. 11.

9. United Nations Population Fund. 'Assessment of infrastructure, equipment and human resource needs for emergency obstetric and neonatal care, adolescent and youth friendly services in Sierra Leone', December 10, 2016, Freetown, Sierra Leone.

10. United Nations Population Fund. 'Report of Assessment of Adolescent and Young People-Friendly Health Services', unpublished draft, July 2017.

11. L.M. Franco, et al. Sustaining Quality of Healthcare: Institutionalization of Quality Assurance. QA Monograph Series 2(1). 2002. Maryland, USA: Published for the U.S. Agency for International Development (USAID) by the Quality Assurance Project.

12. M.I. Roemer and C. Montoya-Agiullan. Quality Assessment and Assurance in Primary Health Care. WHO Offset Publication no. 105. 1988. World Health Organization, Geneva.

13. N. Bukonda, P. Tavrow, H. Abdallah, et al. "Implementing a national hospital accreditation program: the Zambian experience," International Journal of Quality in Health Care, vol. 14 (2002): Suppl 1-7-16.

14. World Health Organization. 'Quality and Accreditation in Health Services: A Global Review'. 2003. Geneva, Switzerland.

15. Ibid.

16. Ibid.

17. A. Vasan, et al. "Support and performance improvement for primary health care workers in low- and middle-income countries: a scoping review of intervention design and methods." Health Policy and Planning, 32 (2017), pp. 437–452 doi: 10.1093/heapol/czw144.

18. C. Liu, J. Babigumira, A. Chiunda, et al. "Finding the best examples of healthcare quality improvement in Sub-Saharan Africa." Quality and Safety in Health Care 19 (2010). 416e419. doi:10.1136/qshc.2008.028548.

19. H. Smits, A. Supachutikul, and K.S. Mate. "Hospital accreditation: lessons from low- and middle-income countries." Global Health vol. 10 no. 65 (2014). Published online 2014 Sep 4. doi:10.1186/s12992-014-0065-9.

20. J. Ashton, K. Dickson and M. Pleaner. 'The Evolution of the National Adolescent-Friendly Clinic Initiative in South Africa'. 2008. World Health Organization.

21. G.M. Gershy-Damet, P. Rotz, D. Cross, et al. "The World Health Organization African Region laboratory accreditation process: improving the quality of laboratory systems in the African Region." American Journal of Clinical Pathology, vol. 134, issue 3 (2010): pp. 393–400, https://doi.org/10.1309/AJCPTUUC2V1WJQBM.

22. M.H. Labbok, "Global baby-friendly hospital initiative monitoring data: update and discussion," Breastfeeding Medicine, vol. 7, no. 4 (2012). DOI: 10.1089/bfm.2012.0066.

23. G.W. Maina, C. Omondi, T. Wuliji et al. 'East Africa Core Competency Framework for Quality Improvement'. Published for the Regional Centre for Quality of Health Care and the United States Agency for International Development (USAID) by the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project. 2015. Maryland (US): University Research Co., LLC (URC).

24. I.H. Itam and A. Adindu. "Health security in Africa and quality of health services," Developing Countries Studies vol. 2 no. 11 (2012).

25. World Health Organization. 'Quality and Accreditation in Health Services: A Global Review'. 2003. Geneva, Switzerland.

26. Sierra Leone Ministry of Health and Sanitation. 'National Health Sector Strategic Plan, 2017-2012'. Freetown, Sierra Leone.

27. Sierra Leone Ministry of Health and Sanitation. 'Sierra Leone National Reproductive, Maternal, Newborn, Child, and Adolescent Health Strategy 2017-2021'. Freetown, Sierra Leone.

28. United Nations Population Fund. 'Free health care initiative: UNFPA support in Sierra Leone'. February 2013. UNFPA Sierra Leone Country Office.

29. S. Witter, N. Brikci, T. Harris et al. 'The Sierra Leone Free Health Care Initiative (FHCI): process and effectiveness review'. February 2013. 10.13140/RG.2.1.2673.4960.

30. United Nations Population Fund. 'Strategy on Adolescents and Youth: Towards realizing the full potential of adolescents and youth'. 2013.

31. H.B. Nyhus and M.M. Kamara. "Quality improvement in emergency service delivery: assessment of knowledge and skills amongst emergency nurses at Connaught Hospital, Sierra Leone." Kamara/African Journal of Emergency Medicine vol. 7 (2017): 113–11.

32. R. Moen. 'Foundation and history of the PDSA cycle'. Associates in Process Improvement, Detroit (USA). Available at https://deming.org/uploads/paper/PDSA_History_Ron_Moen.pdf.
33. Sierra Leone Ministry of Health and Sanitation. 'Emergency Triage, Assessment and Treatment Plus (ETAT+) Programme'. 2017.

33. Sierra Leone Ministry of Health and Sanitation. 'Emergency Triage, Assessment and Treatment Plus (ETAT+) Programme'. 2017.

34. M. De Bruycker, R. Van den Bergh, A. Dahmane et al. "Non-adherence to standard treatment guidelines in a rural paediatric hospital in Sierra Leone." Public Health Action, vol.3, no. 2. (2013), pp. 118-124.

35. Sierra Leone Ministry of Health and Sanitation. 'Human Resources for Health Summit Report'. 2016. Freetown, Sierra Leone.

36. United Nations Population Fund, 'Free health care initiative: UNFPA support in Sierra Leone'. February 2013. UNFPA Sierra Leone Country Office. Freetown, Sierra Leone.

37. United Nations Population Fund. 'Rapid assessment of health facilities on availability of RMNCAH services in the context of Ebola Virus Disease'. UNFPA-Sierra Leone 2015.

38. African Development Bank Group, 'Infrastructure and Growth in Sierra Leone'. 2011. pp: 129-130.

39. Ministry of Information and Communications. 'Environmental and Social Management Framework for the SL eTransform Project'. 2013. Sierra Leone.

40. Japan International Cooperation Agency. 'Project evaluation summary'. 2011. Available at https://www.jica.go.jp/english/our_work/evaluation/tech_and_grant/project/term/africa/c8h0vm000001rp75-att/sierra_leone_2010_01.pdf.

41. H. Mason (UN Country Team). 'Quality data, key to improving health care service delivery in Sierra Leone'. United Nations Sierra Leone Newsletter, July 2018. Available at https://sl.one.un.org/2018/03/13/quality-data-key-to-improving-health-service-delivery-in-sierra-leone/.

42. Sierra Leone Ministry of Health and Sanitation. 'Maternal Death Surveillance and Response (MDSR) National Technical Guideline', 2015, 1st ed. Freetown, Sierra Leone.

43. J. Ovretveit and D. Gustafson. "Evaluation of quality improvement programs," Quality and Safety in Health Care 11 (2002): pp. 270–275.

44. The Economist Intelligence Unit. 'Higher Education Sector Studies'. 2014. Sierra Leone: DFID, London.

45. H.B. Nyhus and M.M. Kamara. "Quality improvement in emergency service delivery: assessment of knowledge and skills amongst emergency nurses at Connaught Hospital," Kamara/African Journal of Emergency Medicine no. 7 (2017): pp. 113–11.

46. From RBF Health, at https://www.rbfhealth.org/rbfhealth/country/sierra-leone. Accessed 18 April 2018.

47. M.P. Bertone, M. Lagarde and S. Witter. "Performance-based financing in the context of the complex remuneration of health workers: findings from a mixed-method study in rural Sierra Leone," BMC Health Services Research 16 (2016). 286.doi:10.1186/s12913-016-1546-8.

48. P.B. Batalden and P.K. Stoltz. "A framework for the continual improvement of health care: building and applying professional and improvement knowledge to test changes in daily work," Joint Commission Journal on Quality Improvement vol. 19 no. 10 (1993): 424-47; discussion 448-452.

49. G.W. Maina, C. Omondi, T. Wuliji et al. 'East Africa Core Competency Framework for Quality Improvement'. Published for the Regional Centre for Quality of Health Care and the United States Agency for International Development (USAID) by the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project. 2015. Maryland (USA).

50. United Nations Children's Fund, World Health Organization, United Nations Population Fund, World Food Programme. 'Nationwide needs assessment for emergency obstetric and newborn care services in Sierra Leone'. 2008. Available at https://www.unicef.org/wcaro/wcaro_SL_EmNOC_assessment08.pdf.

51. Sierra Leone Ministry of Health and Sanitation. 'Facility Improvement Team Assessment Report'. 2015. Available at file:///C:/Users/Owner/Downloads/july-2015-fit-assessment-report.pdf.

52. United Nations Population Fund. 'Assessment of infrastructure, equipment and human resource needs for emergency obstetric and neonatal care, adolescent and youth friendly services in Sierra Leone'. 2016. Freetown, Sierra Leone.

53. Medici Con L'Africa-CUAMM. 'The Quality-of-Care Challenge in Pujehun, Sierra Leone: from the Referral System to Emergency Obstetric Care'. Facts Sheet. Available at http://www.mediciconlafrica.org/en/wp-content/uploads/sites/2/2016/03/Factsheet2_CEMOC-SierraLeone-def1.pdf, accessed 15 April 2018.

54. World Breastfeeding Trends Initiative. 'Sierra Leone Report'. Jan 2014. Available at http://worldbreastfeedingtrends.org/where-your-country-stand/.

55. World Health Organization. 'Supporting breastfeeding to boost child survival'. Available at http://www.afro.who.int/news/supporting-breastfeeding-boost-child-survival, accessed 8 May 2018.

56. A. Lewis, L. Sendell, T. Hildebrandt et al. 'Emergency triage assessment and treatment (ETAT) training in a semirural hospital in Sierra Leone – retention of knowledge and feedback'. 2014. BMJ Publishing Group Limited. Available at http://dx.doi.org/10.1136/archdischild-2014-307384.454.

57. From Reliefweb, available at https://reliefweb.int/report/sierra-leone/saving-lives-through-streamlined-emergency-care, accessed 18 April 2018.

58. United Nations Childrens Fund. MNH QoC Landscaping Activity, 2018.

59. World Health Organization. 'Water and Sanitation for Health Facility Improvement Tool (WASH FIT)'. 2017. Geneva.

60. A. Vasan, D.C. Mabey, S. Chaudhri et al. "Support and performance improvement for primary health care workers in low- and middle-income countries: a scoping review of intervention design and methods," Health Policy and Planning vol. 32 (2017): pp. 437–452. doi: 10.1093/heapol/czw144.

61. R.J. Perla, L.P. Provost and G.J. Parry. "Seven propositions of the science of improvement: exploring foundations." Quality Management in Health Care, 2013, vol. 22, no.3: pp. 170-186.

62. L.J. Damschroder, D.C. Aron, R.E. Keith et al. "Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science." Implementation Science vol. 4 no. 50. 2009. doi.10-1186/1748-5908-4-50.

63. A.S. Nyamtema, D.P. Urassa, and J.V. Roosmalen. "Maternal health interventions in resource limited countries: a systematic review of packages, impacts and factors for change." BMC Pregnancy and Childbirth (11):p. 30, 2011.

64. A. Sharkey, A. Yansaneh, P. Soulaiman Bangura et al. "Maternal and newborn care practices in Sierra Leone: a mixed methods study of four underserved districts." Health Policy and Planning, 2017, vol. 32, no. 2. doi: 10.1093/heapol/czw104.

65. World Health Organization. 'Standards for Improving Quality of Maternal and Newborn Care in Health Facilities'. 2016. Geneva, Switzerland.

66. Ibid.

67. Ibid.

68. Ibid.

69. World Health Organization. 'A Network for Improving Quality of Care for Maternal, Newborn and Child Health'. Implementation Guidance, Working document February 2017. Geneva, Switzerland.

SIERRA LEONE

United Nations Population Fund

12-16 New Signal Hill Road
Off Congo Cross
Freetown, Sierra Leone
Tel: +232 79 327330

Website: sierraleone.unfpa.org

Follow us on