IfD

Evaluation of the GOAL Clinical Mentorship Pilot Project in Kenema District

Client Name: GOAL

May 2022

Acknowledgements

Table of Contents

Executive Summary

Sierra Leone has one of the highest maternal and child mortality rates in the world. Lack of quality and uninterrupted delivery of maternal and child health services have been identified as the main contributing factors [1]. While the high rate of teenage pregnancy and delays in seeking care and reaching the health facility contribute to the problem, pregnant women often do not receive adequate treatment when they visit a health facility. In 2017, it was estimated that 79% of maternal deaths occurred in a health facility, suggestive of poor quality of service delivery [1]. Limited access to training, particularly for rural health care workers, has been identified by various studies as a limiting factor to the delivery of quality health care in Sierra Leone [2,3]. GOAL designed and piloted an innovative *on-the-job* package of clinical mentorship to improve service quality and reliability at peripheral health units (PHUs) in rural Kenema. Clinical mentorship is a "professional relationship in which an experienced clinical staff such as a nurse or midwife assists a less experienced person's professional and personal growth" [4]. Clinical mentorship has been associated with increased job satisfaction, productivity, and quality of care [5,6]. The pilot project was implemented to test if the designed package of mentoring interventions delivered by Chiefdom Supervisors and Midwives would improve health worker (HW) knowledge, skills, and quality of maternal and child health.

Institute for Development (IfD) designed the study to assess the performance of the pilot clinical mentoring project and to evaluate whether the project met the specified objectives. The Organization for Economic Cooperation and Development (OECD) Development Assistance Committee (DAC) Network on Development Evaluation (EvalNet) framework was used by the evaluators as assessment criteria. The OECD/DAC evaluation framework specifies six criteria for assessing project performance- *relevance, coherence, effectiveness, efficiency, impact, and sustainability* [7]. For each criterion, the framework specifies questions that should be answered to determine project merit against that criterion. We triangulated the project's M&E data with primary qualitative data to answer the evaluation questions. Key findings of the evaluation using each criterion are detailed below:

Project Relevance and Coherence
Project relevance and coherence were assessed with reference to the extent to which the project was aligned with national and international priority maternal and child health concerns, addressed the priority gaps of the health sector and the extent to which it effectively reached the project beneficiaries.

The project's objectives were aligned with the National Maternal, Neonatal, Child and Adolescent Health (RMNCAH) strategy (2017-2021) and the national health plan. The RMNCAH strategy was designed to reduce teenage pregnancy and maternal and child mortality. The strategy set out an ambitious objective to train over 1,400 health care workers in emergency obstetric and newborn care. The GOAL clinical mentorship pilot project contributed to the achievement of this objective. The project goals were coherent with GOAL's global and health systems strengthening strategies and the United Nation's Global Strategy for Women, Children and Adolescent Health which seeks to end "preventable maternal, newborn and child deaths including stillbirths by 2030" [8]. Qualitative data collected from key informants and focus group participants revealed that: (i) the most vulnerable communities and health facilities were targeted, (ii) the intervention was delivered as expected (iii) the mentoring modules were highly relevant to the work of beneficiaries and (iv) the project contributed to improvement in the knowledge and skills of beneficiaries

Project Efficiency

Efficiency was defined as *"the extent to which the intervention delivers, or is likely to deliver, results in an economical and timely way"* [7]. Cost-effectiveness was not examined due to data limitations. However, efficiency was evaluated by assessing the perceptions of stakeholders on whether there were adequate resources assigned to accomplish project objectives, the number of health workers mentored compared to project targets, and the regularity with which the mentorship was delivered.

According to stakeholders interviewed, the project was based on a well-designed set of modules on emergency obstetric and newborn care, presented as handbooks and guidelines for mentors, mentees, and supervisors. Training modules and guidelines were developed by the Liverpool School of Tropical Medicine. Mentors were adequately trained in the use of the training modules, which were also available to them for consultation if needed. M&E reporting tools were provided to all mentors for timely data collection and recording of facility visits and issues that may need follow-up. Nevertheless, most of the mentees interviewed said the basic midwifery kits (drugs, medical supplies, equipment, sterilisation, and resuscitation equipment) they needed to apply the skills learnt were sometimes not available, which affected the translation of knowledge gained into practice.

Thirty-two visits to health facilities were planned per month, and 95% of the visits were delivered during the period. About 75% of the mentees surveyed said they received two or more mentoring visits per month.

69.7% of the expected number of mentees per month were mentored per mentoring period (May 2019-December 2021), indicating that three out of ten mentees dropped out of the project. Dropouts were due to unplanned transfers of mentees to non-project health facilities before the completion of their mentoring assignment.

Project Effectiveness

Project effectiveness was defined as *"a measure of the extent to which an aid activity attains its objectives"* [7]. Project effectiveness was evaluated by assessing the extent to which project objectives were met. Specifically, the extent to which indicators on (i) the quality of mentorship that Chiefdom Supervisors and Midwives were able to provide, (ii) the quality of maternal and child health services delivered, and (iii) improvement in data quality were achieved.

About 51.4% of issues identified through the mentorship and 65.1% identified through supportive supervision were addressed within the stipulated period. This implies that some problems were left unresolved. Assessment scores showed that health worker knowledge consistently increased from 51% in 2019 to 100% in 2021, indicating that mentors, to a large extent, provided quality services as defined by the project.

There was a 33% percentage point increase in the percentage of health care workers who could state at least three warning signs during labour and delivery, ANC and neonatal care. Clinical knowledge in danger signs identification improved from 63% in 2019 to 96% in 2021, indicating the objective to improve the knowledge and clinical skills of healthcare workers was achieved.

All mothers and babies received postpartum care within two days of childbirth, all mothers of children aged 0-12 months (100%) were administered a uterotonic drug immediately after the birth of their youngest child, and a partograph was completed during birth for all deliveries (100%) during the project period. Slight improvements were recorded in the percentage of health facility users who perceive an improvement in the quality of care they received from 75% in 2019 to 80% in 2021. Nevertheless, the percentage of women attending ANC clinics who receive focused ANC was consistently low during the period. This indicator declined from 53% in 2019 to 42% in 2020 and 35% in 2021. These results suggest that although improvements were made in the quality of

maternal and child health services, one out of the five performance indicators on "improved quality of maternal and child health services" was not achieved

The project met the objective of improving the quality of data provided by healthcare workers at the intervention facilities. The percentage of inconsistencies or inaccurate data recorded on the health facility utilisation summary sheet compared to data recorded in the health facility registers reduced from 2% in 2019 to 0% in 2021, while the percentage of patient records with erroneous data recorded reduced from 2.2% to 0.8% during the same period.

Project Impact

Project impact was defined as "*The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects*" [7]. We evaluated the extent to which the project generated positive or negative effects by assessing utilisation rates, maternal mortality, and neonatal mortality rates in the project communities. We also collected data on stakeholders' perspectives on project effects. The results show that the project made a difference in the life of health care workers and achieved its main objectives.

The maternal mortality ratio in project communities declined over the period, from 549 per 100,000 live births in 2019 to zero in 2021. The neonatal mortality rate declined from two per 1000 in 2019 to zero in 2021 in the project communities. Health service utilisation rate increased from 33% at baseline (April-June 2019) to 47% in the last quarter of 2021. However, the extent to which observed positive effects are solely due to the intervention was not measured because the available data was insufficient to estimate what would have happened had the project not been implemented.

Responses from stakeholders interviewed provide compelling evidence that the project made a significant difference in the life of health care workers. Respondents reported increased adoption of family planning practices, improved skills of mentees in emergency obstetric and new-born care signal functions, increased community participation in facility operations and management, including by-laws to encourage facility delivery, improvement in facility delivery and prompt referral to secondary facilities in cases of emergency as some of the positive contributions of the project.

List of Abbreviations

CS&M   Chiefdom Supervisors and Midwives
DAC   Development Assistant Committee
DHMT   District Health Management Team
DMO   District Medical Officer
FCDO   Foreign and Commonwealth Development Office
EmONC   Emergency Obstetric and newborn care
FGD   Focus Group Discussions
IfD   Institute for Development
KII   Key Informant Interviews
M&E   Monitoring and evaluation
MOHS   Ministry of Health and Sanitation
NGO   Non-Governmental Organization
OECD   Organization for Economic Cooperation and Development (OECD)
PMI President's Malaria Initiative
PHU   Peripheral Health Unit
RMNCAH Reproductive, Maternal, Neonatal, Child and Adolescent Health
SLiSL   Saving Lives in Sierra Leone (SLiSL) programme
WHO   World Health Organization
IRC   International Rescue Committee

1. Introduction

Sierra Leone has one of the highest maternal and child mortality rates in the world. Lack of quality and uninterrupted delivery of maternal and child health services have been identified as the main contributing factors [1]. While the high rate of teenage pregnancy, delays in seeking care and reaching the health facility contribute to the problem, pregnant women often do not receive adequate treatment when they visit a health facility. In 2017, it was estimated that 79% of maternal deaths occurred in a health facility, suggestive of poor quality of service delivery [1]. There is a shortage of clinical staff with specialised skills, and the capacity of the existing staff in most rural PHUs across the country is inadequate to deliver quality maternal and child health services. Training has mainly been delivered through workshops incentivised by per diem payments [10]. PHUs benefit from supportive supervision from experienced clinical staff from the DHMTs, but supportive supervision is usually of limited duration and focused mainly on observation, review of work performance or facility operations. Supportive supervision has been reported to help identify gaps in clinical skills but has not been very successful in helping clinical staff develop the necessary competencies to deliver quality maternal and child health services [10].

In the Kenema district, health care services are delivered by low-skilled staff who have limited access to formal and on the job training. Limited access to training, particularly for rural health care workers, has been identified by some studies as a limiting factor to the delivery of quality health care in Sierra Leone [2,3]. Clinical mentorship has been suggested as an effective means to increase access to training and improve the skills of rural health care workers. Clinical mentorship is a "professional relationship in which an experienced clinical staff such as a nurse or midwife assists a less experienced person's professional and personal growth" [4]. Clinical mentorship has been associated with increased job satisfaction, productivity, and quality of care [5,6]. The positive impact of mentorship is well recognised by the Sierra Leone Ministry of Health and Sanitation, and several clinical mentorship projects have been implemented within the health sector by various implementing partners. For example, the Saving Lives in Sierra Leone (SLiSL) programme funded by the Foreign Commonwealth and Development Office (FCDO) implemented a series of clinical mentorship projects from 2018 to 2020 to move away from off-site training and encourage on-the-job training. This ensured that health facilities were not left unmanned while health care workers attended the training. However, previous mentorships either made use of senior MOHS staff or used external mentors with mixed results. Mentorships were implemented in a "non-systematic and one-size-fits-all fashion that did not translate to a quality learning experience for health facility staff at PHU level, were heavily reliant on partner support and lacked sustainability" [11].

The GOAL Clinical Mentorship Pilot Project

Learning from previous clinical mentorship interventions in Sierra Leone and working in collaboration with the DHMT, GOAL designed and piloted an innovative peer-led *on-the-job* package of clinical mentorship to improve service quality and reliability at peripheral health units (PHUs) in rural Kenema.

Chiefdom Health Supervisors and Midwives (CS&M) responsible for routine supervision of PHUs at the chiefdom level were recruited and trained to provide mentoring at PHUs under their supervision (see organogram)

Mentorship organogram

.
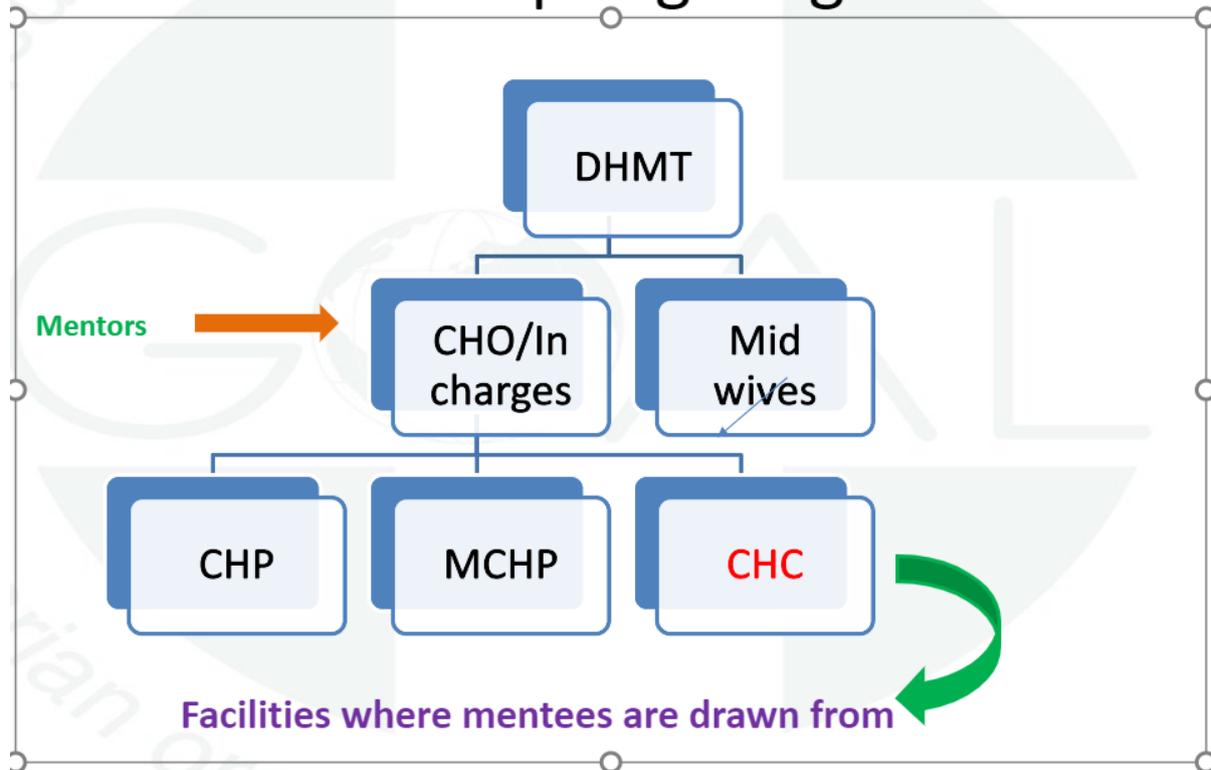
The GOAL pilot project was innovative because it was one of the first such mentorships in the country to recruit DHMT clinical supervisors to deliver a more systematic clinical mentorship package. This approach was intended to integrate the mentorship into the routine roles of the mentors to enhance relevance, effectiveness, and sustainability.

The package of clinical mentorship piloted was developed by the Liverpool School of Tropical Medicine (LSTM). LSTM trained the mentors on the mentoring package and conducted a post-training follow up after 35 days. Mentors were trained in Emergency Obstetric and New-born Care (EmONC) to enhance their skills in providing mentorship and supportive supervision at lower-level facilities in their supervision area. They were also trained in adult learning techniques. Training materials were developed following a comprehensive assessment of the training needs of mentors and mentees. The baseline assessment involved a health facility assessment and a health staff capacity assessment. The assessment included questions on barriers to quality mentoring, and the potential reasons mentoring may not result in improvement in the knowledge and skills of mentees. The data was used to establish benchmarks for the project indicators and provided information that was used to develop mentorship strategies.

In addition to training, GOAL provided the following support to help CS&M to provide systematic mentorship to the lower level PHUs under their supervision:

- Regular provision of data collection tools and reporting forms
- Transport reimbursement for the mentors to ensure they were able to provide regular mentoring visits at least twice a month
- Supported monthly meetings for mentors
- Conducted joint supportive supervision in collaboration with the DHMT to identify issues affecting implementation and promptly address them

Project Objectives and Research Questions

GOAL collected M&E data to determine whether providing Chiefdom Supervisors and Midwives (CS&W) with the clinical and teaching skills necessary would enable them to conduct tailored mentoring of each health care worker in all the PHUs under their supervision. It was hypothesised that providing rural health care workers systematic, quality, comprehensive, on-the-job supervisor and peer-led mentorship would improve health worker knowledge, quality of maternal and child health services, patient satisfaction, health service utilisation, and positive health outcomes. The key research questions were:

1. Are Chiefdom Supervisors and Midwives (CS&M) able to provide systematic, regular, and quality on-the-job mentorship of PHU health care workers?
2. Does systematic, regular, and quality mentorship of PHU health care workers lead to improved quality of care and data available at PHUs and increased health service utilisation?

Project Outcome Variables and Indicators

The project team monitored and collected comprehensive data on indicators designed to measure progress towards the achievement of the outcomes against the indicators shown in Table 1 :

Table1: Operational research indicators to test if the designed package of mentoring interventions improves health workers' knowledge and skills and improves quality of care

Expected Outcome	Indicators	OECD Criteria[a]
Overall objective: Improve the quality of maternal and childcare and data available at health facilities in rural Kenema	**Utilisation rate**	**Impact**
	Maternal mortality ratio	**Impact**
	Neonatal mortality rate	**Impact**
Outcome 1: Chiefdom Supervisors and Midwives are able to provide *regular* on-the-job mentorship of PHU health workers	# of visits made to each facility per month	Efficiency
	Average time spent per session at the health facility	Efficiency
Outcome 2: Chiefdom Supervisors and Midwives are able to provide *quality* on-the-job mentorship of PHU health workers	% of issues identified and resolved through the mentoring visits	Effectiveness
	% of mentees who report increased and improved clinical skills	Effectiveness
	% of issues identified through joint supportive supervision (DHMT and GOAL) visits and resolved by the next quarter	Effectiveness
Outcome 3: Improved knowledge and clinical skills of healthcare workers	% of HCWs who are able to state at least three warning signs during labour and delivery	Effectiveness
	% of HCWs who are able to state at least three warning signs during ANC visits	Effectiveness
	% of HCWs who know at least three neonatal danger signs	Effectiveness
Outcome 4: Improved quality of maternal and child health services	% of mothers and babies who receive postpartum care within 2 days of childbirth	Effectiveness
	Percent of women attending ANC clinics who receive focused ANC	Effectiveness

	% of mothers of children aged 0-12 months who were administered a uterotonic drug immediately after the birth of their youngest child	Effectiveness
	% of deliveries where a partograph was completed during the birth	Effectiveness
	% of health facility users who 12perceive an improvement in the quality of care they receive	Effectiveness
Outcome 5: - Improved data quality (accurate, timely, complete) provided by healthcare workers	% of inconsistencies / inaccurate data recorded on the health facility utilisation summary sheet compared to data recorded in the health facility registers	Effectiveness
	% of patient records with erroneous data recorded.	Effectiveness
	Clinical issues most frequently worked on by the mentors	Effectiveness

ᵃThe evaluators matched the project indicators to the OECD criteria and used other sources of data [FGD, KII and mentee survey] to fill the gaps and provide a more comprehensive picture of project performance

Research Design

An experimental design involving control and intervention health facilities in selected chiefdoms in the Kenema district was used to address the research questions. Chiefdoms were used as study sites. Five chiefdoms comprising 35 PHUs were assigned to receive the pilot mentoring intervention, while the two control chiefdoms comprising ten PHUs did not receive any mentoring intervention. However, control PHUs continued to receive the standard Ministry of Health and Sanitation (MOHS) oversight and supportive supervision. Study site selection was done in collaboration with the District Health Management Team (DHMT) and included sites where GOAL had previously implemented mentoring projects and sites further away where no GOAL mentoring project had previously been implemented.

A variety of tools were used to collect M&E data to monitor project indicators. The data collection and monitoring tools included:

1. **Health indicator tracking tool**: collected data on maternal and child indicators as reported in the DHIS 2.

2. **Diagnosis and treatment checklist:** This tool was administered quarterly using direct observations and a review of clinical cards. The tool was used by GOAL Clinical supervisors to monitor the quality of patient registers and the extent to which staff adhered to treatment guidelines.

3. **Quality of care checklist:** Used by the clinical mentors and supervisors to observe and document on a quarterly basis how closely PHU staff and mentees were adhering to treatment protocols.

4. **Data quality tool:** Measured quality of healthcare reporting and was used to assess consistencies in data at PHU, and that reported to the DHMT.

5. **Mentoring quality assurance checklist:** This tool was used to document mentoring activities and health facility visits by mentors and supervisors. It was used to document supervisors' observations on mentoring practices and how well mentors were implementing the mentoring protocols.

6. **Patient satisfaction surveys:** Were conducted at the health facility level with service users to determine users' perceptions of quality of care and satisfaction with services received;

7. Data were collected monthly, quarterly, or bi-annually.

2. Evaluation of the GOAL Clinical Mentorship Pilot Project

Evaluation Objectives

The purpose of the evaluation was to assess the performance of the pilot clinical mentoring project to determine the extent to which it contributed to the improvement in the quality of maternal and child health services and the availability of data at pilot health facilities in rural Kenema. It was also intended to identify lessons learned and best practices generated to help inform decisions on scale-up within the Kenema district or other districts in Sierra Leone.

Evaluation Method

The Organization for Economic Cooperation and Development (OECD) Development Assistant Committee (DAC) Network on Development Evaluation (EvalNet) framework was used to guide the design of the evaluation. OECD/DAC evaluation framework specifies six criteria for assessing project performance- *relevance, coherence, effectiveness, efficiency, impact, and sustainability* [7]. For each criterion, the framework specifies questions that should be answered to determine project merit against that criterion. An evaluation matrix was created, which defined for each question the relevant indicator(s), data required, the sources of data and the data collection approach to address that question. The project indicators on the project M&E framework were assigned to the relevant questions under the appropriate OECD criteria. This approach enabled IfD to identify data gaps, design additional questions and identify appropriate data collection methods to fill the gaps.

Sources of Data for the Evaluation

The following sources of data were used to address the evaluation questions.

Project M&E Data: The project collected comprehensive data on output, outcome, and impact indicators in thirty-five health facilities where the mentorship was implemented (intervention health facilities) and in ten health facilities where the project was not implemented (control health facilities). These indicators were designed to map the project's result chain and were used as the main data source for answering the evaluation question [See Table 1].

Mentee Survey: A survey questionnaire that included open and closed-ended questions was administered to mentees in intervention PHUs and to clinical staff in control health facilities that could have participated in the mentorship had it been implemented in their facility. A list of intervention and control health facilities with a listing of staff and mentees trained in each facility was obtained from the project team. Two mentees who were present at the time of visit were selected for each intervention and control health facility. In health facilities where there were more than two mentees or eligible staff, balloting was done to select the respondents for the interview. However, the planned sample was not fully achieved. The projected sample size for the mentee survey was 90 mentees, but the achieved sample size was 79 (60 mentees in intervention facilities and 19 mentees in control health facilities), which represents an 87.8% response rate.

Survey data was collected using Kobo Collect, a data collection software widely used to collect data on smartphones and other electronic devices [12]. Data collectors were recruited and trained over two Zoom sessions lasting two hours each. They were deployed at selected PHUs in the Kenema district to conduct the mentee survey in intervention and control PHUs. Training included practice sessions and discussions of survey items to ensure data collectors understood the instruments and there was standardisation in data collection. Data collection started in the last week of February 2022 and lasted for three weeks.

Table 2: Number of Interviews Conducted

Approach	Respondent	Number
Key Informant Interviewers	Female mentors	2
	Male Mentors	2
	GOAL project staff	4
	DHMT senior staff	1
	Community Members	2
Focus Group Discussions	Female & Male Mentors (two groups of six)	12
KIIs & FGD Total		23
Mentee Survey	Intervention Health Facilities	60
	Control Health Facilities	19
Total Number of stakeholders interviewed		102

The data was used to provide beneficiary perspectives on project *relevance* and *effectiveness*.

Focus Group Discussions and Key Informant Interviews: two focus group discussions (FGD) comprising of 12 chiefdom supervisors and midwives (female and male mentors) and 11 key informant interviews (KIIs) were conducted. Table 2 shows the composition of the interviews. Qualitative interviews were conducted during the same period as the mentee survey to obtain the perceptions of mentors, project staff, community partners and members of the Kenema DHMT directly involved with the project. Qualitative interviews were digitally recorded and stored safely on dedicated handsets and transferred to the IfD secure server within 24 hours. The FGD and KIIs were focused on ascertaining the perspectives of the mentors and other stakeholders on *project design, implementation, and sustainability.*

Literature Review: A desk review of project reports and M&E data was conducted to provide additional information for a more comprehensive evaluation of the performance of the pilot project.

Informed Consent, Risks or Benefits to Participants

Participation in the evaluation was completely voluntary. Consent forms were read to respondents stating their rights to withdraw from the study at any time. They were informed that there were no repercussions for not responding to the survey or for skipping certain questions they did not feel comfortable answering. Interviews were done at convenient locations for all study participants. All study participants will remain anonymous. Participation in the study did not pose any threat to the life or dignity of the participants. Study participants were not paid any compensation. However, they were informed about the importance of the information they provided to understand how to design and implement similar clinical mentorship projects in the future.

Data Analysis

Wordstat version 9 was used to analyse the open-ended questions on the mentee survey. Wordstat9 is a text analytic tool produced by Provalis Research. The software is used for mixed methods data analysis, including text mining [13]. Simple percentages and proportions were computed for the closed-ended questions using SPSS. Microsoft Excel was used to analyse the project M&E data collected on all project indicators. NVivo version 12, a computer-assisted

qualitative data analysis software, was used to code and analyse data obtained from the focus group discussions and key informant interviews. Data from both qualitative and quantitative sources were triangulated to answer the evaluation questions.

3. Results

Characteristics of the Study Participants
The sample comprised seventy-nine respondents, of which nineteen were from control health facilities. About 70.9% were current mentees, 6.3% were past mentees, and 2.5% were mentees who had dropped out of the project. The nineteen respondents interviewed in control health facilities included two respondents that dropped out of the GOAL pilot project and one respondent who had completed the training. The majority of the sample were females (88.6%), and the majority of the respondents served as Maternal Child Health Aides (84.8%). About 17.8% of the respondents were temporary staff. The mean age of the respondents was 42 years, while their mean length of service was 8.7 years.

Besides the GOAL pilot clinical mentorship, 60.8% of the sample had previous experience being in a mentorship project. Four out of five respondents interviewed in control health facilities (84.2%) said they had previous experience being in a mentorship compared to one out of two (53.3%) respondents in intervention health facilities that said they had previous experience being in a mentorship. The providers of mentorship cited were GOAL, IRC, DHMT, UNICEF, PMI Impact Malaria, WHO and ICAP.

Project Relevance
Project relevance was defined as the extent to which the intervention objectives and design are consistent with and complementary to local and national development priorities and policies or meet the needs of health care workers who are the main beneficiaries [7]. To assess project relevance, we addressed the following questions:
1. Did the project align with national and international priority concerns?
2. Did the project address the priority gaps /needs of the sector?
3. Did this project effectively reach the most deserving health care workers?
The results of the evaluation indicate that the project was highly relevant and coherent with national and international priorities in maternal and child health and met the needs of the target health care workers.

Did the project align with national and international priority concerns?
The overall objective of the clinical mentorship project was to contribute to the improvement in the quality of maternal and child health care in rural chiefdoms in the Kenema district. This objective is aligned with national and international maternal and child health priorities. For example, the project objectives support the UN Global Strategy for Women, Children and Adolescent Health which seeks to end "preventable maternal, new-born and child deaths including stillbirths by 2030" as well as improving the physical, mental, social, and economic well-being of women, children, and adolescents [8]. The project is aligned with the National Reproductive, Maternal, Neonatal, Child and Adolescent Health (RMNCAH) strategy (2017-2021). The strategy set an ambitious target of training more than 1,400 health care workers on essential newborn care and integrated management of childhood illnesses [14], particularly in rural areas. The pilot project contributed to the achievement of this national health goal. Participants interviewed cited the project's community engagement intervention to reduce teenage pregnancy as a significant contribution to the national priority of reducing teenage pregnancy. Sierra Leone has one of the worst maternal, and child mortality rates in the world and the high teenage pregnancy rate in the country has been identified as one of the main contributors to the high maternal and child death rates. According to one key informant.

"Pillar two of the government strategy to reduce adolescent pregnancy is what this project is supporting. Researchers have told us that about 44% of maternal death that occur in Sierra Leone

is among the adolescent population. If this project has helped to reduce adolescent pregnancy, it has eventually reduced maternal morality or maternal death."

The project contributed to minor improvements in health infrastructure, which aligned with the Government and DHMT infrastructure development priorities.

The mentorship project was consistent with GOAL's overall global health strategy, which includes the development of health systems resilience through health system strengthening, social behaviour change, accountability, and advocacy

Did the project address the priority gaps or needs of the sector?
The clinical mentorship pilot project addressed a priority gap in the sector. It contributed to the national goal of improving health care coverage and the quality of health service delivery through "the training of paramedics and low cadre staff deployed in rural areas" [15]. Sierra Leone has an insufficient number of trained staff to meet the staffing norms defined in the basic package of essential health services, the national policy that governs the primary health service delivery in the country. Unavailability of in-service training and on the job mentoring has been linked with the acute shortage of trained health care workers [2,3]. One key informant who was asked about the relevance of the project to health sector priorities said:

"Building the capacity of the health care workers is in line with the MoHS human resource for health policy…we want to capacitate our nurses, especially those in the remote PHU areas. There are nurses who have been trained ten to fifteen years back and most of the things they learned at that time have limited use. Medicine is everyday practice, and new things are coming up, so I want to believe the mentorship to capacitate the nurses aligned with the MOHS policy."

Did this project effectively reach the most vulnerable?
Stakeholders interviewed said the project effectively reached the most deserving health care workers and targeted vulnerable communities because of the following:

  i.   It targeted far to reach communities and health facilities that have not participated in previous mentorship projects.
  ii.   The training was delivered in the targeted communities as planned
  iii.   It contributed to improvement in the knowledge and skills of health care workers and
  iv.   It resulted in a decline in maternal and child deaths in the targeted health facilities.

Some key informants cited the decrease in maternal and child deaths and the increase in the use of clinic services such as antenatal care as evidence that the project effectively reached women and children who were the secondary beneficiaries.

"*I can remember only one or two cases of maternal death that have ever been reported during the last two years of this project. That is an indication that the targeted beneficiaries are benefiting from the project,"* said one respondent.

Stakeholders also said that the selection of beneficiary chiefdoms was informed by the evidence and was made in consultation with the District Health Management Team (DHMT). DHMT records and GOAL's experience working in the Kenema district showed that the selected chiefdoms had a high prevalence of teenage pregnancy due to traditional practices and limited adoption of family planning methods. Very few NGOs were operating in the selected chiefdoms to change norms and reduce teenage pregnancy rates. These considerations informed the study design.

Project Effectiveness

According to the OECD/DAC criteria, project effectiveness is "a measure of the extent to which an aid activity attains its objectives" [7]. Project effectiveness was evaluated by assessing the extent to which the following project objectives were achieved:

1. Chiefdom Supervisors and Midwives can provide quality on-the-job mentorship to PHU healthcare workers
2. Improved knowledge and clinical skills of health care workers
3. Improved quality of maternal and child health services

To evaluate the extent to which the project met these objectives, we analysed the project output and outcome indicators and interviewed project stakeholders about project achievements. We examined the extent to which monitoring mechanisms were effective in providing timely data and assessed the major factors that influenced the achievement or non-achievement of objectives. A summary of the project performance indicators is shown in Table 3.

Table 3: Project performance on key output and outcome indicators at endline-December 2021

No	Indicator	Average performance
1	Actual visits as a percentage of expected monthly visits to each facility conducted by each mentor	95.0%
2	Average time spent per session (hours) at the health facility.	2.4
3	Percentage of issues identified and resolved through the mentoring visits	51.4%
4	Percentage of mentees who report improved clinical skills based on assessment scores	100.0%
5	Average percentage point increase in mentees' clinical knowledge in identifying warning signs during labour and delivery, ANC, and neonatal care	33.30%
6	Percentage of HCWs who can state at least three warning signs during labour and delivery	98.0%
7	Percentage of HCWs who can state at least three warning signs during ANC visits	95.0%
8	Percentage of HCWs that stated at least three neonatal danger signs	97.0%
9	Percentage of issues identified through joint supportive supervision (DHMT and GOAL) visits and resolved by the next quarter	65.1%
10	Clinical issues most frequently worked on by the mentors (Frequency=934) 1. Infection prevention and control (9.2%) 2. Conduct normal vaginal delivery (9.0%) 3. Use the partograph in monitoring labour (8.9%) 4. Resuscitation of the new-born (6.6%)	
11	Percentage of mothers and babies who receive postpartum care within 2 days of childbirth	100.0%
12	Percent of women attending ANC clinics who receive focused ANC[1]	31.0%
13	Percentage of mothers of children aged 0-12 months who received a uterotonic drug immediately after the birth of their youngest child	100.0%
14	Percentage of deliveries where a partograph was completed during the birth	99.0%
15	Percentage of health facility users who perceive an improvement in the quality of care they receive	80.0%
16	Percentage of inconsistencies on the health facility utilisation summary sheet compared to data recorded in the health facility registers	0.0%

| 17 | Percentage of patient records with erroneous data recorded | 0.8% |

[1]Focused ANC involves assessing all pregnant women at the first visit for the presence of any pregnancy risk factors and providing them with appropriate health education, timely, friendly, safe and basic ANC services or specialised care depending on their health condition

Focused antenatal care (FANC) is personalised care provided to a pregnant woman which emphasises the women's overall health status, her preparation for childbirth and readiness for complications, or it is a timely, friendly, simple safe service to pregnant women.

To what extent were chiefdom supervisors and midwives able to provide quality on-the-job mentorship of PHU health care workers?
The quality of the mentorship was measured by the proportion of issues identified and resolved through the mentorship, the percentage of mentees who reported increased improvement in clinical skills and the effectiveness of joint supportive supervision visits to identify and resolve issues by the next visit. The data indicate that chiefdom supervisors and midwives, to a large extent, delivered quality mentorship.

Number of issues identified and resolved through the mentoring visits: A total of 1191 issues were identified through the mentoring sessions over the duration of the project, but 594 issues were resolved. This represents a 49.9 % issues resolution rate. Figure 1 shows the gap between issues identified and issues resolved

The gap between issues identified by mentors and issues resolved promptly was almost zero at the onset of the project, increased during the middle of the project and was almost zero towards the end of the period.

Figure 1: Total number of issues identified and resolved through the mentoring visits per quarter
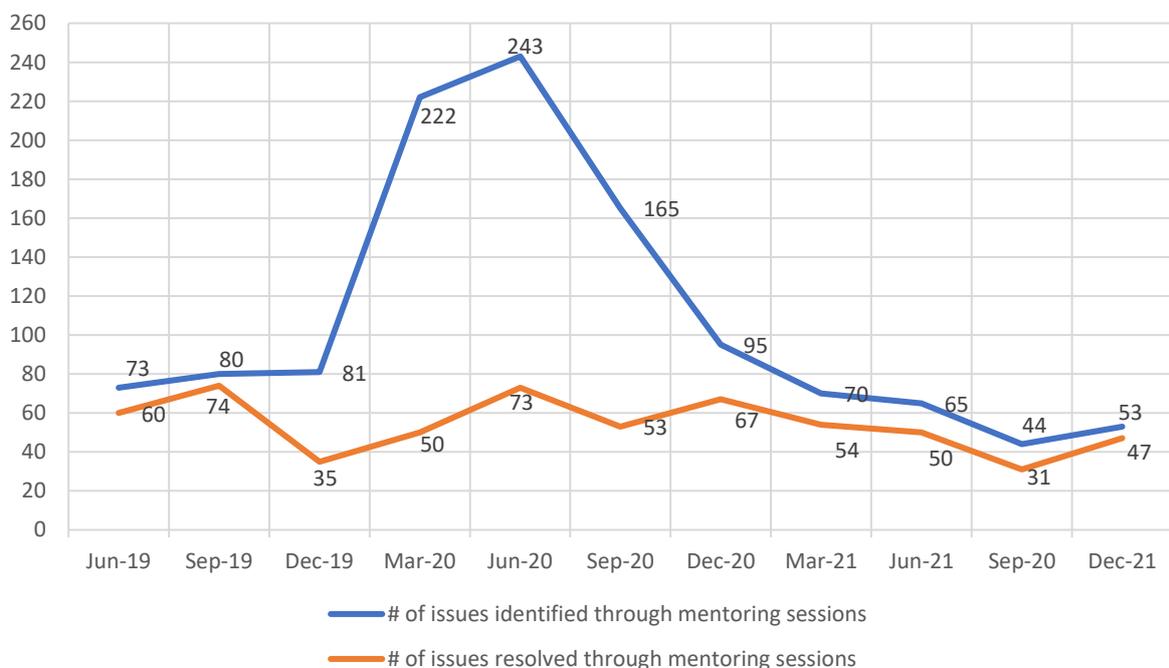
Percentage of issues identified through joint supportive supervision (DHMT and GOAL) visits and resolved by the next quarter. Nine out of eleven planned supportive supervision visits were conducted. In total, 65.1% of issues identified through joint supportive supervision were resolved by the next quarter. This was largely because there was a huge gap between issues identified and resolved during the first three visits from June to December 2019. For the next six visits in 2020 and 2021, the gap between issues identified and resolved was almost zero (Figure 2).

Figure 2: Number of of issues identified during quarterly joint supportive supervision and number resolved from previous supervision
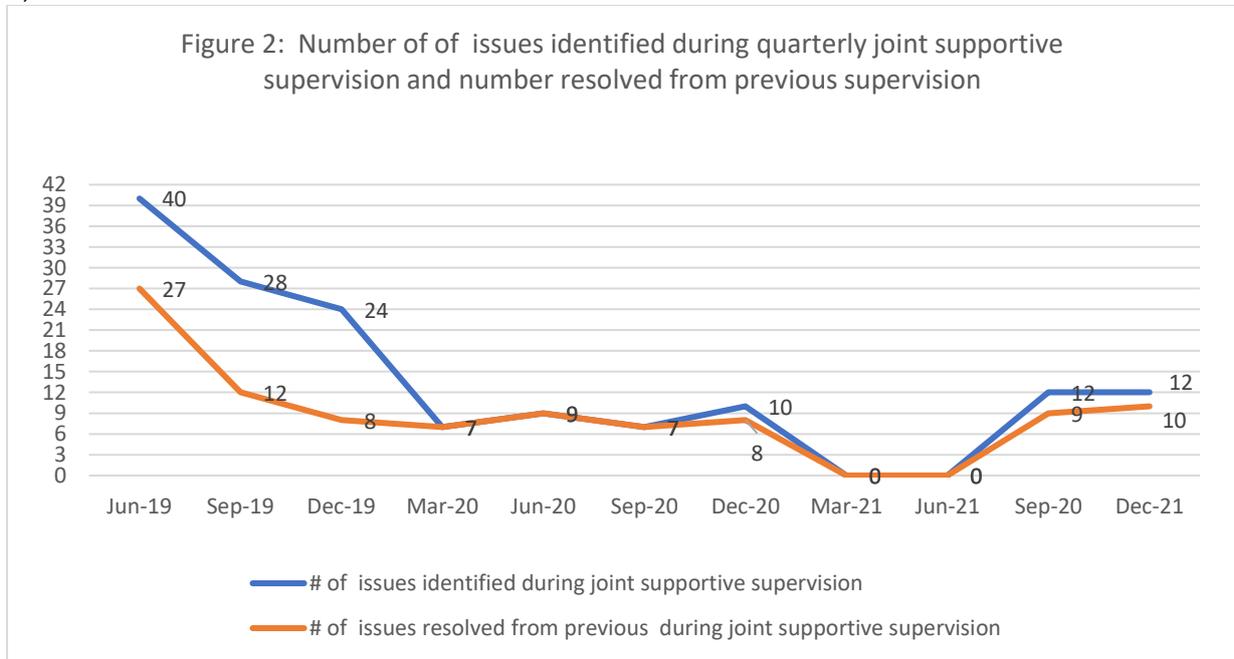
Number of mentees who report increased and improved clinical skills based on assessment scores: Eleven quarterly knowledge assessments were administered to mentees to test their knowledge and assess any skills improvements. There was a consistent increase in written test scores from 51% at baseline to 100% at the end of 2021 (Figure 3)

Figure 3: Mentees' clinical skills assessment scores based on written test
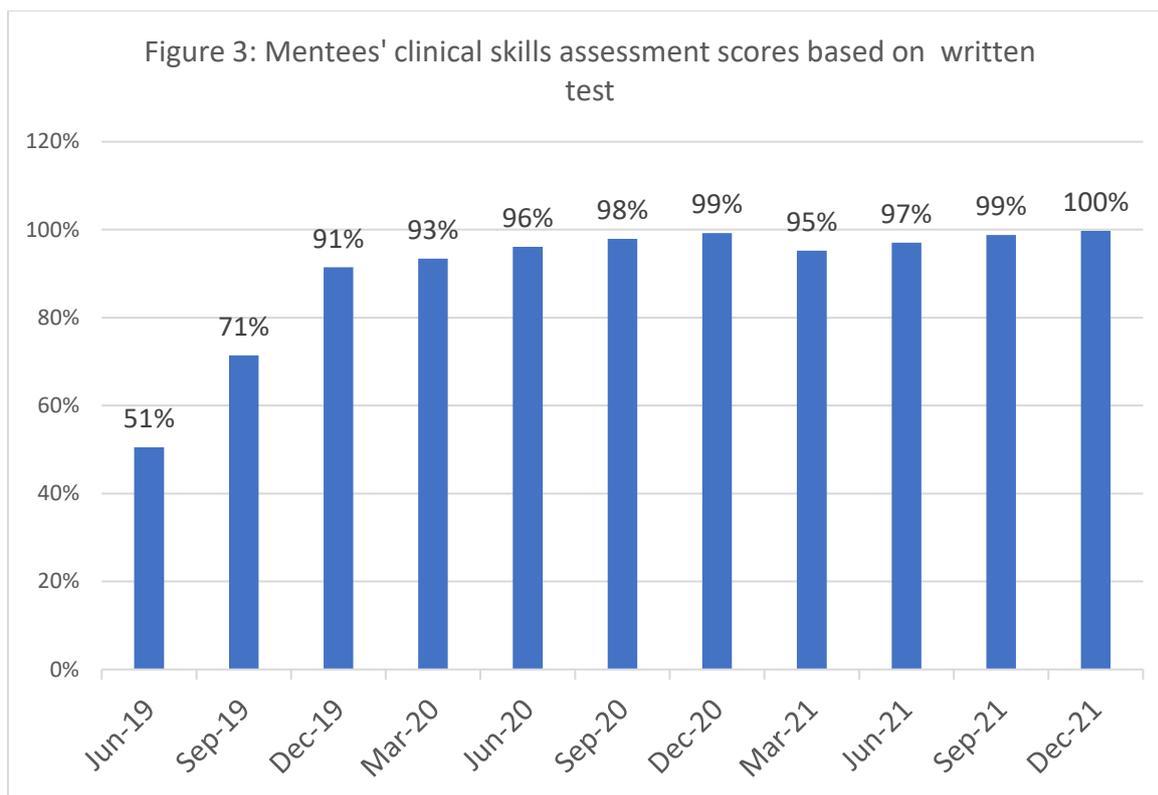
To what extent did the mentorship improve the knowledge and clinical skills of healthcare workers in maternal and child health?

The main maternal and child health skills targeted for improvement and tracked by the project were the ability to recognise at least three warning signs during labour and delivery, the ability to recognise antenatal care and neonatal danger signs. M&E data showed there were improvements in the knowledge and skills of health care workers in all three indicators (Figure 4).

Figure 4: Percentage of healthcare workers that can state at least three warning signs during labour and delivery, ANC and neonatal care
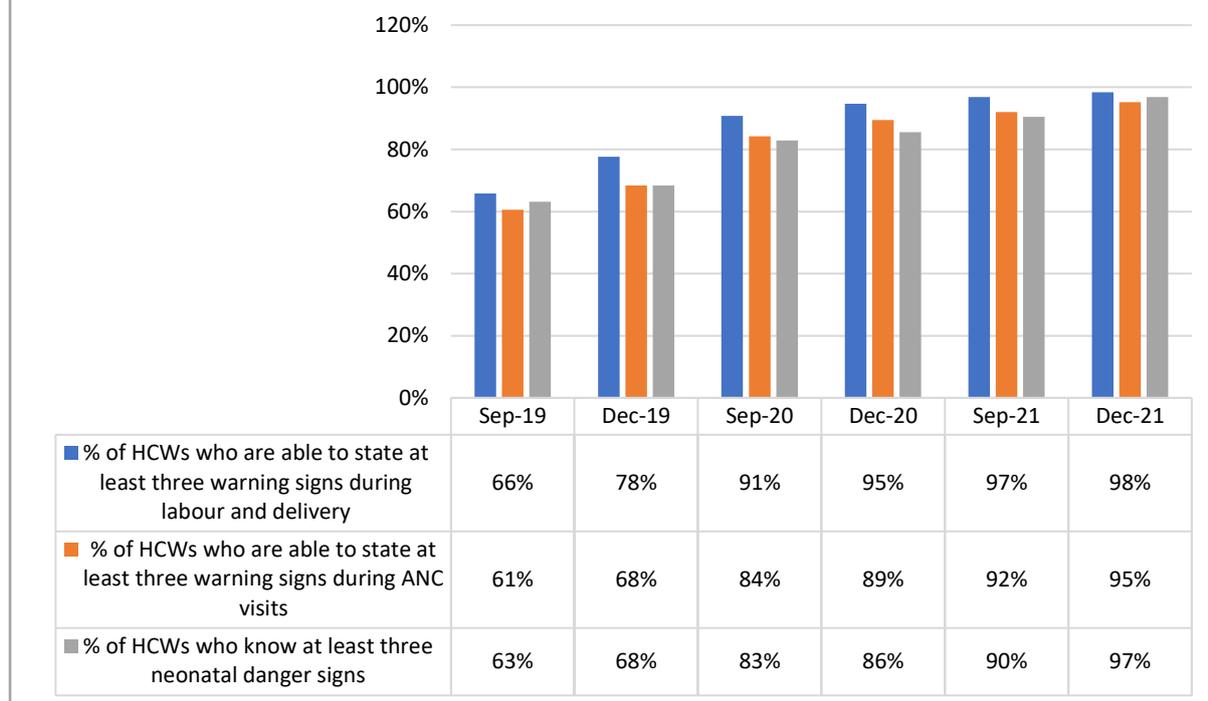
	Sep-19	Dec-19	Sep-20	Dec-20	Sep-21	Dec-21
% of HCWs who are able to state at least three warning signs during labour and delivery	66%	78%	91%	95%	97%	98%
% of HCWs who are able to state at least three warning signs during ANC visits	61%	68%	84%	89%	92%	95%
% of HCWs who know at least three neonatal danger signs	63%	68%	83%	86%	90%	97%

The percentage of HCWs who could state at least three warning signs during labour and delivery increased from 66% in September 2019 to 98% in December 2021. Similarly, the percentage of HCWs who could state at least three warning signs during ANC increased from 61% to 95%, while the percentage of HCWs who knew at least three neonatal danger signs increased from 63% to 97% during the same period.

To what extent did the clinical mentorship pilot project improve the quality of maternal and child health services?

In addition to tracking the percentage of health facility users who perceived an improvement in the quality of care (intervention health facilities only), four key indicators were used to monitor the quality of maternal and health care services in intervention and control health facilities. A summary of the results is shown in Table 4: The data shows the project achieved three out of the four maternal and child health quality indicators, but there was no difference in achievement between control and intervention health facilities on these indicators.

Table 4: Project performance on key quality of maternal and child health indicators

	Intervention health facilities		Control health facilities	
Indicator	Jan-Mar 2000	Oct-Dec 2021	Jan-Mar 2000	Oct-Dec 2021
Percentage of mothers and babies who receive postpartum care within 2 days of childbirth	99%	100%	100%	100%
Percentage of mothers of children aged 0-12 months who were administered a uterotonic drug immediately after the birth of their youngest child	100%	100%	100%	100%

Percentage of women attending ANC clinics who receive focused ANC	42%	35%	41%	31%
Percentage of deliveries where a partograph was completed during the birth	99%	100%	94%	99%

Percentage of mothers and babies who receive postpartum care within 2 days of childbirth. The indicator was calculated by dividing the number of mothers and newborns who received a postpartum health check from a trained health worker within two days after the birth by the total number of surveyed newborns and multiplying the result by one hundred. Performance on this indicator was the same in both intervention and control health facilities (Table 4).

Percentage of mothers of children aged 0-12 months who were administered a uterotonic drug immediately after the birth of their youngest child. The indicator assessed the proportion of women who immediately after their last delivery received a uterotonic drug for the prevention of postpartum haemorrhage – the most common cause of death for women during pregnancy. The indicator was calculated by dividing the number of respondents who were given an injection by the total number of women who gave birth in the health facility and multiplying the result by one hundred. There was also no difference in performance on this indicator between intervention and control health facilities (Table 4).

Percentage of women attending ANC clinics who receive focused ANC. This indicator was calculated by dividing the number of women who received focused ANC by the total number of women who attended ANC and multiplying the result by one hundred. This indicator was low in both intervention and control health facilities in the first quarter of 2000 (42% and 41% respectively) and declined to 35% and 31% respectively in the last quarter of 2021. Compared to the baseline value of 53% in May-June 2019, when the data was first collected in intervention health facilities, the indicator increased only in the first two quarters from July-December 2019 (Figure 5). FANC involves personalised care focusing on the overall health of pregnant women. This requires resources, including staff time, that may not have been available. The COVID-19 pandemic affecting Sierra Leone during this period made providing personalised care challenging. This may also have contributed to the lack of progress on this indicator.

Figure 5: Percentage of mothers that received focused ANC services in intervention health facilities compared to baseline (May-June 2019)
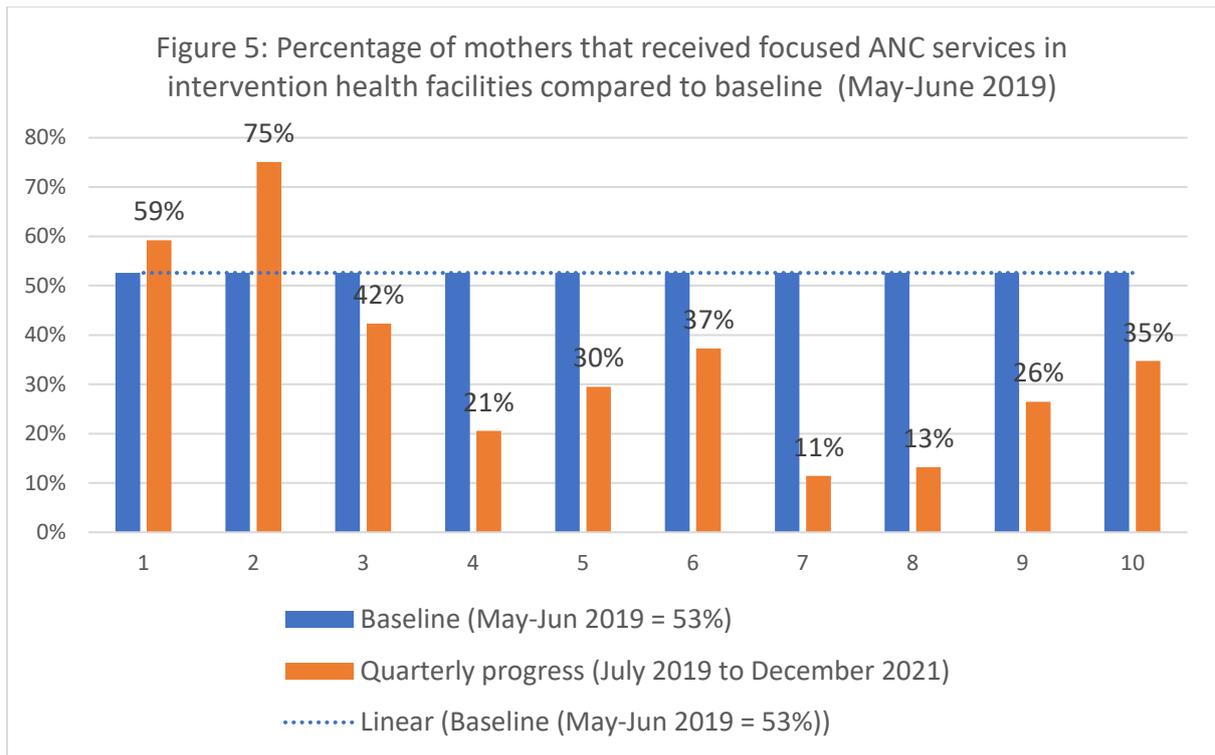
Percentage of deliveries where a partograph was completed during the birth: This indicator was defined as the number of deliveries where a partograph was completed whilst the woman was in labour divided by the total number of deliveries performed over a specific period multiplied by one hundred. There was no difference at the endline (Oct-Dec 2021) between intervention and control health facilities. A partograph was used in all deliveries.

Percentage of health facility users who perceived an improvement in the quality of care they receive: This quality indicator was tracked only in intervention health facilities and was based on interviews with users to measure their satisfaction with the quality of services received. It was calculated as the number of people who used the health facility and reported improvement divided by all those interviewed.

Figure 6: Percentage of users in project health facilities who perceived/reported an improvement in the quality of care they received (n=350)
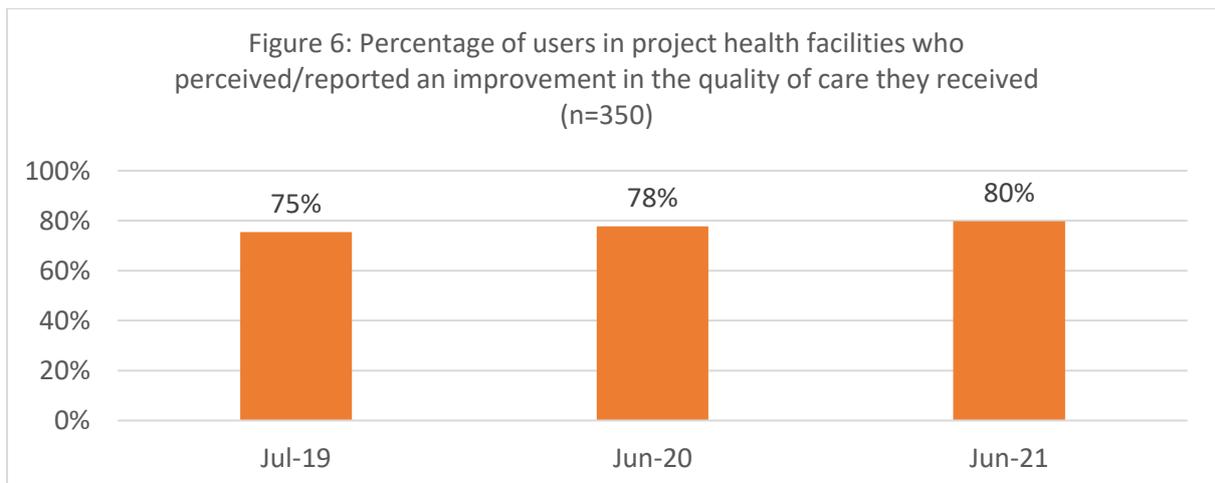
The data was first collected three months into project implementation, so there is no baseline to compare these estimates. However, the data shows slight increases in perceived improvements in quality of care. The July 2019 estimate of 75% increased to 80% in June 2021.

Were the monitoring mechanisms effective in providing timely data to inform programming decisions?
Another measure of project effectiveness was the extent to which the intervention improved the accuracy, timeliness, and completeness (i.e., data quality) of data provided by healthcare workers. In both intervention and control health facilities, health registers were checked for errors that normally occur when transferring data from individual registers to the utilisation summary forms. A random sample of patient records was also regularly checked for missing or incomplete entries. The following indicators of data quality were measured:

Percentage of inconsistencies or inaccurate data recorded on the health facility utilisation summary sheet compared to data recorded in the health facility registers. This indicator was defined as the number of inconsistent or inaccurate data entries divided by the total number of data entries. Data was tracked in intervention health facilities from May 2019 to December 2021 but was only available for the control health facilities (HF) beginning in January 2020. Inconsistencies in data entries were higher in control health facilities (HF) than in intervention facilities throughout the period from January 2020 to December 2021. In intervention health facilities, data inconsistencies declined from 2% in the second quarter of 2019 to zero in the last quarter of 2021. In control health facilities, data inconsistencies were 2.8% in the first quarter of 2020 but declined to 1.2% in the last quarter of 2021 (Figure 7).

Figure 7: Percentage of inconsistencies between data on the health facility utilisation summary sheet compared to data recorded in the health facility registers (n=2563)

	May-Jun-19	Jul-Sep-19	Oct-Dec-19	Jan -Mar-20	Apr -Jun-20	Jul -Sep-20	Oct -Dec-20	Jan -Mar-21	Apr -Jun-21	Jul -Sep-21	Oct -Dec-21
Intervention HF	2%	1%	1%	1%	0%	0%	0%	0%	0%	1%	0%
Control HF				2.8%	0.8%	0.9%	0.9%	1.8%	0.9%	3.2%	1.2%

—●—Intervention HF —●—Control HF
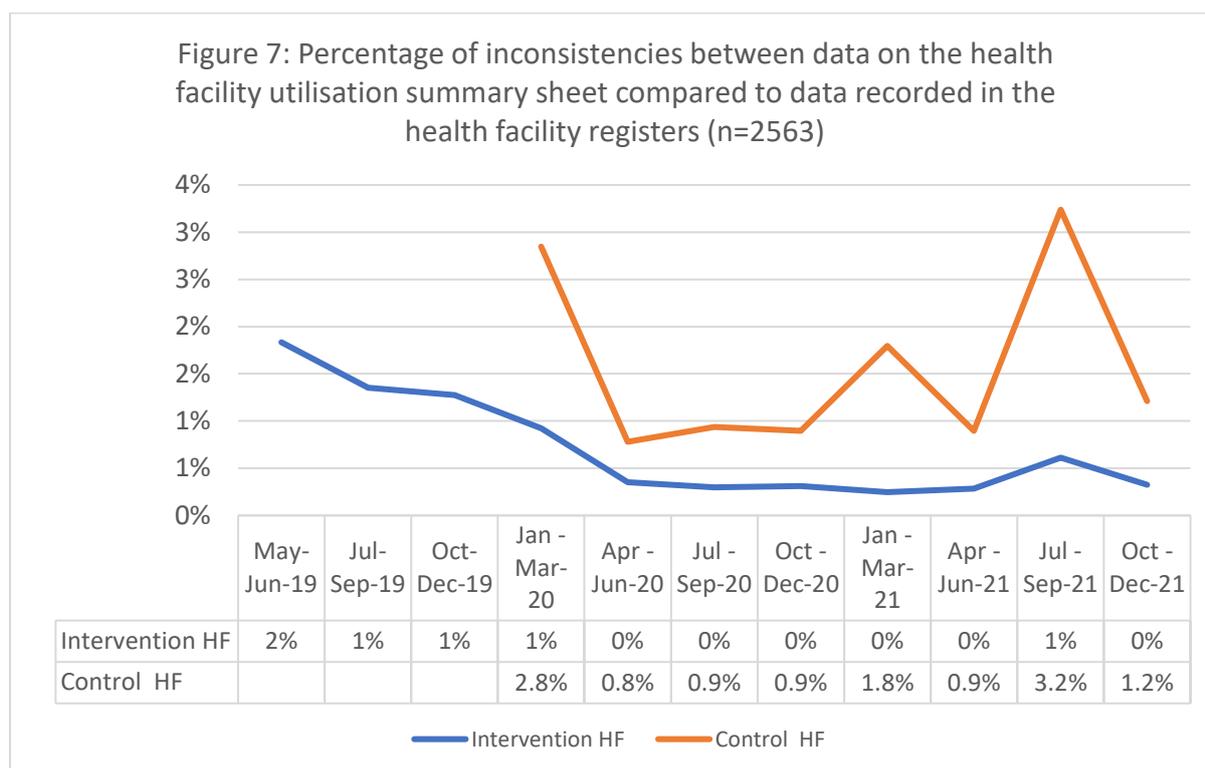
Percentage of patient records with erroneous data recorded: This indicator was calculated as the number of patient records with non-matching, missing, incomplete or redundant entries divided by the total number of patient records checked. Erroneous data entries in intervention health facilities declined consistently from 2.2% in the second quarter of 2019 to 0.1% in the last quarter of 2020 but started to increase again in the first quarter of 2021 reaching 0.8% in 2021. Erroneous data entries also showed a downward trend in control health facilities beginning in the first quarter of 2020, declined to zero in the last two quarters of 2020 but increased to 1.8% in the

last quarter of 2021 (Figure 8). See Appendix Table S8 for details on the number of records reviewed.

Figure 8: Percent of records with erroneous data recorded in project health facilities compared to control

	May-Jun 2019	Jul-Sep-2019	Oct-Dec-2018	Jan - Mar 2020	Apr - Jun 2020	Jul - Sep 2020	Oct - Dec 2020	Jan - Mar 2021	Apr - Jun 2021	Jul - Sep 2021	Oct - Dec 2021
Intervention HF	2.2%	1.3%	1.1%	0.2%	0.1%	0.1%	0.1%	0.2%	0.3%	0.2%	0.8%
Control HF				0.4%	0.2%	0.0%	0.0%	0.1%	0.4%	1.2%	1.8%
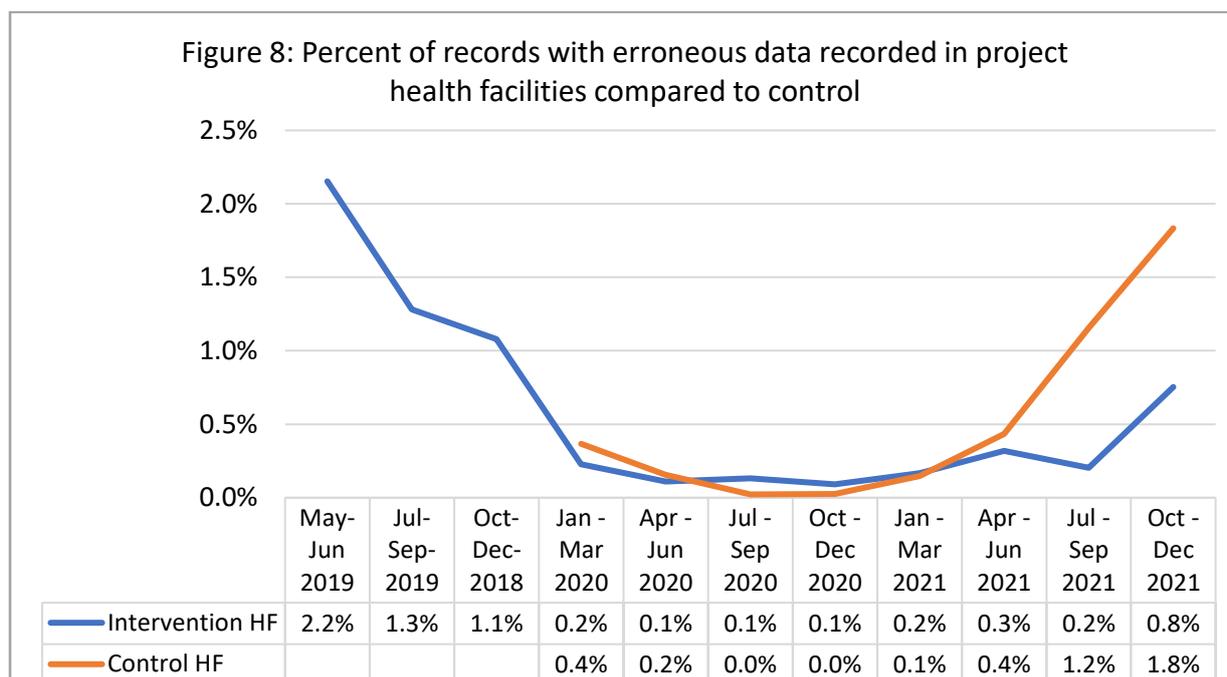
Clinical issues most frequently worked on by the mentors: A qualitative list of clinical issues most frequently worked on by the mentors during visits per month was kept. An analysis of this list indicates that the top ten clinical issues most frequently worked on by the mentors included: infection prevention control, normal vaginal delivery, use of the partograph in monitoring labour, resuscitation of the new-born, administering parenteral antibiotics for maternal sepsis, administering parenteral antibiotics in case of neonatal sepsis, early detection and management of breech presentation, counselling and support on immediate and exclusive breastfeeding, administering parenteral anticonvulsants and manual removal of retained placenta respectively (Table 5)

Table 5: Number of clinical issues frequently worked on by the mentors

No	Clinical Issues	2019	2020	2021	Total
1	Infection prevention and control	14	48	24	86
2	Conduct normal vaginal delivery	16	39	29	84
3	Use the partograph in monitoring labour	16	35	32	83
4	Resuscitation of the new-born	16	26	20	62
5	Administering parenteral antibiotics for maternal sepsis	6	29	19	54
6	Administering parenteral antibiotics in case of neonatal sepsis	12	30	11	53
7	Early detection and management of breech presentation	8	22	21	51
8	Counselling and support on immediate and exclusive breastfeeding	13	19	19	51
9	Administering parenteral anticonvulsants	16	22	12	50
10	Manual removal of placenta	8	24	17	49
11	Provide postpartum family planning	9	19	12	40
12	Bimanual compression	10	15	12	37

13	Kangaroo mother care for preterm babies	13	11	11	35
14	Uterine balloon tamponade	8	12	8	28
15	Respectful midwifery care management of the facility	7	13	8	28
16	Provide comprehensive PMTCT package	7	10	9	26
17	Perform episiotomy	7	11	2	20
18	Administering parenteral uterotonics	8	3	5	16
19	Use of corticosteroids in preterm labour	1	7	7	15
20	Conduct a baseline skill assessment of the mentee	3	8	3	14
21	Assess facility management	2	9	3	14
22	Relationship building	3	9	1	13
23	Manual vacuum aspiration	4	6	3	13
24	Assisted vaginal delivery	4	4	4	12
	Grand Total	211	431	292	934

What were the major factors influencing the achievement or non-achievement of the objectives? Data from key informant interviews and focus group discussions revealed that uncoordinated staff transfers from mentorship health facilities to other health facilities limited the contribution the project would have made to the life of some health care workers. According to one key informant

> "We had hoped that most of our assigned staff would have stayed till the end of the project. Unfortunately, most were transferred, and even our DMO was the first to be transferred. The DHS also was later transferred. This has some negative impact on us as most of our trained staff were transferred. We had to train new staff so that they can be in line with the project goal."

The psychological impact on the staff whose training may have been cut short because of the relocation was not measured. The mentors' and mentees' work schedules were sometimes in conflict with mentorship schedules. One key informant stated that participation in national health activities in some instances superseded mentorship commitments resulting in delays in the delivery of mentorship activities.

Project Efficiency

The OECD framework defines efficiency in terms of the linkage between inputs and outputs. Efficiency is achieved if it is determined that the project used the least costly resources to produce outputs. Establishing project efficiency requires "comparing alternative approaches to achieving the same outputs, to see whether the most efficient process has been adopted" [7]. The main questions that need to be answered include: Were activities cost-efficient? Were objectives achieved on time? Was the project implemented in the most efficient way compared to alternatives? The data available was insufficient to address all these questions. However, we estimated project efficiency by examining the project's proposed design and by assessing the perceptions of stakeholders on the extent to which the mentoring sessions were implemented as planned. We assessed the regularity with which the mentorship was delivered and timeliness in addressing issues that arose during mentorship and supportive supervision visits.

To what extent did the chiefdom supervisors and midwives provide regular on-the-job mentorship of PHU health care workers?
Three indicators were used to evaluate the extent to which chiefdom supervisors and midwives provided regular peer-led on-the-job mentorship of PHU health care workers:

Number of visits made to each facility per month: A mentoring visit was defined as the chiefdom supervisor or midwife spending at least one hour with health care workers, mentoring on at least two topics. Overall, an average of thirty-two visits to health facilities were planned per month, and almost all planned visits were delivered (Figure 9) during the period.

Figure 9: Average number of expected and actual visits made to facility per month (May 2019-December 2021)
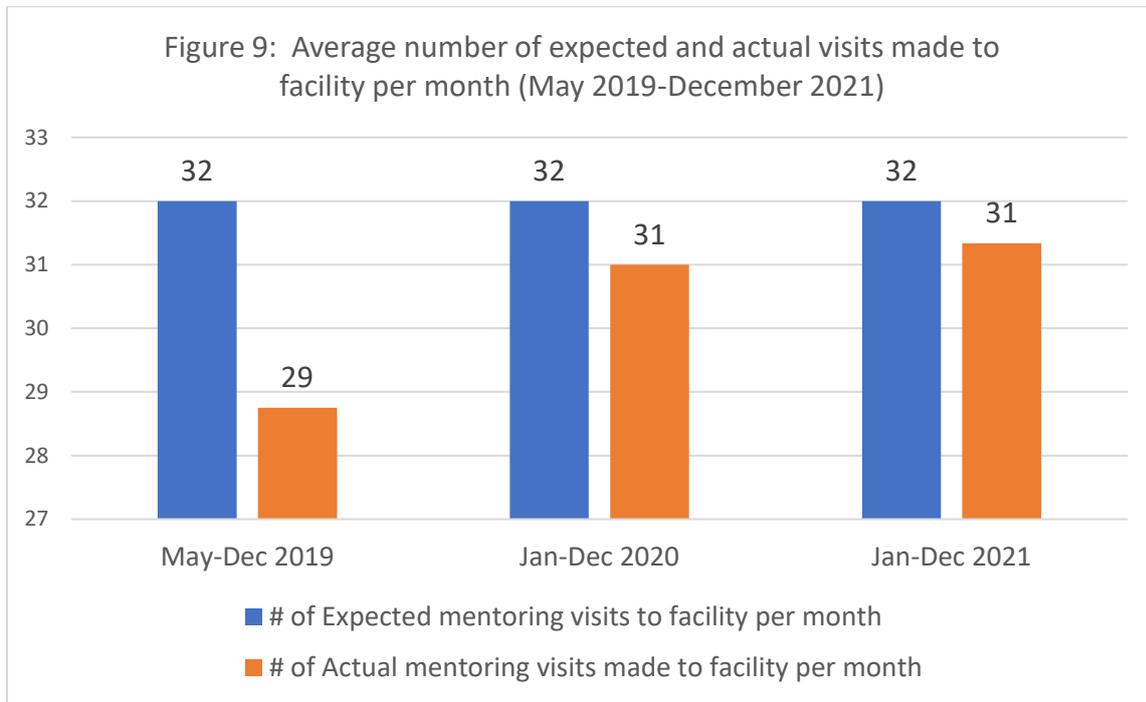
Average time spent per session at the health facility: Figure 10 shows the average time spent per session at the health facility for each year. The reported average time spent per visit was higher than the time spent per mentee.

Figure 10: Average time (hours)spent per visit at the health facility and average time per mentee per visit
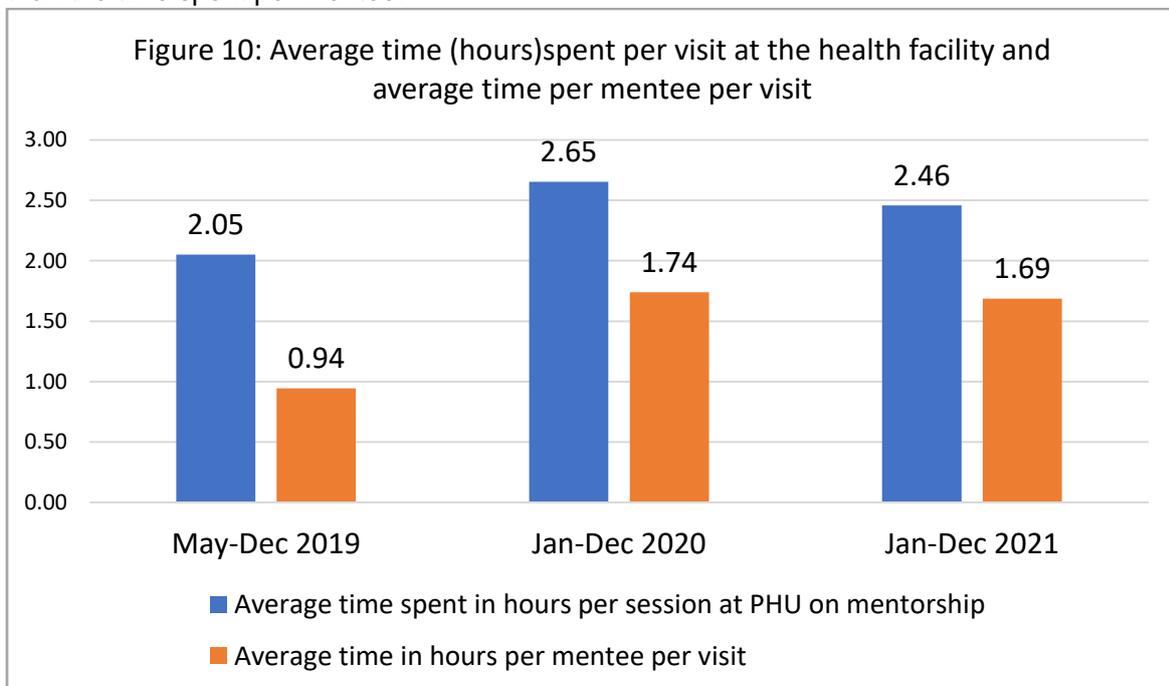
Average time spent per mentee per visit was computed as the product of the total length of average time on mentorship visit and the number of actual mentoring visits made to the facility per month divided by the number of actual mentees mentored (Appendix Table S4). On average,

69.7% of the expected number of mentees per month were mentored per mentoring period (May 2019-December 2021).

The project monitored the number of mentees enrolled and mentored every month from May 2019 to December 2021. A total of 223 health workers were recruited for mentoring (84 in 2019, 76 in 2020 and 63 in 2021), but 155 were mentored. Using these data, a mentee retention rate was calculated. The mentee retention rate, defined as the percentage of mentees that successfully completed training, was 69.7%. This implies that three out of ten mentees that could have been trained were not trained. In 2019, 74.3% of the planned number of health care workers were mentored. This percentage dropped to 62.3% in 2020 but increased to 72.5% in 2021 (Figure 11)

Figure 11: Average expected compared to actual number of health care workers mentored per mentoring period(May 2019-December 2021
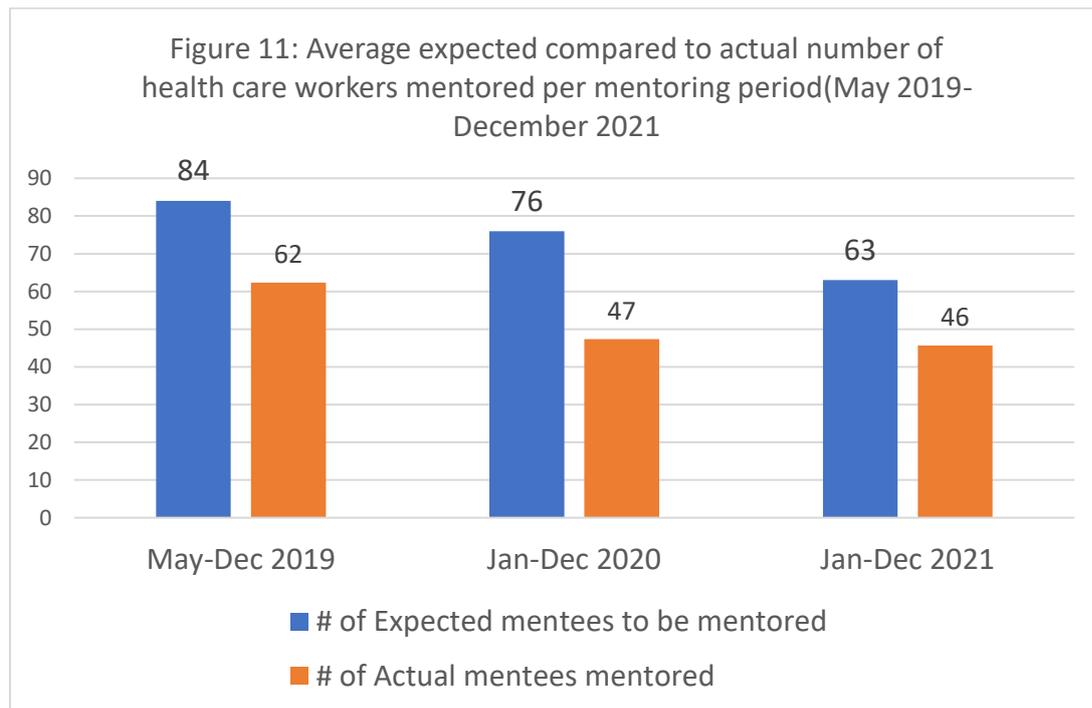
Did the mentorship project run as planned?

Stakeholders were asked whether mentoring sessions were implemented as planned and on time as a proxy measure of project efficiency. The majority of the key informants and focus group participants said activities were implemented as planned. Most of the respondents said that mentors were well prepared to deliver the skills and knowledge to the mentees. They were sufficiently trained to master the topics of the mentorship and were required to demonstrate that they were efficiently grounded to deliver the mentorship. Most mentors interviewed said they were provided with adequate materials and in a timely manner to conduct the mentoring and were able to cover all PHUs assigned to them as planned. Adequate supervision was provided to provide additional guidance to mentors. One FGD participant said:

"I felt that it went on as planned because we were able to cover the number of chiefdoms and PHUs allocated to us. We were also able to mentor the mentees on the modules which Liverpool [School of Tropical Medicine] gave us, and that is what the nurses are implementing."

Another FGD participant concurred as follows:

"Yes, everything was done as planned like what my colleague has said. GOAL really provided all the necessary materials and tools to perform the mentorship process, and the mentees were able to be selected in different PHUs, and we gave them enough training to better perform their roles and functions"

Data from the mentee survey showed that about 75.9% of the mentees interviewed (n=79) said they received, on average, two or more mentorship visits per month from the project, indicating that mentoring took place as planned.

Nevertheless, the research design was significantly modified. The initial design specified three study areas with varying levels of implementation. The first study area comprised two chiefdoms that would receive the pilot mentoring package alongside GOAL's ongoing community engagement work, some of which focuses on improving health-seeking behaviour. The second study area comprised three chiefdoms that were proposed to receive the pilot mentoring package without the GOAL community engagement work, while the third study area would have received the standard MOHS mentoring package. This study area was supposed to be the control group, where no GOAL activities would be implemented for the duration of the project. It was proposed that data would be collected in all three study areas [11]. The actual study design comprised only two groups. The intervention group comprising thirty-five health facilities selected from five chiefdoms received the clinical mentorship pilot along with GOAL community engagement intervention, while the control group comprised of ten health facilities drawn from three chiefdoms received no pilot project intervention. Data were not consistently collected for all indicators in control and intervention health facilities. For example, while baseline knowledge assessment was conducted in the intervention health facilities, there was no baseline knowledge assessment conducted in control health facilities. The project tracked five outcomes in intervention health facilities, but only two of the five outcomes were tracked in control health facilities.

Were adequate resources applied to delivering project outcomes?
The majority of the mentors felt that they were provided with sufficient resources to conduct mentoring, but a few mentioned challenges that affected the efficiency and effectiveness of their work. Mentees more often reported facing resource limitations than mentors. The main challenges encountered were the unavailability of delivery kits, unavailability of practice materials, an insufficient supply of fuel, lack of maintenance of motorbikes, inadequate water supply and insufficient drugs at the health facilities. Some of these problems were not solely in the control of the project team.

Some of the mentors and mentees interviewed said the basic midwifery and obstetric equipment that the mentees needed to apply the skills learned were sometimes not available. One KII participant said:
"The other thing is the lack of simple medical equipment such as forceps for delivery or delivery kits. They are not available. You have trained someone and have acquired the skills, the ideas, the knowledge, but the practical materials are not available to demonstrate those skills".
Some mentors said their health facility had no autoclave for sterilising medical devices, and often, only one delivery instrument was available for multiple deliveries.

Motorbikes were provided to health staff by the DHMT, but maintenance was the personal responsibility of the staff to whom the bike was assigned. The project supplied motorbikes were allocated by the DHMT and were not often used solely for that purpose. While the project provided fuel, the additional cost of maintenance and fuel price increases due to inflation was not adequately factored into the cost calculations. Additionally, not all mentors had government assigned motorbikes. Thus, some mentors reported having transportation difficulties. One key informant expressed mentors' transport challenges as follows:

"Most mentors are not "motorable", meaning they don't have any means to move from one point to another, which can be motorbike owned personally or by MoHS. We still have those challenges, and up till now, mentors don't have any means of transportation. Or even if they may personally

own a motorbike, they need proper maintenance. The fuel being provided to mentors is not commensurate to the cost of fuel at this moment. The mentors are receiving the same amount even though fuel prices had drastically increased."

Nurse training manikins and other training materials to demonstrate practical skills such as neonatal resuscitation were sometimes not available. Some mentors said the practical materials they used were available only at the community health centre (CHC). They carried them to the training health facility for demonstration purposes and returned them after use. According to one focus group participant:

"I want to have the materials to explain to mentees that this is the part, and this is how you should hold it, but if these things are not available, we will just go there and teach on paper and tomorrow if I bring these things to a facility and say this is like retractor it will be difficult for them to be able to identify it and be able to use it."

Inadequate water supply was very often cited as the main challenge by female mentors and mentees, likely because of their direct involvement with child deliveries. One female respondent said: "A*nother problem is water; women use water, ANC use water when doing a delivery, we use water. We are playing with blood; that is why we need water always. There is a shortage of water in the community. It is a very big setback because for you to go fetch water from another community and bring it to the labour room, when a woman has given birth, telling the relatives to help fetch water and do other things is a very big headache".* Another participant was quick to point out that they also had water problems, but they were recently provided with a submersible borehole.

The project made no provision for training incentives to be paid to mentees, although they expected some incentives for participation. Mentors were faced with the challenge of managing the expectations of the mentees, who sometimes expressed dissatisfaction over the lack of training incentives. One mentor said:

"One of the main challenges I do normally face during the mentorship programme is the provision of the incentive to the mentees, and some mentees are going with the idea that they were given some money from GOAL through the mentors, but I have to talked to them for them to understand."

It was particularly challenging to motivate health care workers who were not on the government payroll (pin coded) to follow up with the training on a regular basis. According to one mentor:
"It was hard to tell your colleague health care workers to come and sit down for mentoring, majority of who had no pin code, every day you tell them without even giving them credit or other things. Most of them think they gave you something to give to them, or you are blocking them not to get it. Sometimes when you call on them for mentoring, they turn their back on you."

What technology or tools were deployed to improve efficiency?
The use of appropriate technology and tools is a marker of efficiency because the use of technology can be a cost saver and can result in timeliness in project delivery. For this evaluation, technology referred to the tools and materials that would enhance mentoring, aid learning and the application of practical skills learnt. Mentors were asked whether they were provided with the necessary tools and materials that could improve their efficiency and effectiveness in carrying out their mentoring duties.

The majority of the mentees interviewed said the pilot mentorship project was based on a well-designed set of modules on emergency obstetric care presented in the form handbook and guidelines for mentors, mentees, and supervisors. They were adequately trained in the use of the training modules, which were also available to them for consultation if needed. M&E reporting tools

were made available for timely data collection and recording of facility visits and issues that may need follow-up. Some of the representative statements from the mentors interviewed included:

"We have the mentorship handbook that we normally use to conduct the mentorship process. That book was used to guide me on how to go about the mentorship project and how to assess mentees' performance".

"We have the National EmONC Protocol for management of emergency obstetrics cases. We have been using that National Protocol to improve on the standards. Also, we have been using hard copies of reporting tools provided by GOAL. We used those tools to conduct assessment, to identify the competency level of mentees."

There was a comprehensive monitoring and data collection system with adequate reporting tools provided to mentors. Mentors were expected to submit monthly reports indicating the number of monitoring visits conducted, the number of health care workers mentored, and the time spent on mentoring. Project staff interviewed described the monitoring and data collection process as follows:

"We have the hard copy and the soft copy of reporting tools. On a monthly basis, we do collect reports from mentors, which they use to evaluate the mentees. Also, moving on from there, we also visited them every week to monitor and follow up on the mentorship packages they were delivering to the mentees. We have three books: one belongs to the mentor, one to the mentees and one for the supervisors. We have records for every area we need to measure."

Project Impact

The OECD/DAC criteria define project impact as the "*positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended*" [7]. Measuring project impact involves isolating the counterfactual and attributing observed changes to project interventions. The gold standard for measuring the counterfactual (i.e., what would have happened had the project not been implemented) is a randomised control trial design that randomly assigns participants to intervention or control groups. The data available was not sufficient to measure the actual impacts attributed to the project [16]. Thus, the main hypothesis of the intervention is, *"If rural PHU health care workers receive systematic, quality, comprehensive, on-the-job supervisor- and peer-led mentorship, then health service quality of care and utilisation will improve, resulting in positive health outcomes and patient satisfaction* was not tested. However, the project M&E indicators, combined with qualitative data, provided comprehensive data to evaluate the extent to which the project made a difference and the extent to which project benefits are sustainable.

What was the performance against the project impact indicators?

Table 6: Maternal mortality ratio in project intervention communities compared to control communities

	Intervention health facilities			Control health facilities		
	Live births	# of maternal deaths from HF catchment population	Maternal mortality ratio	Live births	# of maternal deaths from HF catchment population	Maternal mortality rate
2019	2366	13	549	-	-	-
2020	4437	2	45	849	9	1060
2021	3446	0	0	742	0	0

The overall objective of the project was to improve the quality of maternal and childcare and data available at health facilities in rural Kenema by improving health care workers' skills and knowledge through peer-led clinical mentorship. The three project indicators to measure progress towards achieving this objective were: maternal mortality ratio, neonatal mortality rate and health service utilisation rate.

Maternal mortality ratio: The maternal mortality rate was defined as the annual number of maternal deaths from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy, childbirth, or within 42 days of termination of pregnancy, per 100,000 live births per year in project communities. Results in table 6 show that the maternal mortality rate in project communities declined over the period, from 549 per 100,000 live births in 2019 to zero in 2021. Although maternal mortality was highest in control health facilities, at 1,060 per 100,000 live births in 2020, it was also zero in the control health facilities during the last five quarters [Table S1 Appendix]. The lack of data on the control health facilities in 2019 implies that no definite conclusion can be made on project effectiveness based on this indicator

Neonatal mortality rate: The neonatal mortality rate was calculated as the number of resident newborns in the project communities dying at less than 28 days of age divided by the number of resident live births for the same geographic area per year multiplied by 1,000. The neonatal mortality rate declined from two per 1000 in 2019 to zero in 2021 in the project communities (Table 6). The neonatal mortality rate in control communities (5 per one thousand) was higher than in project communities but was zero in 2021. As in the project communities, no infant deaths were reported in control communities in the last five quarters up to the end of 2021

Table 6: Neonatal mortality rates in intervention communities compared to control communities

Year	Intervention health facilities			Control health facilities		
	Live births	# of new-borns deaths within (0 – 28 days) from health facility catchment population	Neonatal mortality rate	Live births	# of new-borns deaths within (0 – 28 days) from health facility catchment population	Neonatal mortality rate
2019	2366	4	2	-	-	-
2020	4437	3	1	849	4	5
2021	3446	0	0	742	0	0

Health service utilization rate. Health service utilization increased from 33% at baseline (April-June 2019) to 47% in the last quarter of 2021. Health service utilization was consistently higher in project intervention health facilities than in control health facilities (Figure 12)

Figure 12: Quarterly utilization rates in project health facilities compared to control health facilities

	Baseline (April-Jun 2019)	Jul-Sep-2019	Oct-Dec-2019	Jan - Mar 2020	Apr - Jun 2020	Jul - Sep 2020	Oct - Dec 2020	Jan - Mar 2021	Apr - Jun 2021	Jul - Sep 2021	Oct - Dec 2021
Project health facilities	33%	45%	47%	43%	41%	42%	42%	43%	44%	46%	47%
Control health facilities				33%	32%	29%	29%	29%	28%	29%	28%

■ Project health facilities   ■ Control health facilities
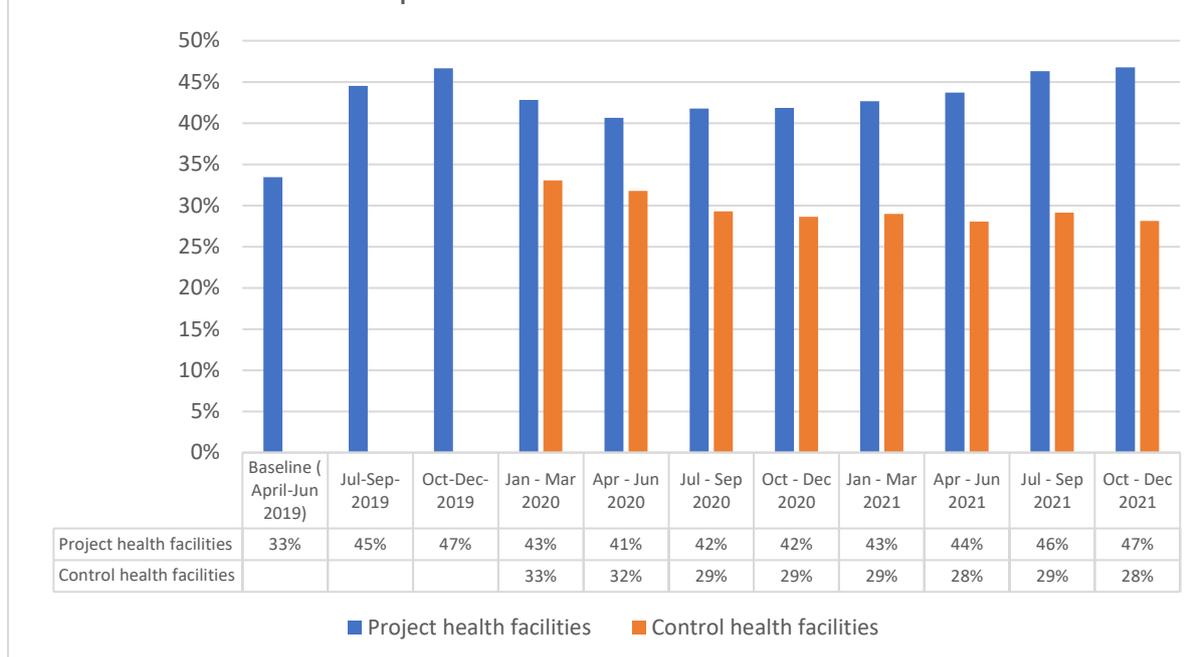
Health service utilization rates in control health facilities slightly declined from 33% in the first quarter of 2020 to 28% in the last quarter of 2021 (Figure 12)

What difference did the pilot project make to health care workers?
Results from qualitative interviews showed that the mentorship contributed to improvement in the skills of mentees and their confidence in carrying out their clinical duties.

According to FGD and KII participants, the project made a positive contribution in the following ways:
- Increased adoption of family planning practices
- Improved skills of mentees in BEmONC signal functions
- Increased community participation in facility operations and management, including by-laws to encourage facility delivery, health service utilisation and active support in the maintenance of the health facility
- Improvement in facility delivery and prompt referral to secondary facilities in cases of emergency

Changes in cultural norms related to family planning and male participation in maternal and child health care were often mentioned as key contributions to the community engagement component of the project. According to one KII participant:
"Most of the cultural or social norms before this time were the belief that only women alone are required to go to health centres. Men do not accompany their wives to health centres. With the intervention of this project, most dynamics have changed as we have most young men accompanying their wives to the health centre during ANC visits" (KII participant)

GOAL's community led-action intervention included mobilizing communities to act to improve maternal and child health. Community members interviewed pointed out that these community mobilization efforts led to concrete community action plans to hold members accountable for their non-action to improve maternal and child health. According to KII participants:

"The communities themselves have shown commitment as they are honouring their promises of what they said they will do in terms of cleaning the health facilities, accommodating mentors when they go for mentorship sessions, perimeter fencing. In terms of prompt referrals, community bylaws are in place and being implemented as part of the community action plans. When pregnant women fail to attend the clinic, a fine is levied. If a pregnant woman delivers at home, we also levied fine against you. We move strongly with these bylaws".

Mentees were asked whether mentorship improved their skills or confidence to do their job and to name the specific ways or give examples on how mentorship improved their skills or confidence. The most often cited skills were related to vaginal delivery and antenatal care, including the diagnosis and active management of labour, recognition of danger signs, and need for referral. The following were often cited (see also Box 1):

- Management of unassisted and assisted vaginal delivery and respectful care of the woman during labour
- Use of the partograph to monitor labour and delivery and prompt intervention with oxytocin when there is inefficient uterine action.
- Knowledge of danger signs such as preeclampsia, eclampsia, severe vaginal bleeding, prolonged labour, convulsion, retained placenta, manual removal of placenta
- Knowledge of when to refer cases based on danger signs
- Management of abortion
- Antenatal care (ANC), handling of neonates
- Infection prevention and control
- Safe, clean delivery
- Family planning.
- Management of Malaria
- Management of malnutrition.

Box1: Mentees comments about the project's positive contributions

"I am more confident in performing my duties regarding labour and delivery. I have more knowledge about [pregnancy] complications and how to tackle them, than the basic knowledge I got from the classroom"

"Mentorship helped me a lot because there are procedures that I knew nothing about but with the help of the mentorship, I can perform labour and delivery without much consultation"
"I have mastered most of the skills regarding labour and delivery"

"I have learnt skills like when patient has eclampsia how to administer magnesium, how to manage abortions, and other complications for mother and babies, sepsis and administration of drugs and prompts referral for cases I cannot manage. I have learnt how to manage all the above"
"The GOAL clinical mentorship improved my clinical skills in various areas: the use of the partograph, ANC, normal delivery, IPC, and nutrition"

Project Sustainability

Sustainability refers to the "extent to which the net benefits of the intervention continue or are likely to continue" [7]. To address this question, we interviewed stakeholders directly involved with the project, including community members. Respondents were asked to describe how various

stakeholders (the DHMT, MOHS, health facility staff and the community) were involved in the project to ensure sustainability, the extent to which partner capacity was developed and whether the pilot project was scalable by the DHMT. The responses revealed that there was a strong collaboration between GOAL and all relevant stakeholders in the design and implementation of the project. Mentees expressed confidence that the skills acquired because of the mentorship will continue to be applied. Community members were optimistic that the bylaws they have put in place to promote health service utilization and support health facility operations will continue to be implemented. However, most of the respondents caution that without external support, many benefits of the project will not last.

To what extent did the programme utilize established institutions or mechanisms to ensure sustainability at the end of the project (will the benefits last)?
The DHMT actively participated in project design and suggested not only ideas but also the chiefdoms where the project could make the most impact. According to one respondent:

 "*We all started developing ideas together with the Ministry of Health and Sanitation, which is represented here by the District Health Management Team headed by the DMO and the DHS. We all produced the idea because of the lessons learnt from the adolescent sexual reproductive health project, and we decided to produce a concept note and proposal for this clinical mentorship*".

A memorandum of understanding was signed between MOHS and GOAL that detailed the responsibilities of both parties. Quarterly, joint supportive supervision visits were made by DHMT and GOAL project management staff. As a project performance indicator, issues identified during joint supportive supervision were supposed to be addressed by the next quarter. GOAL's community engagement intervention led to the active involvement of community stakeholders, including the health development committees and the local authorities. Community stakeholders committed themselves to take concrete actions to stop pregnant women from delivery at home and to promote clinic attendance. According to KII/FGD participants, the linkage between the communities and health facilities, including the involvement of community members in the operations of the health facility that the project facilitated, is an enduring feature of the project.

One community member expressed community commitment as follows: "*Let them talk to the nurses, but for our own community, I think the role they have given to us we can continue with it; the mentorship will continue.*"
Part of the community's role was to provide lodging and feeding for mentors and supervisors when they visited the facility to monitor the implementation of the project.

To what extent were relevant partnerships/capacity developed to ensure sustainability?

An innovative component of the clinical mentorship pilot project was that it was implemented by Chiefdom Supervisors and Midwives, who were the direct supervisors of the health care workers mentored. Kenema District is divided into chiefdoms. Each Chiefdom has a Chiefdom Supervisor responsible for managing the Community Health Centres and supervising other peripheral health units within the Chiefdom. By training Chiefdom Supervisors and Midwives as Mentors, to deliver a comprehensive package of mentoring and training, GOAL worked directly with the relevant partners to improve the skills of Health Care. The Mentors' training included clinical skills and the techniques they would use to provide effective mentoring at PHUs under their supervision. Thus, it is reasonable to assume that the training they acquired would continue to be used during their supervisory work even without external support.
Mentees interviewed expressed the confidence that the skills they learnt, such as active management of labour, family planning, dealing with patients, newborn care, etc., will continue to be applied even without external support (See box 2).

Was an exit strategy developed to ensure sustainability**?**
Is the concept scalable by the MoHS considering its resources and capacity?

However, the extent to which these skills would be applied would be limited by the availability of the necessary medical logistics and health infrastructure

What are the threats to sustainability?

Stakeholders interviewed identified some specific components of the project that are unlikely to continue if GOAL's support ends. The majority expressed the opinion that MOHS is unlikely to continue to support the monthly mentors' meetings and community engagement meetings, regularly provide training materials and reporting forms, provide transportation refunds, bike maintenance, or incentives to sustain the project. One respondent said: "*For me, the mentoring project will continue at the centre or facility where the mentor stays, but the movement from one community to another community to go out and do the mentorship will not continue because we do not have the funding to be taking bikes and buy fuel to do our work at various communities.*"

Some respondents said that there would be serious disruptions in the supply of basic materials such as gloves, hand sanitisers, face masks, PPEs and partographs without external support. Some were also of the opinion that without external support, "the referral of patient will also be too slow", and the supply of learning materials and delivery kits will be intermittent.

Many respondents advocated for the GOAL intervention to continue and for external support to sustain or expand project gains.

Was an exit strategy developed to ensure sustainability**?**

A clearly articulated written exit strategy that outlined how GOAL will end or withdraw and hand over the clinical mentorship project to the DHMT was not made available to the evaluators. An exit strategy is an important component of a sustainability plan that needs to be designed at the onset of the project and regularly revised to capture any changes during implementation. However, the following aspects of the design and implementation of the project were meant to ensure that the DMHT can continue with the project after the external support ends:

1. The active participation of the DHMT in joint supportive supervision would result in lessons learned that could be applied even when the project ends
2. The use of Chiefdom Supervisors and Midwives as mentors would ensure the application of the skills and techniques learnt because of the project in their routine supervisory responsibilities after the project
3. The DHMT would use the achievement of the project in improving the knowledge and skills of mentees to advocate for additional resources to scale up the intervention
4. The project was intended to be a pilot with an operational research component. If successful, additional resources would be sought to scale up the intervention to more districts to showcase the benefits and advocate for national adoption.
5. The project was integrated in the routine work of the PHUs and implemented within the existing constraints with strong local stakeholder participation.

Nevertheless, the general view was that systemic health sector weaknesses will hinder project continuity without external support.

4. Discussion

The GOAL clinical mentorship pilot project was evaluated to assess its performance against the Organization for Economic Cooperation and Development (OECD) evaluation criteria of relevance, Effectiveness, Efficiency, Impact and Sustainability. The project was implemented in five chiefdoms in Kenema district from 2018 to 2021 to improve service quality and reliability in thirty-five peripheral health units. The pilot mentorship was designed as an operational research pilot project to test if the designed package of mentoring intervention improves HW knowledge and skills and quality of care. The project theory of change was that training chiefdom health supervisors and midwives to provide systematic, quality, and comprehensive on the job mentorship to PHU healthcare workers would result in improvement in the clinical knowledge and skills of health care workers. Improvement in knowledge and skills will result in the improvement in the quality of health service delivery, increase in patient satisfaction, health service utilization and positive health outcomes.

Consistent with research that has shown that mentoring is associated with improvement in mentee knowledge and skills and in health outcomes [5,6], the result of the evaluation showed improvements in most project output and outcome indicators. There were improvements in: (i) mentees' clinical skills and knowledge, (ii) patient satisfaction, (iii) health service utilization and (iv) and in key health outcomes measured by the project (Table 1). This implies that the project's main objective to test "*if the designed package of mentoring interventions improves HW knowledge and skills and improves the quality of care"* was to some extent achieved. But the extent to which the observed improvements are a result of the mentorship intervention cannot be objectively quantified. This is due to limitations in the research design and the unavailability of data to measure the counterfactual and isolate project impact. The original proposal to set up an experiment that would involve tracking project indicators in both control and intervention health facilities was not fully implemented. While health workers' knowledge and skills on various emergency obstetric and newborn care topics were assessed at baseline in intervention health facilities, no such assessment was conducted in control health facilities. The project consistently tracked indicators to measure five outcomes in intervention health facilities, but data was collected on only two outcomes in control health facilities. Data on the outcomes tracked in control health facilities were not available for all periods, making it impractical to compare performance between the two groups.

The clinical mentorship pilot project was highly relevant and coherent with national and international priorities. Improving the quality of maternal and child health care, particularly in rural communities in Sierra Leone, is a national priority that is reflected in several national policies and plans. The intervention is coherent with GOAL's overall global health strategy, which includes the development of health systems resilience through health system strengthening, social behaviour change, accountability, and advocacy. GOAL's health system strengthening work in Sierra Leone is aligned with the national health strategy and development agenda. Training health care workers to reduce maternal and child mortality is also in harmony with international health strategies such as the UN Global Strategy for Women, Children and Adolescent Health which seeks to end "preventable maternal, new-born and child deaths including stillbirths by 2030" [8].

The mentoring modules were based on the standard signal functions of emergency obstetric care designed by the Liverpool School of Tropical Medicine. It was highly appropriate for the target health care workers. It covered the basic skills they need to deliver quality maternal and child health services. Data available showed that the mentoring sessions were implemented as planned, and following modifications to the original design, project activities were implemented as expected. Mentors reported that they covered all the modules and mentored all healthcare workers assigned to them, except for those transferred to other health facilities before they completed the scheduled course. About 95% of the planned visits per health facility were conducted. About 934 issues were

worked on by the mentors during the visit. The most often worked on issues included infection prevention and control, conducting normal delivery, and use of partograph in monitoring labour. Supervision was also carried out as planned. However, mentors and supervisors were only reported to have addressed 51.4% and 65.1% of the problems identified during the mentorship, respectively, indicating that some issues were left unresolved. The majority of the mentees and mentors interviewed acknowledged that a comprehensive set of tools, including handbooks for mentees, mentors and supervisors and monitoring and reporting tools, were provided to guide the mentoring process and to collect data. These tools they said, contributed to efficiencies in the implementation of the project

However, some challenges were reported that affected the efficiency and potential effectiveness of the project. The majority of the challenges were related to the breakdown of the assumptions about the conditions that were expected to be in place to facilitate the smooth operation of the pilot project. For example, it was assumed that health staff assigned to the mentoring intervention would not be transferred for the duration of the project, that motorbikes assigned by the DHMT would be in good repair and available to facilitate mentors' movement, that the health facility would have sufficient supply of medical logistics to facilitate the implementation of skills acquired during training etc. Mentees were unexpectedly transferred during the mentoring, causing delays in implementation. M&E data showed that, on average, only 70% of the mentees that enrolled in the project completed the mentorship, the actual proportions trained were 74% of enrolment in 2019, declined to 62% in 2020 and increased to 73% in 2021. Basic materials such as delivery kits and practice materials were reported to be in short supply, and the unavailability of a reliable source of water in some facilities affected project delivery. There were also dissatisfaction about the inadequate supply of fuel, lack of maintenance of motorbikes, and unmet expectations of mentees. About 17.6% of the mentees were not on payroll (non-pin coded). Some of these mentees expected that they would be provided with a stipend for their participation in the project. Mentors reported that it was challenging to motivate some mentees to fully participate in the scheduled activities due to these unmet expectations.

Despite the challenges, the responses of key informants and focus group participants provided compelling evidence that the project delivered on the planned outputs and achieved intended outcomes and impact.

Several of the mentors and stakeholders interviewed cited the following contributions of the project:
- Improved skills of mentees in basic emergency obstetric and new-born care (BEmONC signal functions)
- Increased adoption of family planning practices in the project communities
- Community participation in facility operations and management, including by-laws to encourage facility delivery, health service utilization and active support in the maintenance of the health facility
- Reduction in home delivery, improvement in facility delivery and prompt referral to secondary facilities in cases of emergency
- Decline in maternal and child mortality in the project health facilities

In addition to improving community participation in health facility management, the community engagement component of the project succeeded in reducing negative attitudes towards clinic attendance. According to one respondent: "*Some had the belief that when you were taken in the ambulance, you would not come alive. So, they had earlier refused to be referred because of the fear of the ambulance. People were also afraid of going to the secondary facility because they claimed that if you went there, they would inject you with the Ebola virus. With the interventions of this project, most of these memories and negative mentalities have been reduced drastically.*"

Many of the mentees interviewed could point to specific skills that they learned because of the project. The majority said the skills they acquired had improved their confidence and work performance. The most often cited skills were related to active management of labour and delivery and antenatal care. One mentee confidently said, "*I have mastered most of the skills regarding labour and delivery."* Mentees also cited other practical skills, including infection prevention and control, environmental management, and waste management. One mentee said, "*the practical skills I learned were hand washing hygiene, environmental sanitation, sterilization of medical devices, and cleaning schedule".* Another added I learned proper handwashing*, waste management, labelling of waste bins, taking care of the labour room and cleaning of the environment."*

Without external support, the sustainability of the project will depend on MOHS/DHMTs' investment in the intervention. It will require a substantial commitment on the part of the DHMT and MoHS leadership to allocate resources beyond current budget provisions. The project utilized existing structures, and the delivery was consistent with what should be the normal work routines of the DHMT and the chiefdom supervisors. However, additional resources were required to fund the rigorous monitoring, supervision, and regular visits to PHUs to conduct mentoring and provide training materials. The DHMT would need external funding to sustain this operation and to scale up to other health facilities. Stakeholders reported that due to health sector financing constraints, the MOHS/DHMT is unlikely to sustain features of the project such as GOAL's community engagement to improve maternal and child health, monthly maintenance of motorbikes to facilitate mentors' visits, regular supply of training materials, medical logistics and reporting forms.

In the project intervention facilities, mentoring can potentially continue in the health facilities where the mentors were based or to any facility where they are transferred without the additional costs required to support movement from one PHU to the other. Mentees were very confident that the knowledge and experience they acquired would continue to be applied to perform delivery. Community members interviewed were also confident that the communities would continue to perform their roles to promote health service utilization. One community stakeholder said, "*Let them talk to the nurses, but for our own community, I think the role they have given to us we can continue with it; depending on us, the mentorship will continue."*
These are potentially the sustainable aspects of this project.

5. Lessons Learnt

The following is the knowledge gained from the implementation of this project that could inform future project design or implementation.

1. A comprehensive, peer-led on-the-job mentorship intervention targeting rural PHU health care workers in Sierra Leone can improve health worker knowledge and skills.

2. The clinical knowledge and skills acquired by mentees because of the mentorship can translate into the quality of maternal and child health care if the various components of a quality maternal and child health program are incorporated into the intervention.

3. Community stakeholders in rural communities in Kenema district can be mobilized to actively participate in peer-led clinical mentorship projects being implemented in health facilities serving their communities. Community support can be meaningful if motivated by a community-led action plan intended to support health facility management, change social norms that promote teenage pregnancy or reduce delay in seeking health care.

4. A comprehensive M&E system is imperative to track indicators and monitor progress towards meeting the objectives of the clinical mentorship intervention. The system should include a well-resourced M&E unit that is able to regularly monitor implementation, indicators specified across the results chain with definitions on how each would be measured, a data collection plan and tools to measure indicators and monitor implementation.

5. Strong collaboration and partnership with the DHMT and MOHS in the design, and implementation of the clinical mentorship intervention is critical to the successfully implementation of the project in rural PHUs in Sierra Leone.

6. Recommendations

One of the recommendations from the stakeholders interviewed was the need for continuity of the project to sustain and expand on the gains made. According to one respondent, there is a need for donors to continue supporting *"the mentorship because it improved our skills, thereby contributing to reducing maternal and child mortality".* Another respondent appealed for the continuity of the project by narrating a personal benefit as follows*: "The mentorship has made me become the best midwife in Kenema District, they nominated me, and I wasn't even aware about it. I was in my facilities when they called me … they told me to report in Kenema earlier in the morning. I came, the district health sister told me to go to Freetown. They had nominated me as the best midwife of the district. ... So I don't want this project to only stay in Kenema district. They should also extend it in other districts and chiefdoms."*

1. Lack of drugs, supply of water, delivery kits, electricity and issues directly related to the condition of the health facilities were key challenges faced by mentees. Future mentorship projects intended to test whether peer-led mentorship could improve the quality of maternal and child health care should ensure that the various components of a quality maternal health program, including health facility strengthening, are incorporated into the intervention, learning from the challenges identified in the implementation of the pilot project

2. There was strong collaboration and partnership between the DHMT, local communities and GOAL in the implementation of the project. These were essential in the implementation of the project and should be replicated. Future clinical mentorship projects could improve on this collaboration by soliciting the active participation of the national and district human resources managers to ensure that unexpected transfer of staff will not occur.

3. There is a need for operational research to determine the best strategies or models for implementing the GOAL's clinical mentorship package in Sierra Leone that is not only efficient and effective but also sustainable.

4. To measure project efficiency requires information on project costs on all inputs used in the project, which may be human, material, or natural resources. Future projects could track the cost of inputs as part of the M&E plan, including indicators to assess intervention management.

5. To quantify project impact or effectiveness, attention should be paid to the research design to ensure that the sample is adequate and the appropriate data is collected to reflect the design.

6. Project sustainability should be incorporated into the project plan in the form of an exit strategy that could be revised throughout the project as things change. Sustainability can also be pursued by advocating for a national mentorship policy and the incorporation of mentoring into the government budget allocation to the MOHS and the DHMTs. Preceptorship, (i.e., practical training of student nurses under the supervision of professional clinicians or nurses in preapproved health facilities) has been incorporated into the nursing school curriculum to fill "the gap between theory and practice for trainee nurses and midwives" [9]. A mentorship program would be a logical extension to continue to strengthen staff capacity.

References

1. UNICEF Sierra Leone. Maternal neonatal and child health in Sierra Leone. https://www.unicef.org/sierraleone/maternal-neonatal-and-child-health
2. Wurie, H.R., Samai, M. & Witter, S. Retention of health care workers in rural Sierra Leone: findings from life histories. *Hum Resour Health* **14,** 3 (2016). https://doi.org/10.1186/s12960-016-0099-6
3. Roome, E., Raven, J. & Martineau, T. Human resource management in post-conflict health systems: review of research and knowledge gaps. *Confl Health* **8,** 18 (2014). https://doi.org/10.1186/1752-1505-8-18
4. Kowalski K. Differentiating mentoring from coaching and precepting. J Contin Educ Nurs. 2019 Nov 1;50(11):493-494. doi: 10.3928/00220124-20191015-04.
5. Eby LT, Allen TD, Evans SC et al. Does mentoring matter? A multidisciplinary meta-analysis comparing mentored and non-mentored individuals. J Vocat Behav. 2008 Apr; 72(2): 254–267.doi: 10.1016/j.jvb.2007.04.005
6. Schwerdtle P, Morphet J, Hall H. A scoping review of mentorship of health personnel to improve the quality of health care in low and middle-income countries. Global Health. 2017 Oct 3;13(1):77. doi: 10.1186/s12992-017-0301-1.
7. Organization of Economic Cooperation and Development. Evaluation Criteria. Retrieved from https://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm
8. The Global Strategy for Women's, Children's, and Adolescent's health (2016-2030). Retrieved from https://www.who.int/life-course/partners/global-strategy/globalstrategyreport2016-2030-lowres.pdf
9. Ministry of Health and Sanitation. 2020. Preceptorship policy and implementation guidelines for clinical competency building of midwifery and nursing students and residents. Retrieved from https://sierraleone.unfpa.org/sites/default/files/pub-pdf/preceptorship_policy_final.pdf
10. Anatole M, Magge H, Redditt V, et al. Nurse mentorship to improve the quality of health care delivery in rural Rwanda. Nursing Outlook. 61(3),2013: 137-144. https://doi.org/10.1016/j.outlook.2012.10.003.
11. GOAL. Research protocol: Clinical mentoring pilot. Operational research to test if the designed package of mentoring interventions improves HW knowledge and skills and improves quality of care.
12. Nampa et al. The KoBoCollect for research data collection and management (An experience in researching the socio-economic impact of blood disease in banana. SOCA: Journal Sosial Ekonomi Pertanian. 2020 Sept.;14(3): 545 - 55

13. Provalis Research. https://provalisresearch.com/downloads/trial-versions/
14. Ministry of Health and Sanitation. Sierra Leone National Reproductive, Maternal, New-born, Child, and Adolescent Health Strategy 2017-2021. Retrieved from https://www.afro.who.int/publications/sierra-leone-national-reproductive-maternal-newborn-child-and-adolescent-health
15. MOHS. Human Resources for Health in Sierra Leone for the Ministry of Health and Sanitation.October2006.Retrievedfrom https://www.hrhresourcecenter.org/hosted_docs/HRH_Policy_Sierra_Leone.pdf
16. Khandker SR, Koowal GB, Samad HA. Handbook on impact evaluation: quantitative methods and practices. World Bank. DOI: 10.1596/978-0-8213-8028-4

17. GOAL Clinical Mentorship Pilot project. MEAL Plan & Progress Tracker
18. Ministry of Health and Sanitation. 2020. Preceptorship policy and implementation guidelines for clinical competency building of midwifery and nursing students and residents. Retrieved from https://sierraleone.unfpa.org/sites/default/files/pub-pdf/preceptorship_policy_final.pdf

Appendixes

Appendix A: Additional Tables of Results

Table S1: Maternal mortality rates in intervention and control health facilities

Period	Intervention health facilities			Control health facilities		
	Live births in health facility	# of maternal deaths from HF catchment population	Maternal mortality rate	Live births in health facility	# of maternal deaths from HF catchment population	Maternal mortality rate
Baseline (April-Jun 2019)	676	0	0	-	-	-
Jul-Sep-2019	941	3	319	-	-	-
Oct-Dec-2019	749	10	1,335	-	-	-
Jan - Mar 2020	996	0	0	235	9	3830
Apr - Jun 2020	1081	1	93	244	0	0
Jul - Sep 2020	1129	1	89	201	0	0
Oct - Dec 2020	1231	0	0	169	0	0
Jan - Mar 2021	939	0	0	169	0	0
Apr - Jun 2021	943	0	0	230	0	0
Jul - Sep 2021	825	0	0	171	0	0
Oct - Dec 2021	739	0	0	172	0	0

Table S 3: Health Facility (HF) Utilization rates in intervention and control health facilities.

Data Collection Period	Treatment		Control	
	Total Headcount (all services)	Utilization rate	Total Headcount (all services)	Utilization rate
Baseline (April-Jun 2019)	32,205	33%	-	-
Jul-Sep-2019	42,868	45%	-	-
Oct-Dec-2019	44,915	47%	-	-
Jan - Mar 2020	42,432	43%	12015	33%
Apr - Jun 2020	40,251	41%	11550	32%
Jul - Sep 2020	41,379	42%	10647	29%

Oct - Dec 2020	41,444	42%	10412		29%
Jan - Mar 2021	43,588	43%	10832		29%
Apr - Jun 2021	44,657	44%	10485		28%
Jul - Sep 2021	47,326	46%	10898		29%
Oct - Dec 2021	47,786	47%	10512		28%
Notes: HF catchment population in Treatment HFs 2019= 96,294; 2020 = 99,086; 2021 = 102,206					
Catchment population in control HFs 2020=36350; 2021 = 37 404					

Table S 4: Average time spent per session at the health facility

	A	B	C	D	A*C	B*C/D	A*C/D	B*C
Data Collection Month/ Year	Total time spent (in minutes) at PHU on mentorship	Total length of average time on mentorship visit.	# of Actual mentoring visits made to facility per month	# of Actual mentees mentored	Total time spent (in minutes) on mentorship to facility per month	Average time in hours per mentee per session per month	Average time in minutes per mentee per session per month	Total visit time (hours) to facility per month
May-19	134	2.2	28	52	3752	1.20	72.15	62.53
Jun-19	128	2.1	26	64	3328	0.87	52.00	55.47
Jul-19	140	2.3	28	69	3920	0.95	56.81	65.33
Aug-19	134	2.2	25	67	3350	0.83	50.00	55.83
Sep-19	136	2.3	30	70	4080	0.97	58.29	68.00
Oct-19	92	1.5	31	65	2852	0.73	43.88	47.53
Nov-19	130	2.2	30	66	3900	0.98	59.09	65.00
Dec-19	90	1.5	32	46	2880	1.04	62.61	48.00
May-Dec 2019	**123**	**2.1**	**28.75**	**62.38**	**3536**	**0.94**	**56.69**	**467.70**
Jan-20	148	2.5	31	43	4588	1.78	106.70	76.47
Feb-20	160	2.7	32	46	5120	1.86	111.30	85.33
Mar-20	158	2.6	30	43	4740	1.84	110.23	79.00
Apr-20	160	2.7	32	51	5120	1.67	100.39	85.33
May-20	180	3.0	32	46	5760	2.09	125.22	96.00
Jun-20	158	2.6	32	58	5056	1.45	87.17	84.27
Jul-20	186	3.1	32	53	5952	1.87	112.30	99.20
Aug-20	180	3.0	30	47	5400	1.91	114.89	90.00
Sep-20	140	2.3	29	44	4060	1.54	92.27	67.67
Oct-20	158	2.6	30	49	4740	1.61	96.73	79.00
Nov-20	160	2.7	31	46	4960	1.80	107.83	82.67
Dec-20	123	2.1	31	42	3813	1.51	90.79	63.55
Jan-Dec 2020	**159.25**	**2.7**	**31**	**47**	**4937**	**1.74**	**104.30**	**988.48**
Jan-21	140	2.3	32	46	4480	1.62	97.39	74.67
Feb-21	148	2.5	31	41	4588	1.87	111.90	76.47
Mar-21	160	2.7	31	38	4960	2.18	130.53	82.67
Apr-21	130	2.2	32	42	4160	1.65	99.05	69.33
May-21	159	2.7	31	52	4929	1.58	94.79	82.15
Jun-21	160	2.7	31	54	4960	1.53	91.85	82.67
Jul-21	160	2.7	32	44	5120	1.94	116.36	85.33
Aug-21	140	2.3	31	47	4340	1.54	92.34	72.33
Sep-21	160	2.7	31	47	4960	1.76	105.53	82.67
Oct-21	160	2.7	32	47	5120	1.82	108.94	85.33

Nov-21	130	2.2	32	44	4160	1.58	94.55	69.33
Dec-21	123	2.1	30	46	3690	1.34	80.22	61.50
Jan-Dec 2021	**147.5**	**2.5**	**31.33**	**45.67**	**4621.67**	**1.69**	**101.20**	**924.45**

Table S5: Improved maternal and child health knowledge and clinical skills of healthcare workers

Data Collection Months/ Years	Number of HCWs who can state at least three warning signs during labour and delivery			Number of HCWs who can state at least three warning signs during ANC visits			Number of HCWs who can state at least three neonatal danger signs		
	# of HCWs Assessed	# of HCWs that stated at least three warning signs correctly during labour and delivery	% of HCWs that stated at least three warning signs correctly during labour and delivery	# of HCWs Assessed	# of HCWs that stated at least three warning signs during ANC visits	% of HCWs that stated three warning signs during ANC visits	# of HCWs Assessed	# of HCWs that stated at least three neonatal danger signs	% of HCWs that stated at least three neonatal danger signs
Sep-19	76	50	66%	76	46	61%	76	48	63%
Dec-19	76	59	78%	76	52	68%	76	52	68%
Sep-20	76	69	91%	76	64	84%	76	63	83%
Dec-20	76	72	95%	76	68	89%	76	65	86%
Sep-21	63	61	97%	63	58	92%	63	57	90%
Dec-21	63	62	98%	63	60	95%	63	61	97%

Table S6: Number of deliveries, postpartum care and uterotonic services in project and control health facilities

Quarter	Treatment	Control	Treatment	Control	Treatment	Control
	Total number of deliveries conducted	Total number of deliveries conducted	% of mothers and babies who receive postpartum care within 2 days of childbirth	% of mothers and babies who receive postpartum care within 2 days of childbirth	% of women that received uterotonic injection immediately after their last delivery	% of women that received uterotonic injection immediately after their last delivery
April-Jun 2019	689	-	100%	-	100%	-
Jul-Sep-2019	996	-	100%	-	100%	-
Oct-Dec-2019	1117	-	99%	-	100%	-
Jan - Mar 2020	1012	271	99%	100%	100%	100%
Apr - Jun 2020	1137	267	100%	100%	100%	100%

Period	#	#	%	%	%	%
Jul - Sep 2020	1139	207	99%	100%	100%	100%
Oct - Dec 2020	1240	171	99%	100%	100%	100%
Jan - Mar 2021	940	194	100%	100%	100%	100%
Apr - Jun 2021	943	234	100%	100%	100%	100%
Jul - Sep 2021	922	171	100%	100%	100%	100%
Oct - Dec 2021	887	172	100%	100%	100%	100%

Table S7: Percentage of mothers that received antenatal care (ANC) services and focused ANC in treatment and control health facilities

Data Collection Period	Treatment			Control		
	# of mothers that attended total ANC visits/ services	# of mothers that received focused ANC services	% of mothers that received focused ANC services	# of mothers that attended total ANC visits/ services	# of mothers that received focused ANC services	% of mothers that received focused ANC services
April-Jun 19	2,730	1,436	53%	-	-	-
Jul- Sep 19	7,056	4,179	59%	-	-	-
Oct-Dec19	3,389	2,544	75%	-	-	-
Jan-Mar 20	5,715	2,420	42%	1,579	646	41%
Apr-Jun-20	4,499	925	21%	1,188	380	32%
Jul-Sep-20	2,922	862	30%	1,068	254	24%
Oct-Dec-20	2,211	824	37%	950	286	30%
Jan-Mar-21	3,643	418	11%	766	234	31%
Apr-Jun-21	2,375	313	13%	677	164	24%
Jul-Sep-21	4,013	1,063	26%	1,223	291	24%
Oct-Dec-21	1,794	623	35%	326	101	31%

Table S8: Percentage of records with erroneous/mistaken data recorded.

Period	Treatment			Control		
	# of patient records checked	# of patient records identified with missing /incomplete /wrong entries:	% of patient records with erroneous data recorded.	# of patient records checked	# of patient records identified with missing /incomplete /wrong entries:	% of patient records with erroneous data recorded.
Baseline (May-Jun 2019)	10822	233	2.2%	-	-	-
Jul-Sep-2019	15207	195	1.3%	-	-	-

Oct-Dec-2018	5834	63	1.1%	-	-	-
Jan - Mar 2020	38305	87	0.2%	9796	36	0.4%
Apr - Jun 2020	34642	38	0.1%	8932	14	0.2%
Jul - Sep 2020	25858	34	0.1%	8899	2	0.0%
Oct - Dec 2020	26333	24	0.1%	11722	3	0.0%
Jan - Mar 2021	5437	9	0.2%	10831	16	0.1%
Apr - Jun 2021	8493	27	0.3%	9235	40	0.4%
Jul - Sep 2021	20556	42	0.2%	10567	122	1.2%
Oct - Dec 2021	16991	128	0.8%	3272	60	1.8%

Appendix B: Mentee Survey and Health Facility Project Listing Tools for the Evaluation of GOAL's Clinical mentorship Pilot Project in Kenema District

Survey Questionnaire for the Evaluation of the GOAL Clinical Mentorship Pilot Project in Kenema District				
	Questionnaire Number [#--------------------]	Chiefdom Code ------		
No	**Question**	**Categories**	**Code**	**Skip**
	Thank you for taking the time to talk to us. We are conducting a survey to assess the experiences of PHU staff with mentorship. These mentorships may have been implemented by various partners including GOAL Sierra Leone. We are talking to PHU staff to hear their opinions which we think are important in assessing the performance of these mentorship projects. Your opinions are still important even if you have not recently participated in a mentorship arrangement.			
	Section 1: Mentee Survey			
Q1	Are you the In-charge/Head of this facility?	Yes	1	
		No	2	
Q2	Are you currently a Ministry of Health and Sanitation (MOHS) paid staff, consultant, or volunteer?	Yes, MOHS salaried and permanent staff	1	
		Yes, MOHS salaried but temporary staff/Consultant	2	
		Yes, MOHS unsalaried/ volunteer	3	
		Non-MOHS staff	4	
Q3	How many years have your worked with the MOHS?	ENTER # ----------------------		
Q4	**What type of health professional are you? [Select only one]**	Nurse /MCH Aide	1	
		Nurse & Midwife	2	
		Midwife	3	
		Paramedical (e.g., CHO/CHA, Lab Technicians)	4	

No	Question	Categories	Code	Skip
	Survey Questionnaire for the Evaluation of the GOAL Clinical Mentorship Pilot Project in Kenema District			
	Questionnaire Number [#--------------------]	Chiefdom Code ------		
		Reproductive Health/Family Planning	5	
		Support Staff	6	
		Clinical Student in Training	7	
		Other[specify]--		
Q5	**What is the highest clinical qualification that you hold?**	MCH Aide/SECHN Certificate	1	
		Nursing Diploma (SRN)	2	
		Midwifery Certificate/Diploma	3	
		Community Health Ordinary National Diploma (CHA)	4	
		Community Health Higher National Diploma (CHO)	5	
		Graduate or higher	6	
		Other[specify]--		
Q6	In which unit do you currently work? [If multiple units, ask for where s/he spend most of his/her time]	Paediatrics/Neonate	1	
		Adult ward	2	
		Malnutrition ward	3	
		Obstetrics	4	
		Triage	5	
		Family Planning	6	
		General /PHU with no specialized units	7	
		Other[specify]		
Q7	Do you have any previous experience being in a mentorship project?	Yes	1	
		No	2	
Q8	Which organization provided the mentorship?	ENTER NAME		
Q9	From 2018 to date, did this facility participate in the GOAL clinical mentorship pilot project	Yes	1	
		No	2	
Q10	If NO, is this facility a treatment or control health facility [*if respondent answers no in Q7 probe to ensure Q8 is control, if not specify*]	Treatment	1	
		Control	2	IF Q7 IS YES AND Q8 IS CONTROL GO TO Q19

Survey Questionnaire for the Evaluation of the GOAL Clinical Mentorship Pilot Project in Kenema District				
	Questionnaire Number [#--------------------]	Chiefdom Code ------		
No	**Question**	**Categories**	**Code**	**Skip**
		other [Specify]		
Q11	Are you a current or past mentee in the GOAL Clinical mentorship Program?	Yes, current mentee	1	If YES Current or Completed, SKIP to Q13.
		Yes, Past mentee/completed	2	
		No, dropped out		
		Other………………….		
Q12	If, dropped out, why did you drop out?	---		
Q13	Thinking specifically about the GOAL Clinical Mentorship, how did the mentorship affect your confidence in performing your job. Probe Specific example [Open Ended]			
Q14	Thinking about the GOAL Clinical mentorship, how did the mentorship affect your clinical skills? Probe: If improved, which specific skills improved? [Open Ended]			
Q15	What aspects of this project do you think will continue after the project ends without external support?	[OPEN ENDED]		
Q16	What aspects of this project do you think will NOT continue after the project ends if there is no external support?	[OPEN ENDED]		
Q17	What do you think are the main challenges that you faced as a mentee?	[OPEN ENDED]		
Q18	What are your suggestions for improving this project?	[OPEN ENDED]		
Q19	You said you have previous experience with being a mentee; in which facility type did you attend [are you attending] the mentorship	CHC	1	
		CHP	2	
		MCHP	3	
		Don't know	88	
		Other[specify]---		
Q20	Thinking about your most recent mentorship experience/GOAL Clinical mentorship, what is [was] the gender of your main mentor? [If mentee has more than one mentor ask about the one s/he interact with most]	Male	1	
		Female	2	
		Don't know	88	
Q21	Thinking about your most recent mentorship experience/GOAL Clinical mentorship, did the mentor assigned to	Yes	1	
		No	2	

No	Question	Categories	Code	Skip
	you explain to you the goal of the mentorship or what was expected of you?	Don't know	88	
Q22	Thinking about your most recent mentorship experience/GOAL Clinical mentorship, were you at any time provided with written down or clearly defined learning objectives?	None	1	
		Yes, learning objectives explained to me but not written down	2	
		Yes, learning objectives written down but not explained to me	3	
		Don't know	88	
Q23	On a scale of one to five how would you rate the skills of your mentor to help you acquire the necessary clinical skills	Not at all skillful	1	
		Somewhat unskillful	2	
		Neutral	3	
		Moderately Skillful	4	
		Very Skillful	5	
		Don't Know	88	
Q24	Thinking about your most recent mentorship experience, on average how many work-related mentorship meetings did/do you hold with your mentor per month	[Enter Number]	------- ------- ------	
Q25	On average how many work-related mentorship visits did get from the mentorship project per month	[Enter number]	------- ------- ------	
Q26	Thinking about your most recent mentorship experience, did you get feedback about your performance from you mentor or the program supervisors? [By feedback we mean your mentor or supervision told you how well you were doing or pointed out areas for improvement]	Yes, regular feedback from mentor and supervisors	1	
		Yes, regular feedback from mentors only	2	
		Yes, regular feedback from supervisors only	3	
		No feedback	4	
Q27	Thinking about your most recent mentorship experience, on a scale of one to five to what extend did you achieve your personal skills development goals from the mentorship.	Not at all achieved	1	
		Somewhat not achieved	2	
		Neutral	3	
		Somewhat achieved	4	
		Fully achieved	5	
		Very satisfied	5	
Q28		Very low quality	1	

No	Question	Categories	Code	Skip
	Survey Questionnaire for the Evaluation of the GOAL Clinical Mentorship Pilot Project in Kenema District			
	Questionnaire Number [#--------------------]	Chiefdom Code ------		
	One a scale of one to five how would you rate the overall quality of the mentoring you received/ are receiving from the program?	Somewhat low quality	2	
		Neutral	3	
		Good quality	4	
		Very good quality	5	
Q29	Thinking about your most recent mentorship experience, what practices, procedures, skills, or social norms did you learn due to the mentorship?	[OPEN ENDED] ------------------		
Q30	What is your gender at birth?	Male	1	
		Female	2	
Q31	What is your age?	[----------------------------------]		

Section 2: Health Facility Project Listing

This section is for the Facility In-Charge or his/her Assistant in BOTH Treatment and Control health facilities. Work with the facility staff to list ALL projects implemented in the health facility during the past three years and indicate the implementing NGO, year, and main objective/activities. Review facility records where available to determine which health partners are operating in the facility.

	Name of Project	Name of Health Partner/ NGO	Year	Objective/Goal/Activities
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Appendix C: Focus Group Discussion Guide for Interview with Project Staff, Chiefdom Supervisors and Midwives [Mentors]

I. **Introductions and consent**

FACILITATOR AND PROJECT INTRODUCTION

[facilitators introduce themselves]

We're conducting a study to assess the performance of the GOAL Clinical Mentorship Pilot Project. During this interview, I will ask you few questions to find about how the mentorship was implemented, its main achievements and challenges. I would also like to hear your opinion about how any achievements can be sustained, and what constitutes a viable second phase of this project.

Based on your current role and experience, you may not have answers to all the questions, and that's ok.

CONSENT [READ AS WRITTEN]

We are asking you to participate in this discussion on a voluntary basis; there will be no personal benefits for participating in this discussion. To facilitate analysis of the data, this interview will be recorded. Information you give will be kept confidential, only the people directly involved in this research will have access to the information. The information you provide will be used in a report but your name and information about you or your organization will not be included in the report.

You have the right to continue with the discussions or to stop if you don't feel comfortable. If you complete the interview, the information you provide will inform the work of the Savings Lives Project as they plan the second phase of the intervention.

Are there any questions so far? Do you agree to participate? *[Ask each participate to indicate consent on record]*

II. **Guidance for interviewers:**

Begin discussion with welcome, background information about the project, introductions
Describe format and discuss consent
Invite participant to give an introduction
Use open-ended questions; avoid yes/no or leading questions
Listen carefully; use probes as needed to encourage a thorough discussion

III. Interviewer Question Guide

Invite participant to give an introduction; begin with General questions

1. GENERAL [PROJECT MANAGERS AND MENTORS]

1. How do you describe your role with the GOAL Clinical Mentorship and what was one thing you liked about your role in the mentorship?

2. MENTORSHIP DESIGN [ASK PROJECT MANAGERS ONLY]

2a. How is this project aligned with national health priorities?

2b. How was the mentorship program set up? *[Probe: Was there a needs assessment? what needs were addressed? how were they identified?*

2c. How did the project select operational chiefdoms/mentees? Did the project effectively reach the most deserving? [*Probe: why or why not?]*

2d. How were the health facilities and mentees prepared to implement project?

3. IMPLEMENTATION [PROJECT MANAGERS AND MENTORS]

3a: Did the mentorship program run as planned? Why or why not? [*Probe: How were any changes addressed?]*

3b. What technology was deployed to improve efficiency? *[Explain: By technology, we mean any tools, computer software programs, processes, procedures, guidelines etc. employed to deliver the project]*

3c: What practices, procedures, or social norms have changed due to the project?

3d. Were there any negative or unplanned impacts because of this project?

4. SUSTAINABILITY [PROJECT MANAGERS AND MENTORS]

4a: Explain how MoHS was involved with the mentorship project

4b. What aspects of this project do you think will continue after the project ends even without external support?

4c. What aspects of this project do you think are UNLIKELY to continue after the project ends IF there is no external support?

4d. What is the project exit strategy to ensure sustainability?

4e. What do you think were the main challenges faced by mentors and mentees in the implementation of the project: [Probe: How can future projects of this nature be improved]?

Appendix D: Terms of Reference

1.1   Terms of Reference

Final Evaluation of GOAL Pilot Clinical Mentorship programme

Terms of Reference

1. Introduction

1.1 Background

1.2 GOAL's Programmes

GOAL Sierra Leone's health programming is coherent with GOAL's Global Health Strategy, which is aligned with the UN Global Strategy for Women's, Children's, and Adolescents' Health (2016-2030) and the goal is the attainment of optimal and resilient health, especially for the most vulnerable and marginalised groups. GOAL recognises that reproductive health information and services are a basic right and are fundamental to health, well-being and opportunities for women and young people.

The Sierra Leone health programme is also guided by GOAL's programmatic approach which is centred on four integrated pillars of Systems thinking, Resilience, Social and Behavior Change and Inclusion. In addition, the programme focuses on two programmatic goals (people survive crisis and people have resilient health), each of the goals have a couple of objectives. Under the resilient health the objectives include health system strengthening, Social behaviour change and the accountability &advocacy.

Despite the encouraging gains in the health sector, levels of child and maternal mortality remain intractably high. In Kenema the under-five mortality rate is 224 per 1,000 live births, higher than the national average at 161 per 1,000 live births. This is despite having a higher percentage of babies delivered by skilled health workers and in health facilities across the districts in Sierra Leone. This relatively high level of access to health care in Kenema has not resulted in lower maternal mortality rates; it is high across the country at 1,165/100,000, and Kenema was ranked third highest in 2016. These poor health indicators are because of a range of challenges including the critical shortage of health workers and low capacity. Each district has a DHMT responsible for coordination and leadership for health activities at district level. Each district is also comprised of several Chiefdoms, which have a Chiefdom Supervisor (CS) responsible for managing the Community Health Centres, some of which are basic emergency obstetric and neonatal care centres, and as well as supervising lower level PHUs. Many PHUs have only 1-2 staff so if they are absent for district level trainings, the facility closes, undermining community confidence in the reliability of service. The successful conduct of the mass immunization campaigns indicates that systems are in place for stronger linkages between CSs and PHUs, and that CSs are able to reach

all their PHUs. GOAL aims to build on this capacity and ensure CSs are fulfilling their responsibility to supervise and mentor staff at PHUs in a systematic way. The central tenant of this pilot project is to work within the health system to identify gaps and build on inherent capacities.

GOAL piloted *on-the-job* package of mentorship delivered by chiefdom health supervisors and midwives *in five chiefdoms of Kenema in a bid to strengthened* health system to improve service quality and reliability at Peripheral Health Units in rural Kenema. The project identified and trained clinical mentors from among the DHMT PHU staff to deliver a more systematic clinical mentorship package.

Sixteen clinical staff where initially trained as mentors (mostly from CHC) and have carried out the mentorship to lower facilities within their supervision area. Coaching and mentoring at targeted PHUs before this pilot was carried out by partners and sometimes by the District Health Management Team (DHMT) personnel, but this mentoring was not systematic, was reliant on partner support and lacks sustainability. Sierra Leone is characterized by high numbers of facilities in each District, and poor terrain makes access to Peripheral Health Units (PHUs), the first line of Primary Health Care in rural communities extremely difficult and challenging the provision of comprehensive mentoring and support by district level staff. When given, mentoring methods have focused on one-size-fits-all checklists. To address these challenges, GOAL took learnings from previous clinical mentoring projects in Sierra Leone and tried a comprehensive package of mentoring and training, working with existing staff at the Chiefdom level (the smallest administrative division) to improve skills of Health Care Workers (HCWs). The approach is aiming to minimise gaps in service availability, and improve appropriate treatment at the facility level, as well as increasing patient confidence in the capacity of, and access to, healthcare staff, and therefore uptake of services over time.

The project is piloted in Kenema District and utilise low-cost approaches with the potential to be replicated at scale.

The hypothesis: If remote PHU health care workers receive systematic, quality, comprehensive, on-the-job supervisor- and peer-led mentorship then health service utilization and quality of care will improve, resulting into a positive health outcomes and patient satisfaction.

2. Definitions and Scope

2.1 Project Objectives
The proposed impact of the project is:
- This pilot will contribute to the **Improved quality of maternal and childcare and data available at health facilities in rural Kenema**

This project will look to achieve the following results through the Specific Objectives detailed below:
  Outcome 1: Chiefdom Supervisors and Midwives are able to provide regular on-the-job mentorship of PHU health workers.
  Outcome 2: Chiefdom Supervisors and Midwives are able to provide quality on-the-job mentorship of PHU health workers.
  Outcome 3: Improved knowledge and clinical skills of healthcare workers.
  Outcome 4: Improved quality of maternal and child health services
  Outcome 5: - Improved data quality (accurate, timely, complete) provided by healthcare workers**.**
As part of the project strategy, these outcomes are measured through the following indicators.
Outcome indicators
Increase utilisation rate.
Decrease Maternal mortality ratio.
Decrease Neo natal mortality rate.

Output Indicators
# of visits made to each facility per month by each mentor

Average time spent per session at the health facility.
% of issues identified and resolved through the mentoring visits
% of mentees who report increased and improved clinical skills
% of issues identified through joint supportive supervision (DHMT and GOAL) visits and resolved by the next quarter
Clinical issues most frequently worked on by the mentors
% of HCWs who are able to state at least three warning signs during labour and delivery
% of HCWs who are able to state at least three warning signs during ANC visits
% of HCWs who know at least three neonatal danger signs
% of mothers and babies who receive postpartum care within 2 days of childbirth
Percent of women attending ANC clinics who receive focused ANC
% of mothers of children aged 0-12 months who were administered a uterotonic drug immediately after the birth of their youngest child
% of deliveries where a partograph was completed during the birth
% of health facility users who perceive an improvement in the quality of care they receive
% of inconsistencies / inaccurate data recorded on the health facility utilisation summary sheet compared to data recorded in the health facility registers
% of patient records with erroneous data recorded.

2.2 Evaluation Purpose

The purpose of this evaluation is to assess the performance of the pilot clinical mentorship according to Organization for Economic Cooperation and Development (OECD) evaluation criteria relevance, coherence, Effectiveness, Efficiency, Impact and Sustainability. The evaluation will help GOAL to improve its future programming through lessons learned and best practices generated through this pilot and help inform decision on possible scale up of this approach to other chiefdoms within Kenema and other districts of SL.

2.3 Evaluation Scope

The Evaluation should be organised around OECD evaluation criteria as follows, with suggested research questions provided. For further information on the OECD criteria please click- Evaluation Criteria - OECD

Relevance: Does the programme align with national and international priority concerns? Did this programme effectively reach the most vulnerable? Did the project address the priority gaps /needs of the sector?

Coherence: To what extends was the pilot mentorship programme compatible with other interventions in the country / sector. How was the programmes aligned to the national policy frameworks and other interventions implemented health actors in the chiefdom

Effectiveness: Were the monitoring mechanisms effective in providing timely data to inform programming decisions? To what extent did the project meet its targets and deliver outputs? To what extent did this project achieve the intended outcome and impact?

Efficiency: How well were the resources used? How do intervention costs compare with other modalities or other clinical mentorship? What evidence is available that efficiencies were sought in programme design? Were adequate human and financial resources applied to delivering project outcomes? Were outputs delivered in a timely fashion? Was technology deployed to improve efficiency?

Impact:? What was the performance against the stated indicators? Are there any negative or unplanned impacts as a result of this project? What difference did the pilot programme make? To what extent did the project generate or is expected to generate significant positive or negative, intended or unintended, higher-level effects

Sustainability: To what extent did the programme utilise established institutions/mechanisms to ensure sustainability at the end of the project (will the benefits last)? To what extent were relevant partnerships/capacity developed to ensure sustainability? Was an exit strategy developed to ensure sustainability**?** Is concept scalable by the MoHS considering its resources and capacity?

2.4 Evaluation Project Tasks

1. Refine the evaluation objectives and primary research questions in consultation with GOAL's technical and management teams
2. Incorporate specific evaluation questions regarding strategic programme areas and pilot activities undertaken during the programme including design of the pilot,

training of mentors, onsite mentorship, joint supportive supervision, chiefdom level monthly meetings, involvement, and participation of key stakeholders [as appropriate]

3. Devise and test a methodology and evaluation tools to address the specific outcomes and individual research questions of the evaluation.
4. Conduct secondary data collection and research, [where appropriate] including using GOAL's existing project monitoring data, to identify gaps in data coverage and knowledge
5. Collect [where appropriate] primary data to establish and quantify GOAL's performance against selected programme indicators and criteria outlined above
6. Provide a draft report to programme management that will be incorporated into ongoing programme planning and evaluation, as well as recommendations for maximising social impact
7. Facilitate a workshop to validate the findings of the evaluation with GOAL and partner staff and other stakeholders
8. Incorporate GOAL feedback into a draft report and prepare a final report. The final report should both describe the results of the evaluation, and provide actionable recommendations for improving GOAL's programme

3. Methodology

A recommended methodology is outlined below, but the final methodology and tools to be used should be determined by the evaluation team and will be contingent on the above tasks. GOAL recommends a mixed methods approach that can quantify impact and achievement against targets and indicators.

3.1 Planning
Before commencing the evaluation, team will do the following:
- Review key internal and external documents
- In partnership with the GOAL MEAL Coordinator, Country Health Coordinator and Assistant Country Director for Programmes, refine and finalise the specific evaluation questions to be explored from the scope described above.
- Propose to the MEAL Coordinator and programme team the appropriate methodology to be developed for the context to evaluate the project and address the OECD evaluation criteria
- Prepare an outline of the data collection methods that are required and the relevant survey templates and participatory data collection guides to be used for data collection
- Develop a work plan consisting of key milestones required for data collection in order for logistics to be arranged by the MEAL Coordinator
- Output of the Planning process – Inception report which outlines the detailed process, methodology and tools

On commencement, the evaluation team will:
- Hold a short planning meeting with all members of the evaluation team including the MEAL Coordinator and relevant programme teams, to review and amend the questions as needed for the data collection tools
- Liaise with the MEAL Advisor and MEAL Coordinator on the training and recruitment of the data collection staff and the use of mobile data collection for the proposed survey tools and qualitative guides, as primary data collection will be required for the study.

- Hold a brief workshop with GOAL SL Senior Management Team to communicate evaluation methods, objectives, and outcomes. This will include a short description of the evaluation questions and methods proposed.

Post-site visit
- Data analysis, report development, prepare summary of findings and dissemination

3.2 Primary Data Collection

Area/s of primary data collection include 35 health facilities, in five chiefdoms of Kenema and data from the 10 control facilities. To the greatest extent possible, the evaluation should consider both beneficiaries and non-beneficiaries, examining any potential positive or negative spill over effects. While quantitative methods such as household surveys, observation checklists, and physical testing are desirable for the measurement of indicators, GOAL expects a balance of quantitative and qualitative methods to better understand the mechanisms that produce certain results or may hinder greater results.

3.3 Data Analysis

GOAL expects all quantitative data to be rigorously analysed and representative of the project area within the reasonable limits and constraints of the context. Qualitative data should also be rigorously analysed and should primarily focus on developing a deeper understanding about the relevance of the programme, and providing recommendations for improving or strengthening the effectiveness, efficiency, and sustainability of the results of the programme.

4. Presentation and Documentation of Findings and Recommendations

This consultancy will take place at the end of the grant period, starting no earlier than November 2021 with the final approved report submitted by no later than Mid December 2021
The findings of the evaluation must be shared with GOAL in the following formats:
- Closing workshop with GOAL staff and Kenema DHMT to present findings and get feedback.
  - Agreed lessons learned and best practices that can be incorporated into relevant sectors' programming
  - Agreed recommendations that will inform and improve GOAL's future programmatic strategy, with agreed action points and deadlines
- Draft Evaluation Report submitted to MEAL Coordinator, Assistant Country Director for Programmes, and Country Director for feedback and comments, two weeks after conclusion of field visit.
- Final Evaluation Report- The report must be clear and concise, and the following sections must be included as a minimum: Executive Summary, Literature Review clinical mentorship in SL, Methodology, Analysis of Findings, Recommendations, Annexes: TORs, a timeline of the response, a list of individuals interviewed, statistical outputs, templates of data collection tools used, a description of the methods employed, a summary of survey results (if appropriate) and any other relevant materials.

DELIVERABLE 1: PRESENTATION OF KEY FINDINGS

DELIVERABLE 2: FINAL EVALUATION REPORT

5. Dissemination of Findings

Results and recommendations will be made available externally to interested stakeholders at the discretion of GOAL country senior management. The final report and any primary data collected will be the property of GOAL.

If particular sections of the evaluation are deemed useful or informative for the greater humanitarian community as lessons learned or opportunities to improve programming, GOAL reserves the right to create a separate report with excerpts from the final evaluation report to share with the wider community. At the key findings stage, GOAL may request that the consultant produce such a report along with the final evaluation report.

6. Ethical Considerations

The evaluation team will make clear to all participating stakeholders that they are under no obligation to participate in the evaluation study. All participants will be assured that there will be no negative consequences if they choose not to participate. The evaluation team will obtain informed consent from the participants. The evaluation team will ensure prior permission is received for taking and use of visual still/ moving images for specific purposes, i.e., 'for research report and presentations. The evaluation team will assure the participants' anonymity and confidentiality and will ensure the visual data is protected and used for agreed purposes only. In particular, the evaluation team will employ robust data security measures to further ensure participants' confidentiality and anonymity. The evaluation team is responsible for determining whether or not their proposed methodology would require Institutional Review Board (IRB) clearance and will be responsible for clearing the process and training if such approval is required.

7. Assumptions and Requirements

- The Evaluation will have access to all documentation and can take part in relevant meetings and field trips within Sierra Leone.
- Evaluation team will have access to key staff in the responding GOAL offices in Sierra Leone and partner offices to obtain adequate information provided.
- The evaluation team will have access to members of the affected population for conducting interviews.
- Evaluators will take confidentiality and objectivity into consideration during the process.
- Security concerns could impact the timing and the scope of the evaluation. It is important for the team to remain flexible. They must be open to making changes to the schedule and itinerary such as visiting alternate sites, conducting remote reviews and interviews, etc.
- GOAL will provide all transport within Kenema Sierra Leone.

8. Consultant Profile

For the purposes of this evaluation, GOAL welcomes international and national Consultant to apply.

The profile of the lead consultant is:

- Individuals or firms in academia, social research, or humanitarian evaluation with a background in humanitarian aid, research methods, development studies, or other related fields [omit as appropriate]
- Extensive experience of conducting evaluations along DAC OECD evaluation criteria, ideally leading an evaluation team and experience of designing evaluation methodology / tools, data analysis etc.
- Experience using Value-for-Money tools and methodologies
- Experience of working in humanitarian contexts and good understanding of humanitarian response work – both in programmes and operations
- In-depth knowledge of quantitative and qualitative research methods

- Competent in using statistical packages for quantitative and qualitative analyses
- Excellent presentation and writing skills
- Capacity to work collaboratively with multiple stakeholders
- Excellent analytical and writing in English] preferred