Government of Sierra Leone

# MATERNAL AND NEONATAL **QUALITY OF CARE**

## BASELINE ASSESSMENT REPORT

## Regent Community Health Centre
## Western Rural District, Sierra Leone

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# Contents

# Contents

# List of tables and figures

# Acknowledgement

The Maternal and Newborn Quality of Care baseline assessment was implemented by the Sierra Leone Ministry of Health and Sanitation in collaboration with UNFPA, who provided the technical and financial support. The Reproductive and Child Health Directorate of the Ministry is to be commended for their role as champions in advocating for maternal and newborn quality of care.

We are grateful to the following individuals and groups that participated in the various stages leading to this initiative: The Maternal and Newborn Quality of Care stakeholder's group that met in May 2018 was instrumental in adapting the WHO Maternal and Neonatal Quality of Care Standards for the first draft of the Sierra Leone Maternal and Neonatal Quality of Care Standards (Appendix 1 has a list of stakeholders).

We also are grateful for the expertise and guidance provided by the Ministry of Health and Sanitation, the WHO and UNICEF in creating a baseline assessment tool by adapting the WHO 'Integrated Maternal, Neonatal and Child Quality of Care and Assessment Tool'.

The assessment could not have been completed without the dedication and demanding work of the assessment team (the team is listed in Appendix 2). We would like to extend our gratitude to all the national and district officials of the MoHS for their active support in implementing the assessment.

We would also like to thank the staff at Regent Community Health Centre for graciously participating in this assessment. A special thanks to Jeneba M.I. Sesay, Matron In-charge, for facilitating the activities within the centre.

# Abbreviations

| | |
|---|---|
| BEmONC | Basic Emergency Obstetric and Newborn Care |
| CHC | Community Health Centre |
| DHMT | District Health Management Team |
| EmONC | Emergency Obstetric and Newborn Care |
| HCW | Health Care Worker |
| HIV | Human Immunodeficiency Virus |
| IMCI | Integrated Management of Childhood Illnesses |
| LBW | Low birth weight |
| MCHA | Maternal Child Health Aide |
| MoHS | Ministry of Health and Sanitation |
| PCMH | Princess Christian Maternity Hospital |
| PMTCT | Prevention of mother-to-child transmission |
| QI | Quality Improvement |
| QoC | Quality of Care |
| SECHN | State Enrolled Community Health Nurse |

# 1. Introduction

The poor quality of maternal and newborn health services has been a significant issue in Sierra Leone, in part due to the protracted civil war followed by the Ebola outbreak. During the epidemic, fewer pregnant women accessed health care and among those who did, an increase in maternal mortality and stillbirth was observed. As these events came to an end, the country was faced with revitalizing a seriously impaired health care system. Most maternal deaths occurred in health facilities and the Sierra Leone Ministry of Health and Sanitation (MoHS) related these deaths to poor quality of care. A variety of factors affected the quality of care (QoC) such as inadequate staff, lack of availability of essential medications and supplies, limited capacity to manage obstetrical emergencies, ineffective referrals, lack of clinical protocols, poor staff attitudes and poor documentation and use of patient records.

In response to these issues, the MoHS created a five-year plan, the 'National Health Sector Strategic Plan, 2017-2021' which stated the vision: "***A well-functioning national health system that delivers efficient and high-quality health care and ultimately contributes to the socioeconomic development of the country. This care must be of high quality, accessible, affordable and equitable to all Sierra Leoneans."*** Thus, a focus on improving the quality of services is a clear priority within this five-year plan.

In December 2017, the Government of Sierra Leone joined the Global Quality of Care network, which includes 10 countries taking the lead to improve the QoC of women and babies.

The vision of the QoC Network is that every pregnant woman, newborn and child receives quality care. The aim is to decrease facility deaths by 50 per cent among women and newborns, and stillbirths, within five years in the participating countries. One of the first steps was to establish a baseline assessment of the current state of maternal and newborn care.

The Maternal and Newborn Quality of Care Assessment in Sierra Leone was carried out to provide a baseline to guide planning for this quality improvement (QI) initiative.

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*1. S.A. Jones, S. Gopalakrishnan, C.A. Ameh, et al. 'Women and babies are dying but not of Ebola: the effect of the Ebola virus epidemic on the availability, uptake and outcomes of maternal and newborn health services in Sierra Leone'. BMJ Global Health (2016):1. e000065. doi:10.1136/bmjgh-2016-000065.*

*2. MoHS. 'Maternal Death Surveillance and Response, Annual Report 2016'. Directorate of Reproductive and Child Health: Freetown, S.L.*

The assessment tool was an adapted version of the World Health Organization's (WHO) Integrated Maternal, Neonatal and Child Quality of Care Assessment and Improvement Tool.[3] The assessment was limited to the maternal and neonatal modules and covered infrastructure, human resources, service statistics, support services and case management over a 12-month period.

**This report describes the assessment of Regent Community Health Centre. It was conducted by an assessment team consisting of UNFPA, MoHS and the District Management Health Team (DHMT) staff.**

# 2. Methodology

This assessment was conducted as a QI initiative. Randomization and representative samples were not obtained, so the results are not generalizable. QI is an intrinsic part of good clinical practice where lessons learned are used to enhance future health care delivery for patients and staff at the institution in which the QI activity is implemented.

## 2.1. Overview of the assessment

As participants in the Global Health Network, the MoHS, UNFPA and partners planned this assessment to initiate QI in health care facilities to improve the QoC of mothers and newborns. A concept note was written and submitted to the MoHS. The overall objectives of the assessment were as follows:

1) To determine the current knowledge and practices of health workers at emergency obstetrical and neonatal care (EmONC) health facilities with regard to the assessment and management of mothers and newborns;

2. To use the information to prioritize and plan improvements in the QoC at health facilities, including staffing, facility organization, equipment requirements, drug and material supplies, case management practices, training and supervision of health workers.

## 2.2. Assessment design

From its design phase, the Sierra Leone MoHS has been involved in identifying the need to assess status of health services. UNFPA engaged an internationally recognized QI consultant to guide the process.

*3.WHO. 'Integrated Maternal, Neonatal and Child Quality of Care Assessment and Improvement Tool'. Draft 2014.*

At the national level, the Directorate of Reproductive and Child Health of the Ministry of Health was consulted regarding the assessment. A QoC stakeholder orientation meeting was held in May 2018 regarding the selection of learning facilities. The team agreed to limit the number of learning sites to provide an opportunity to develop an implementation plan, test approaches and learn from the experience prior to scaling up.

The MoHS selected facilities that represented urban and rural settings, and hospitals and community health care centres (CHCs) that provide emergency obstetric and neonatal care (EmONC). Six facilities were selected: Princess Christian Maternity Hospital (PCMH), Regent and Waterloo CHCs in the Western Rural District and three facilities in Bo District: Jembe and Koribondo CHCs and Bo Government Hospital. The intent was to provide a baseline for each facility to begin QI activities rather than make a comparative analysis between the facilities.

As the data collection for this assessment included a significant portion of clinical observation, professional staff interviews and medical record reviews, individuals from the cooperating agencies with extensive clinical experience and involvement with assessing facilities were chosen for the assessment team. Thus, the assessment team consisted primarily of nurses, midwives and physicians. DHMT nurses participated in the review of the tools and were represented on the assessment teams in their respective districts.

The baseline assessment was conducted in the six facilities between May 22 and June 13, 2018. The consultant participated in the first four facility assessments (Bo Government Hospital, Regent, Jembe and Koribondo CHCs) to guide the assessment process. At the end of each assessment, the assessors met with the facility team to review key findings.

## 2.3. Data collection tools

The WHO's Integrated Maternal, Neonatal and Child QoC Assessment and Improvement Tool was designed to collect general information on the facilities as well as information specific to maternal and newborn patient care services and case management. The adapted tool was arranged in three modules: Module A-General facility information, Module B-Maternal care, and Module C-Neonatal care. The WHO tool has another module on paediatric care, but the team chose to focus on the first three modules, prior to collecting data on paediatric care. The content of each module is as follow:

### 2.3.1. Module A - General facility information

General information on the basic infrastructure and layout of the facility and centre support systems including:

1. Infrastructure;
2. Staffing;
3. Facility statistics;
4. Health information system and medical records;
5. Essential drugs and blood products (when applicable);
6. Laboratory;
7. Guidelines and auditing.

### 2.3.2. Modules B and C – Patient care units and case management

This section of the tool had two modules, Module A on maternal care and Module B on neonatal care, which included:

1. Emergency care;
2. Wards;
3. Infection control and supportive care;
4. Essential drugs, equipment and supplies;
5. Case management;
6. Monitoring and follow-up.

The MoHS, WHO and UNICEF worked with the QI consultant to adapt the WHO MNH assessment tool to the country context. The WHO tool was designed for hospital use and was extensive. Thus, the team prioritized areas for the assessment based on the time allotted to conduct the evaluation (one to two days for CHCs, and two to three days for hospitals). The remaining assessment criteria were classified for the two different levels of service according to the Sierra Leone Basic Package of Essential Services (2010-2015).

The WHO tool emphasized the use of direct observation as the primary data collection method. Recognizing that the ability to make direct observations during the planned assessments would be limited, especially in the CHCs, the team developed clinical simulations for each of the clinical modules, one for maternal emergency care (postpartum haemorrhage) and one for neonatal (resuscitation). In addition, a medical record review tool was created by the Sierra Leone team to review clinical documentation of care and treatments. Appendices 8a to 8g exhibit the content of the medical record review.

## 2.4. Training of assessors

The consultant oriented the assessors in the use of the monitoring tools and scoring criteria in a one-day session in the UNFPA offices in Freetown. Ten assessors from collaborating partners, MoHS, DHMT and national hospitals were trained in using the assessment tool. The number of assessors considered the availability of team members and geographic locations. The training was composed of an introductory section, followed by review of the modules to prepare participants to implement the forms and logistics. During the training, several adaptations were made by the assessors to clarify the questions in the tool.

## 2.5. Field testing

Most of the assessment team participated in field testing the tool at Regent CHC. After the field test, the assessment team met to revise the tool and streamline the assessment process.

## 2.6. Data collection

Data was collected by teams of three to five people each. Each team consisted of a team leader (the QI consultant or UNFPA staff) who made team member assignments and supervised the data collection (although, as time permitted, the team leader also collected data). The other team members collected data on the following forms.

1. General information;
2. Pharmacy;
3. Laboratory;
4. Guidelines and auditing;
5. Medical record review;
6. Maternal care;
7. Neonatal care;
8. Clinical simulations;
9. Health care worker interviews;
10. New mother interviews.

Clinicians with the most recent clinical experience were assigned to the medical record review, maternal and neonatal care and clinical simulations. The WHO tool provided the guidance for carrying out each aspect of the data collection. The teams generally arrived at 9 a.m. as facilities began their day and ended collection by 4 p.m.

The assessment process involved a variety of methods to elicit information from various sources to determine the quality of maternal and newborn care. The assessment methods included:

1. Interviews with the officer in charge, health care providers and clients;
2. Document review;
3. Observation of service delivery;
4. Observation of facility environment.

### 2.6.1. Interviews

**Leadership**
An interview with the officer in-charge of the facility focused on questions regarding the organization layout and structure, statistics, staffing and how data and information were used in making decisions.

**Health care worker interviews**
Due to time limitations and the limited number of staff available in some facilities, two available staff members were interviewed at each facility, who were selected by the in-charge. Staff opinions were sought about the QoC provided at the facility, staffing, availability of medications and supplies, availability of guidelines and training, and referral processes.

**New mother interviews**
Two women present at the facility, who had delivered at the facility, were identified by the clinic staff for an interview. Convenience sampling was required due to time constraints. With verbal consent, the patient interview tool was used to guide the discussion to elicit information regarding the women's experience with the health care system, including labour and delivery, newborn care, staff attitudes, transport and referral processes and follow-up care.

## 2.6.2. Document review

**Review of procedural documents**

The assessors reviewed various documents including policies, procedures and staffing. Clinical protocols and treatment guidelines were located to determine if current national documents were readily available to staff. The assessors sought to determine if facility staff had been oriented and/or trained in the policies and procedures. Health information data also was reviewed to evaluate the accuracy and thoroughness of data management.

**Review of medical records and registers**

Maternal, newborn and referral registers were reviewed for accuracy and completeness. In addition, the registers were used to select records for the medical record review. A medical record review tool, designed in Sierra Leone, was used to collect data from patient records. Five cases were selected from the maternal/newborn registers to review normal labour and delivery and newborn care documentation within the past six months. Cases with complications were obtained from the referral registers. When there were a limited number of complications, the review spanned the past 12 months.

The medical record review was done to validate the facility's compliance with required clinical documentation and whether protocols were followed. The group that adapted the assessment tools prioritized complications to be reviewed based on prevalence in Sierra Leone. The complications selected for medical record review included: mothers with infections, malaria, HIV and preterm labour (postpartum haemorrhage was evaluated during a simulation). Records of low birth weight and sick newborns were reviewed (management of resuscitation was a simulation).

The original intent was to review five records for each type of case. In most facilities, this was possible for normal deliveries; however, an insufficient number of records was available on the day of the survey to fulfill the sample size expectation for complications. In some facilities, this was due to the low number of complications experienced or the inability to locate records. Interviews with the staff regarding management of complications was another means of gathering data.

### 2.6.3. Observation of service delivery

**Case observations**
In each facility, an effort was made to observe normal deliveries and C-sections (in hospitals). During the visit to Regent, there were no deliveries to observe.

**Simulations**
Clinical simulations were created from current national protocols for maternal and neonatal emergency care: one for maternal emergency care (postpartum haemorrhage) and one for neonatal (resuscitation). Models were not available, so the assessors improvised with available equipment or asked the staff members to describe each step of the intervention.

**General observations**
All assessors were tasked with making observations of infection prevention and control (IPC) practices in each area visited.

### 2.6.4. Observation of the environment

**Maternity unit visits**
Assessors visited areas where maternity patients were received and managed, e.g., outpatient department and maternity ward. Maternity and neonatal assessment tools were used to evaluate facility operations. During unit visits, they observed cleanliness, patient flow, toilet facilities and whether drugs and equipment were available.

**Support services**
Visits were made to the laboratory and pharmacy (if present).

**General environment**
Additional observations were made regarding patient waiting areas, waste management sites and the general condition of the infrastructure and surrounding environment.

## 2.7. Facility visits

The MoHS sent the DHMT and facility in-charge a memo to inform them of the planned assessment approximately one week in advance. UNFPA staff made confirmation phone calls a day before the visits. Upon arrival, a meeting was held with all staff to inform them of the purpose and process for the assessment.

| Date of Visit | No. of staff | Staff Interviews | | Mother Interviews | | Observations made |
|---|---|---|---|---|---|---|
| | | Planned | Conducted | Planned | Conducted | |
| 17 May 2018 | 10 | 2 | 3 | 2 | 2 | No deliveries observed |

The In-charge assigned staff members to assist each of the assessors. Areas were located for interviews to take place privately and interruption to patient care was minimized as much as possible. During the assessment, the assessment team leader monitored progress toward completing the tasks according to the schedule planned. Assessors who completed assignments early assisted others in collecting data.

When all data was collected, the assessors met to discuss and integrate key findings. A debriefing was held with staff to review key strengths and weaknesses.

## 2.8. Scoring

Scoring guidance was provided in the WHO tool. A 1 to 5 scoring method was recommended, or if preferred, a 1 to 3 rating. The Sierra Leone team determined that the 1-5 range provided an opportunity to broaden the scoring options. Thus, for overall scoring, numbers from 5 to 1 were awarded, 5 being good practice complying with standards of care; 4 showing little need for improvement to reach standards of care; 3 meaning some need for improvement to reach standards of care; 2 indicating considerable need for improvement to reach standards of care; and 1 being services not provided, totally inadequate care or potentially life-threatening practices.

For each score marked, assessors were encouraged to write comments indicating why that score was given. Each of the sections ended with a summary table in which the findings were summarized. The summary table was modified from the WHO summary table, because of the limited number of criteria selected for evaluation in Sierra Leone. In addition, each assessor identified main strengths and weaknesses of the section. The summary score is the average score for the section.

## 2.9. Data process and analysis

The QI consultant functioned as the data manager. All data were entered by hand into the data forms by the end of each assessment day. The QI consultant reviewed each form for obvious error for correction. The data was exported into Excel for analysis.

The UNFPA's reproductive health team who were part of the assessment from the beginning, assisted in reviewing and clarifying the data. The reviewers were editing the questionnaires through consultation of data collectors and at times, calling the health facilities. This was done at UNFPA's office in Freetown.

To maintain consistency of scores between assessors, percentages were set for each level (Summary scores: 5 = between 86−100 per cent; 4 = 71−85 per cent; 3 = 51−70 per cent; 2= 31−50 per cent; 1= less than 30 per cent). Some questions required 'yes' or 'no' answers; in which case, the data was entered into the excel database as '0' for negative responses and '1' for a positive response. These positive responses were added, and a percentage calculated based on the number of potential positive responses.

The data manager finalized the process by routinely backing up data and using password-protected computers ensuring maximum protection against data loss or corruption. Data was then entered into an Excel database.

# 3. Results

Regent Community Health Centre was visited on 17 May 2018. The centre provides basic emergency obstetrical and newborn care (BEmONC) and sick newborn care 24/7. The summary findings provide an overview of the current QoC of maternal and newborn health services at the centre, including the structure, number of staff, training, clinical services, supplies and data management. The assessment tools were organized in three modules: Module A – general information, Module B – maternal care and Module C – neonatal care.

## 3.1. Section A: General

### 3.1.1. Infrastructure

The facility was built as a two-storey family home and converted to a health centre; thus, the layout is not optimally designed for service delivery or patient flow. UNFPA supported renovations in 2014 to improve the efficiency and effectiveness of reproductive health services. There is a separate obstetrical outpatient area, a delivery room and a four-bed postpartum ward.

Electricity is stable with solar power and backup generators. The entire community suffers from lack of running water, due to a recent devastating and fatal landslide that left the dam dry. A volunteer cleaner carries water to the facility. A handwashing station has been set up at the front of the clinic. Sharps disposal boxes were evident in patient care areas, some hanging on the wall and others on the floor. Most areas of the facility were cluttered with boxes and equipment. Toilets were not clean and some lacked soap or disinfectant. Vaccines were stored in a large chest refrigeration unit; a thermometer was inside the unit and a temperature chart was present that was last used in April (rather than daily). An informal complaint management system is in place; complaints are not recorded or trended. Criteria and scoring for infrastructure are in Table 1.

**Table 1. Infrastructure criteria scores**

| Criteria | Score (1-5) |
|---|---|
| Electricity available | 5 |
| Backup power supply | 5 |
| Running water/water for handwashing | 3 |
| Soap or disinfectant | 2 |
| Sharps disposal boxes | 5 |
| Refrigerator for drugs or vaccines | 3 |
| Complaint management system | 2 |
| **Total** | **71.4%** |
| **Percentage: Infrastructure** | **34.3%** |

### 3.1.2 Staffing and training

The facility has 10 of the 22 required staff as depicted in Table 2; however, the in-charge and staff interviewed felt that the staffing was adequate. There are three community health officers who work from 8 a.m. to 5 p.m. and two midwives; one of the midwives is in residence and thus available 24/7. Other staff work in three shifts (8 a.m–2 p.m.; 2–8 p.m.; and 8 p.m.–8 a.m.). The laboratory technician, cleaners and a security guard are volunteers.

**Table 2. Staffing of Koribondo Community Health Centre**

| CHC staffing proposed by Basic Essential Package of Services 2015–2020 versus actual staffing | | |
|---|---|---|
| **Cadre** | **Proposed** | **Current** |
| Community health officer | 2 | 3 |
| Environmental health officer | 1 | 0 |
| State enrolled community health | 2 | 2 |
| SECHN | 2 | 0 |
| Pharmacy technician | 1 | 0 |
| Lab technician/IPC | 1 | 0 |
| Lab assistant | 1 | 1 |
| Maternal child health aide (MCHA) | 4 | 3 |
| Community health assistant | 1 | 1 |
| Porter/cleaner | 5 | 0 |
| Security | 2 | 0 |
| Volunteer | 0 | 4 |
| **Total: CHC staffing** | **22** | **10** |
| **Percentage: CHC required staffing** | | **45.5%** |

This assessment did not include positions such as public health aides or nutritionists. Volunteers are included in the table although not included in the total or percentage of staff available.

All staff in Sierra Leone have been trained in IPC procedures. The Liverpool School of Tropical Medicine has been supporting the clinic since last year. A midwife is trained to be a master trainer and provides training on various maternity modules. Clinic staff has ongoing in-service training on Monday and Thursday mornings to review clinical conditions. Documentation of the in-service training and attendance was not present.

### 3.1.3 Data management

At the end of each month, service data on mothers and newborns is collected and aggregated manually and posted on the wall. The data is sent to the Ministry; the staff indicated that they do not receive feedback or summation of the data. The staff discuss the data that they have collected monthly; however, using the data to trend overtime was not evident. One maternal death was reported in 2017 in which a woman died after returning home; no neonatal deaths occurred. Documentation of birth registrations and infant feeding was not found. The midwife attended community meetings to discuss statistics and solutions such as how to increase antenatal visits. A computerized data management system for tracking patient flow (e.g., visits) and key indicators was not in place, the primary reason for the score for data management being 64 per cent.

### 3.1.4. Health facility policies

Health facility policies are listed in Table 3. General consultations are free, as well as other services such as antenatal and postnatal care, delivery, family planning and prevention of mother-to-child transmission (PMTCT). The issue with the free policy is that when medications or supplies are not available, the patient is affected and may not be able to obtain needed treatment. Hepatitis B vaccine was not available and there was no policy for providing it to HCWs. Specific policies setting the expectations for staff to meet QoC standards and improve performance did not exist. The facility has not participated in the Baby-friendly Hospital Initiative.

**Table 3. Health facility policies scores**

| Criteria | Yes/No |
|---|---|
| Facility fee policy does not affect health care | No |
| Fees are clearly displayed, and patients understand them | No |
| Policy impeding unofficial payment | No |
| Policy on provision of services for emergency cases | Yes |
| Policy on provision of certain drugs for free for mothers, newborns, and children | Yes |
| Community input on matters concerning service delivery and QoC | Yes |
| Infection control policy on Hepatis B vaccinations for health care workers | No |
| Policy on monitoring health care workers adherence to hand hygiene practices | Yes |
| Policy on in-service training | Yes |
| QoC policies set expectations for staff to meet standards and improve performance | No |
| Participation in Baby-friendly Hospital Initiative | Yes |
| Kangaroo Mother Care policy | No |
| Process in place to communicate and reinforce policies for staff members | Yes |
| **Total: Policies** | **7** |
| **Percentage: Policies** | **53.8%** |

### 3.1.5. Referrals

The centre does not have an ambulance service; the ambulance is called from PCMH and can take up to an hour to arrive. Staff reported that they sometimes helped patients pay for transport to the hospital or the patient's family pays. A concern was expressed about not having sufficient staff to accompany patients to the hospital in the ambulance. Staff was unaware of whether emergency transfer and referral policies and procedures were available. (Table 4 shows the criteria and scores). Referrals for mothers and newborns are routinely entered into a register.

**Table 4. Referral scores**

| Criteria | Score (1-5) |
|---|---|
| Functioning vehicle available for emergency transportation | 1 |
| Free transport to higher level referral hospital is available | 3 |
| Emergency transfer and referral policies and procedures | 1 |
| **Total: Referrals** | **5** |
| **Percentage: Referrals** | **33.3%** |

### 3.1.6. Laboratory services

All required laboratory services were available as shown in Appendix 3; however, stock-outs of reagents have been a problem. One lab assistant does tuberculosis testing, and a volunteer assists with other tests. The temperature of the refrigerator in the lab was not regulated; there were just a few items in it including a container of glucose dipsticks past the expiration date. Thus, although the testing facilities exist, the laboratory services overall score was lower (66.7 per cent) because of the other deficiencies.

### 3.1.7. Medical records management

A permanent medical record is not kept at the facility, as patients take their health care exercise books home. Therefore, it was not possible to find complete documentation. Partographs are kept in a folder and some were reviewed. Two patient identifiers were not used; the mother's name was the only way of identifying women and their newborns. Table 5 depicts the medical record management criteria and scores.

**Table 5. Medical record management scores**

| Criteria | Score (1-5) |
|---|---|
| Two patient identifiers | 1 |
| Permanent record on file | 1 |
| Clear & legible | 1 |
| Dated and signed | 1 |
| Drugs & treatments | 1 |
| Previous admission information | 1 |
| Antenatal records available | 1 |
| ANC & intrapartum records available during postpartum | 1 |
| Mothers have access to record | 1 |
| **Medical records total** | **9** |
| **Average score** | **20.0%** |

### 3.1.8. Guidelines and auditing

All maternal and newborn protocols were available but kept in cupboards or locked, making them inaccessible to staff. Three of 27 protocols were visible on the walls. Job aides and reference books, e.g., the EmOC manual (2017) and Integrated Management of Childhood Illnesses (IMCI) were also located, yet not immediately accessible. The overall score of 37.5 per cent reflects the inaccessibility of the protocols. Staff meetings were reportedly held monthly; the minutes were not seen as they were with a sick staff member. A midwife participates in a meeting facilitated by the DHMT to discuss maternal death reviews. Since there were no deaths in Regent during 2017, they did not have review documents (refer to Table 6).

**Table 6. Clinical guidelines and auditing scores**

| Criteria | |
|---|---|
| **Mother** | **Score (1-5)** |
| Normal labour and delivery | 1 |
| Emergency conditions for mothers | 2 |
| Emergency obstetric triage | √ |
| Pre-eclampsia and eclampsia | √ |
| Infections in pregnancy | √ |
| HIV in pregnant women | √ |
| Severe malaria in pregnant women | √ |
| Preterm labour guidelines and protocols available | √ |
| Postpartum haemorrhage guidelines/protocols | √ |
| Prolonged and unsatisfactory progress of labour | √ |
| Recent obstetric text book is readily available | 2 |
| Staff meetings are held monthly to discuss and revise protocols | 2 |

**Table 6. Clinical guidelines and auditing scores**

| Criteria | |
|---|---|
| **Newborn** | |
| Guidelines/protocols on routine care for newborn | 2 |
| Assessment & immediate care | √ |
| Early & exclusive breast feeding | √ |
| Vertically transmitted infectious diseases | √ |
| Monitoring newborns before discharge | √ |
| Information & counselling for mothers | √ |
| Management of emergency conditions for newborns | 2 |
| Neonates resuscitation | √ |
| Preterm & low birth weight | √ |
| Neonatal sepsis | √ |
| Jaundice | √ |
| Convulsions | √ |
| Feeding of sick newborns | √ |
| Recent neonatal textbook is readily available | 1 |
| Monthly staff meeting to discuss and revise protocols | 2 |
| **Total: Guidelines and auditing** | **16** |
| **Average score: Guidelines and auditing** | **37.5%** |

## Summary of strengths & weaknesses in Section A: General

Strengths:

- Infrastructure has been renovated with upgrades in equipment
- Solar power and backup generators available
- Laboratory testing was available
- Staff meetings held monthly
- Liverpool School of Tropical Medicine supporting staff training
- Community engagement in reviewing/acting upon health care data

Weaknesses:

- Municipal water shortage
- Stock-outs of lab reagents
- Lack of a permanent medical record for each patient
- Access to transportation for centre referrals
- Incinerator and burning pits are not functional
- Lack of computerized health care information system

## 3.2. Section B: Maternal care

### 3.2.1. Emergency obstetric care

Women are received in the maternity outpatient department clinic by a midwife or nurse. There was no obstetrical triage protocol and no procedure describing how a woman experiencing an emergency moves from first reception to the point where she receives care. The staff interviewed were able to accurately recall the steps of a rapid initial assessment.

Two wheelchairs and stretchers were kept readily available to transport patients within the facility. An emergency management area was in the labour and delivery room. An emergency trolley was present, although not fully stocked with the required medications, as emergency medications were stored in the in-charge's office in another building. An effective mechanism to maintain the readiness of the trolley was not in place. The room had been recently renovated and was clean but cluttered. Table 7 shows the scoring for the layout and structure for emergency care.

**Table 7. Layout and structure of emergency care scores**

| Criteria | Score (1-5) |
|---|---|
| Triage system present | 2 |
| Triage is done in a timely manner and not hindered | 3 |
| Staff in charge of triage are adequately trained and able to apply triage criteria | 2 |
| A skilled birth attendant (doctor/midwife/nurse) is always available to manage patients with emergency conditions | 5 |
| Essential emergency drugs always available | 2 |
| Essential lab tests always available | 3 |
| Equipment for emergency conditions always available | 4 |
| Job aids are displayed for the management of obstetric cases | 3 |
| **Total: Layout & structure** | **24** |
| **Percentage: Layout & structure** | **60.0%** |

### 3.2.2. Maternity ward

The maternity ward was staffed with three SECHNs, two midwives (although one was on sick leave at the time) and an MCHA. The postpartum room was next to labour and delivery. This room was also newly renovated. There were four new beds with side cabinets set close together; each had a new bed net. Three of the mattresses were still covered with plastic. One blanket was present; otherwise, no linen was seen. Space was not ample for baby cots. A woman with her baby was curled up on the plastic, swaddled in their own clothing. A new privacy screen rested against a wall; privacy curtains between beds were not present. One tall storage cupboard in this room was in complete disarray.

A toilet was available in the maternity area for women. The sink, toilet and floor were dirty; there was no soap, hand rub or toilet tissue in the toilet and the door was difficult to close. The overall score for the maternity ward was 50.8 per cent (Table 8).

**Table 8. Maternity ward scores**

| Hygiene and accident prevention | |
|---|---|
| **Criteria** | **Score (1-5)** |
| Toilets are accessible to patients, and separate from the public and staff toilets | 5 |
| Toilets are clean | 3 |
| There is running water and patients can wash their hands after using the toilet | 1 |
| Patients have access to clean running water, soap and an appropriate space by the ward to wash up | 1 |
| Beds are safe, clean, well-maintained (free of rust), have mattresses without rips/ cracks, and clean bed linen available | 3 |
| Enough space is provided for mothers to wash their hands in rooming-in wards | 2 |
| Handwashing facilities (e.g., a sink with connected tap, a bowl with a water canister) are at the point of care and not blocked | 1 |
| Mosquito nets available for patient use | 5 |
| Ward is kept clean | 3 |
| Sharps are disposed of in a special container to prevent accidents | 3 |
| Is there an emergency management area in or near each ward? | 4 |
| Is there a heat source on the ward, and room temperatures kept above 25°C (if applicable)? | 1 |
| Is there a cooling source (AC) in the ward? | 1 |
| **Total: Hygiene & attention to seriously ill patients** | **33** |
| **Percentage: Hygiene & attention to seriously ill patients** | **50.8%** |

### 3.2.3. Infection control

Staff interviewed was knowledgeable on hand hygiene and infection prevention measures; however, these practices were not observed to be routinely carried out. Examination gloves are used for all procedures, sterile gloves are not used for activities such as vaginal exams, cord cutting or episiotomy repairs; sometimes gloves are stocked out. A staff changing room is not available. Routine disinfection of the premises is not a practice. The incinerator and burn pits were not functioning, creating a problem with disposal of placentas and other medical waste. The criteria and scoring for IPC are in Appendix 5.

### 3.2.4. Supplies and equipment

About 50 per cent of essential drugs were available for maternal and neonatal care (Appendix 4 and 6). Staff stated that when medications were not available for patients, they were given prescriptions. Most of the equipment for maternal and neonatal care was present and functional. Items not available included oxygen, vacuum extractors and aspirators, intravenous needles and a newborn resuscitation table (Appendix 7).

### 3.2.5. Normal labour and delivery

Of five partographs reviewed, 76.5 per cent of the initial assessments were documented, but only 44 per cent of the required flow charting of vital signs on the partograph was done. The two criteria for third stage labour documentation were the administration of oxytocin and the outcome for the baby, both of which were documented in each record. Newborn assessments/immediate care and postnatal documentation was not present for the mother or baby.

Table 9 provides the scores for elements included in the case management of normal labour and delivery; details of the criteria are in Appendix 8. A counselling book was present, and staff reported that they educate the mother about bathing the baby, taking care of the umbilical cord and their breasts, danger signs and returning for postnatal care.

**Table 9. Normal labour and delivery scores**

| Normal labour and delivery | Percentage |
|---|---|
| Assessment | 76.5% |
| Partograph use | 44.0% |
| Second stage labour | 45.5% |
| Third stage labour | 100.0% |
| Newborn assessment & immediate care | 76.5% |
| Breastfeeding | 82.2% |
| Monitoring & follow-up of newborn | 60.0% |
| Information to mother | 76.0% |
| Postnatal care | 0.0% |
| **Overall average: Normal L&D** | **64.5%** |

Maternal/newborn registers were kept that provided several essential elements. Figure 1 shows the data entry in the maternal/newborn registers for both individual and compiled data. Refer to Appendix 9 for details of the documentation in the registers.

**Figure 1. Documentation in maternal/newborn registers**

### 3.2.6. Management of maternal complications

Since the records were not available to determine how complications (e.g., labour disorders, pre-term labour, antibiotic use in pregnancy) were managed, this area was not scored. A simulation was conducted with one staff member, with an overall score of 95.5 per cent for the management of postpartum haemorrhage. In addition, some information was collected through interviews with staff regarding management of pregnant women who were HIV positive, women with malaria and those presenting preterm:

- Triple anti-retroviral therapy is given to HIV+ pregnant women;
- Unnecessary instrumentation and premature rupture of membranes are avoided with HIV+ women;
- Management of malaria is according to protocol;
- Monitoring expected complications of maternal and foetal condition for preterm labour;
- Criteria for allowing labour to progress with gestation more than 37 weeks.

### 3.2.7. Monitoring and follow-up

As there was no postpartum documentation available, this area was not scored. The old adage applies here: "What isn't documented hasn't been done."

### 3.2.8. Mothers' perception of services

Two women who delivered their babies at the centre were interviewed regarding their perception of care received. The questions and responses are in Appendix 11. The women made six and ten antenatal care visits, respectively, and neither sought traditional treatment prior to coming to the centre. Both mothers were referred from the community without referral notes. It took the women between 10 and 20 minutes to reach the centre. One was accompanied by her sister-in-law and the other arrived alone, but her husband arrived later.

The mothers described an initial exam that included a vaginal exam and listening to the baby's heartbeat. One mother indicated that a 'machine' was used to listen to the baby's heartbeat. The other woman indicated that she had an ultrasound during all six of her antenatal visits. Both women had three vaginal exams during labour. Intravenous fluids were not given. One woman experienced seven and the other 15 hours of labour; no pain relief was offered.

Both delivered full-term babies vaginally without complications. Each indicated that the midwife and nurse supported them during the labour and in breastfeeding. The staff were described as polite and helpful and that the women felt comfortable asking questions. Babies were placed skin-to-skin and roomed with their mothers. The mothers both received comprehensive instructions on the care of the baby and use of birth control. One mentioned that she was told to breastfeed for six months and then begin use of a formula.

The women found the facility clean and were satisfied with the care that they received. The suggestions that they offered to improve the services were structural: adequate water supply, ambulance and fixing a fence that allowed water to enter the centre during rainy season.

### 3.2.9. Health care workers' perception of services

Three HCWs were interviewed. The questions and responses are in Appendix 12. All three staff members had positive impressions of the of the amount and quality of staffing and the QoC provided at Regent CHC. Contributing factors were teamwork and supportive supervision. The HCWs were aware of the availability of clinical guidelines and described routine staff meetings and opportunities for training. They also described a newly renovated environment that was very clean.

The HCWs affirmed other data collected during the assessment, e.g., inadequate drug supplies, water shortages and non-functional burn pits. The cleaner is paid by the staff and HCWs wanted this remedied. Although oxygen is not in the Basic Package of Essential Services, they felt that oxygen was needed at the facility. One recurring issue was the availability of transport to the hospital for women with complications. The ambulance was not always available, and staff worked with patients to find options.

## Summary of strengths & weaknesses in section B. Maternal care

Strengths:

- Documentation of administration of oxytocin for third stage labour & outcome for baby
- No maternal deaths in the facility in 2017 or to date in 2018
- Counselling of mothers (use of UNICEF cards)
- Nurses able to identify danger signs and make prompt referrals
- Staff member ability to demonstrate knowledge of management of postpartum haemorrhage and birth asphyxia

Weaknesses:

- Lack of obstetrical triage protocol and staff skills in triage
- Use of I.V. fluids not always given per protocol due to stock-outs
- Emergency drugs not readily accessible in the labour ward
- Incomplete patient medical record documentation, including partograph, danger signs and postnatal care
- Lack of records documenting management of complications
- Referrals are delayed and there is inadequate information shared between facilities

## 3.3 Section C. Neonatal care

### 3.3.1. Routine newborn care

Babies typically stayed with their mothers in the maternity ward for 24 hours. The overall score for routine newborn care criteria was 75.6 per cent (Appendices 8c to 8g). Staff interviewed were knowledgeable about immediate newborn care. Early initiation of breastfeeding is encouraged and documented; ongoing breastfeeding practices were not documented. The gestational age and weight at birth were documented in the registers; length, head circumference and weight at discharge were not recorded. Immunizations are routinely given according to the local policy.

Nevirapine is administered to babies whose mothers are known to be HIV positive. Restrictions on the frequency and length of breastfeeding are placed on mothers who are not practising exclusive breastfeeding.

Counselling cards were available, which staff use to show mothers how to care for their babies. Mothers are advised on danger signs and when to return for their postnatal visits. Every baby is recorded in the delivery room register.

### 3.3.2. Case management of sick newborns

Management of sick newborns was scored through interviews with staff; patient records were not available for review. EmONC and IMCI protocols were present to guide care and treatment. Management of pre-term and low birth weight babies included providing mother's milk as much as possible (although less than eight feedings per day). If unable to feed, breastmilk is given by syringe. Heat loss is minimized through Kangaroo Mother Care. Babies are not weighed daily.

Babies are routinely examined for jaundice. Sunlight is used to manage jaundiced babies. Severe cases of jaundice are referred for hospital care. The staff had not experienced newborns with convulsions within the past year. If there had been cases, the ability to check glucose and calcium levels was not available. The overall score for management of sick newborns was 71.4 per cent (Appendix 10). Staff were able to identify danger signs of sick newborns and make referrals.

### 3.3.3. Resuscitation

Guidelines for resuscitation were present. An area for neonatal resuscitation was not set up. Resuscitation equipment was available, though not kept in an organized way. Two staff members demonstrated correct management of a newborn requiring resuscitation. Table 10 depicts the scores for resuscitation criteria.

**Table 10. Resuscitation scores**

| Criteria | Score (1-5) |
|---|---|
| Guidelines for resuscitation and care of the newborn baby are available to staff on the wards | 5 |
| There is an appropriate place with a heating source and equipment ready to use | 1 |
| A functioning self-inflating bag with functioning relief valve is available. | 4 |
| At least two sizes of masks for normal-sized & preterm baby) are available | 4 |
| **Percentage** | **70%** |

## Summary of strengths and weaknesses in Section C: Neonatal care

Strengths:

- No neonatal deaths in the facility in 2017 or 2018 to date
- Kangaroo Mother Care provided
- Nurses able to identify danger signs and make prompt referrals

Weaknesses:

- Babies not weighed daily; discharge weight not recorded
- Fluid chart not kept ensuring hydration of babies
- Resuscitation equipment not well organized

# 4. Summary evaluation scores

The summary findings provide an overview of the current quality of maternal and newborn health services at Regent CHC, including the structure, number of staff and their training, clinical care, supplies and data management.

The summary shown in Table 11 helps to identify the most critical areas as a basis for identifying priorities and workplan. There are three sections: General, Maternal care and Neonatal care. A '5' is the highest rating and a 1' is the lowest. At the end of each section, the scores are added, and an overall percentage of the section given.

**Table 11. Summary evaluation scores**

Summary scores: 5 = between 86%-100%; 4 = 71%- 85%; 3 = 51%-70%; 2 = 31-50%; 1 = 30% or less (5 being good practice complying with standards of care; 4 showing little need for improvement to reach standards of care; 3 meaning some need for improvement to reach standards of care; 2 indicating considerable need for improvement to reach standards of care; and 1 being services not provided, totally inadequate care or potentially life-threatening practices.)

| **Summary scores - General** | | **5** | **4** | **3** | **2** | **1** |
|---|---|---|---|---|---|---|
| A.1.-A.2. | Infrastructure | | 4 | | | |
| A.3. | Staffing and training | | | | 2 | |
| A.4. | Health information system | | | 3 | | |
| A.5. | Health care policies | | | 3 | | |
| A.6. | Referral | | | | 2 | |
| A.7. | Pharmacy (No central pharmacy; see ward lists) | | | | | |
| A.8. | Laboratory | | | 3 | | |
| A.9. | Medical records | | | | | 1 |
| A.10. | Guidelines and auditing | | | | 2 | |
| **Module A TOTAL SCORE: GENERAL** | | 0 | 4 | 9 | 6 | 1 |
| **Percentage: General** | | | | **20/40=50%** | | |

| **Summary scores – Maternal care** | | **5** | **4** | **3** | **2** | **1** |
|---|---|---|---|---|---|---|
| B.1. | Emergency obstetric care | | | 3 | | |
| B.2. | Maternity wards | | | 3 | | |
| B.3. | Infection control and supportive care | | 4 | | | |
| B.4. | Essential drugs | | | | 2 | |
| | Equipment and supplies | | 4 | | | |
| B.5. | Normal labour and vaginal delivery | | | 3 | | |
| B.6. | Management of maternal complications | | | | | 1 |
| B.7. | Monitoring and follow up | | | | | 1 |
| **Module B** | **TOTAL SCORE: MATERNAL CARE** | 0 | 8 | 9 | 2 | 2 |
| **Percentage: Maternal care** | | | | **21/40=52.5%** | | |

| **Summary scores - Neonatal care** | | **5** | **4** | **3** | **2** | **1** |
|---|---|---|---|---|---|---|
| C.1. | Neonatal resuscitation | | 4 | | | |
| C.4. | Essential drugs | | | 3 | | |
| | Equipment and supplies | | 4 | | | |
| C.5 | Routine neonatal care | | 4 | | | |
| C.6. | Case management of the sick newborn | | 4 | | | |
| **Module C** | **TOTAL SCORE: NEONATAL CARE** | 0 | 16 | 3 | 0 | 0 |
| **Percentage: Neonatal care** | | | | **19/25=76%** | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Section A** | **Total score: General** | **0** | **4** | **9** | **6** | **1** |
| **Section B** | **Total score: Maternal care** | **0** | **8** | **9** | **2** | **2** |
| **Section C** | **Total score: Neonatal care** | **0** | **16** | **3** | **0** | **0** |
| | **Overall score** | **60/105=57.1%** | | | | |

# 5. Recommendations

The recommendations are organized into three themes: forming QI teams, addressing short-term quality gaps and medium-term and long-term problems that require more complex investigation and problem-solving.

## 5.1. Maternal and newborn quality teams

QI needs to be integrated into the structure of the DHMT and facility. The DHMT can begin by organizing a committee at the district level and training their staff in QI. The DHMT can then provide guidance to the facility to organize a QI team to improve the quality of maternal and neonatal care. The suggestions below provide some steps to get started:

1. Organize a maternity and newborn quality team that will take the lead in improving the QoC. The following types of professionals are recommended:

- Community health officer;
- Midwife;
- Maternity in-charge;
- Maternity and neonatal nurse;
- District supervisor.

Input from pregnant women, mothers and their families is highly desired.

2. Select a team leader.

3. Review the assessment findings.

## 5.2. Short-term improvements

Identify gaps that can be resolved more easily via quick fixes. Issues that can be addressed more readily by the Regent QI team include activities such as:

a. Maintaining patient records in the clinic;
b. Improving documentation of patients' records;
c. Initiating an emergency obstetrical triage process;
d. Making emergency drugs accessible in the labour/delivery area;
e. Organizing the resuscitation equipment;
f. Weighing babies daily and recording discharge weight.

### 5.3. Medium and long-term improvements

Regent CHC has some problems that require more collaborative efforts to address them: water and drug supplies. Support from the district and perhaps, national level and partners will likely be needed to resolve these issues.

A broad range of QI techniques are available to assist teams to analyse data, select solutions and monitor improvements. Training will be required in QI and guidance from a QI facilitator to learn ways to implement a sustainable approach to improving maternal and newborn QoC.

#### Infrastructure

a. Continue to find solutions to maintain a consistent water supply.
b. Explore options for improving transportation to and from the referral facilities.
c. Develop and implement a plan to install incinerators/placenta pit.

#### Staffing

a. Explore factors that motivate and demotivate staff: incentives, career structures, task-shifting, rotations.
b. Develop a culture of quality that is oriented towards results both individually and organizationally.

#### Supply chain management

a. Define procedures for individual logistics functions (forecasting, procurement, storage, inventory control and distribution) within the facility.
b. Train and assign personnel who can manage the supplies at the facility level.

#### Medical records management

a. Develop an effective system to maintain patient records in the facility.

## 6. Conclusion

The baseline assessment conducted at Regent Community Health Centre identified gaps in providing maternal and neonatal QoC. These findings are intended to guide the facility team, with support from the DHMT and partners, to prioritize the gaps and develop plans to make improvements. The results indicated that policies and guidelines were not in place to guide care. In addition, management of patient records and availability of drugs were significant issues in providing QoC.

Some of the quality gaps identified are quick fixes and can be addressed immediately, e.g., ensuring clinical guidelines are readily available to staff. Other issues will be more difficult, e.g., supply management, which will require concerted efforts to find and test solutions to these problems. Thus, organizing a quality team and using a systematic approach to QI will be important to improving maternal and newborn QoC.

We would like to thank the staff at Regent CHC for participating in this assessment and we look forward to working with the team to improve the QoC for mothers and babies who seek care at the centre. An excellent reference to guide implementation of maternal and newborn QoC improvements is the website of the Network for Improving Quality of Care for Maternal, Newborn and Child Health, at http://qualityofcarenetwork.org.

# 7. Appendices

**Appendix 1. Maternal and newborn QoC stakeholders**

| Name | Organization | Position |
|---|---|---|
| Santigie Sesay | Reproductive and Child Health Directorate/MoHS | Director, Reproductive and Child Health |
| Sulaiman Conteh | Reproductive and Child Health Directorate/MoHS | Reproductive Health Programme Manager |
| Ernest Jabbie | MoHS | M&E Focal Point QoC |
| Sylvia Fasuluku | UNFPA | SRH Coordinator |
| Riad Mahmud | UNFPA | RH-TS |
| James Akpablie | UNFPA | RH-TA |
| Mariama Mustapha | UNICEF | Health Specialist |
| Asha Pun | UNICEF | MNH Specialist |
| A.L. Kamara | UNICEF | Health Officer |
| Fatu Forna | WHO | Lead, RH/Maternal Health |
| Binyam Getachew | WHO | Medical Officer, Child Health RMNCAH |
| James Bunn | WHO | Child Health |
| Patricia Titulaer-Van Ham | WHO | Technical Officer, Maternal Health |
| Saidu Bangura | | Sr. Public Health Officer |
| Betty Sam | Liverpool School of Tropical Medicine | Sr. Technical Advisor |
| Florence Bull | Liverpool School of Tropical Medicine | Technical Officer |
| Jourdan Anne Schiffer McGinn | Partners in Health | Director of Policy & Partnerships |
| Jirina Kafkova | Solthis | Medical Officer |
| Ginika Egesimba | ICAP (Columbia University) | Sr. QI Advisor |
| Enzo Pisani | CUAMM (Doctors with Africa) | Medical Director |
| Lavinia Turchetti | CUAMM (Doctors with Africa) | Administrator |
| Donald Conteh | Clinton Health Access Initiative | Technical Advisor |

**Appendix 2. Assessment team**

| Name | Organization | Position |
|---|---|---|
| Sylvia Fasuluku | SRH Coordinator | UNFPA |
| Patricia Bah | Programme Specialist, ASRH | UNFPA |
| Mariama Momoh | Senior Public Health Sister | RH/FP MoHS |
| Memuna Bome | Senior Public Health Sister | RH/FP MoHS |
| Gladys A. Sisay | Senior Public Health Sister | DHMT/Bo |
| Joanne Ashton | QI Consultant | UNFPA |
| Musa Kawausu-Kebbay | Intern | UNFPA |

**Appendix 3. Laboratory tests**

| Lab test | Available (Yes or No) |
|---|---|
| Blood glucose (random) | Yes |
| Haemoglobin | Yes |
| White blood cell count | Yes |
| Blood grouping | Yes |
| Urine dipstick | Yes |
| Urine microscopy | Yes |
| Tuberculosis smears | Yes |
| HIV rapid test | Yes |
| CD 4 count | Yes |
| Malaria RDT | Yes |

**Appendix 4. Essential maternity drugs**

| Lab test | Available (Yes or No) |
|---|---|
| Water for injection | Yes |
| Normal saline IV | Yes |
| Ringer's lactate IV | Yes |
| Oxytocin injection: 10 IU in 1- mL | No |
| Misoprostol tablets: 200 micrograms | Yes |
| Ergometrine injection: 0.5%mg/ml ampoule | No |

## Appendix 4. Essential maternity drugs

| Maternity Drugs | Available (Yes or No) |
|---|---|
| Oxytocin/Ergometrine (Syntometrine) 5 units/500mcg/ml injection | No |
| Calcium gluconate 100mg/ml | No |
| Magnesium sulphate injection | Yes |
| Diazepam injection 5mg/ml | No |
| Ampicillin / Amoxicillin | No |
| Benzylpenicillin | No |
| Gentamycin | Yes |
| Metronidazole | Yes |
| Tetracycline 1% eye ointment | No |
| Lignocaine 2% or 1% injection | Yes |
| **Percentage available** | **50%** |

## Appendix 5. Infection prevention and supportive care

| Hand hygiene | |
|---|---|
| **Criteria** | **Score (1-5)** |
| Handwashing stations are in a good state of repair (free from visible signs of damage, cracks, fitted correctly and clean) | 3 |
| Water and soap or alcohol-based hand rub is available at the point of care | 2 |
| Protocols on handwashing and disinfection for various procedures are available and all staff has been briefed | 3 |
| Hands are washed with soap and water when visibly dirty or visibly soiled with blood or other body fluid or after using the toilet | 2 |
| Hand hygiene is performed:<br>• before and after touching the patient<br>• after contact with body fluids or excretions<br>• before and after removing sterile and non-sterile gloves | 4 |
| **Use of gloves** | |
| Sterile gloves are used for performing vaginal examination, delivery, cord cutting, manual removal of placenta, repair of episiotomy or tear | 1 |
| The use of gloves does not replace hand hygiene by either hand-rubbing or handwashing | 5 |
| Gloves are used when it can be anticipated that contact with blood or other potentially infectious materials, mucous membranes or non-intact skin will occur | 4 |

**Appendix 5. Infection prevention and supportive care**

| Hand hygiene | |
|---|---|
| **Use of gloves** | |
| Gloves are removed after caring for a patient. The same pair of gloves is not used for the care of more than one patient. | 4 |
| Gloves are changed or removed during patient care if moving from a contaminated body site to either another body site (including non-intact skin, mucous membrane or medical device) within the same patient or the environment | 4 |
| Gloves are used when handling soiled instruments and when disposing of contaminated waste items | 4 |
| **Practices for infection control** | |
| Routine disinfection of premises performed, facilities are closed regularly for disinfection | 2 |
| Routine policy of changing dress and footwear by staff observed | 3 |
| **Supportive care** | |
| Intravenous fluids are given only when indicated according to guidelines | 3 |
| Appropriate fluids are chosen | 3 |
| The flow rate is monitored closely | 4 |
| Routine use of drugs/ supplements of unproven effectiveness are not used | 5 |
| Drugs are only given for an established or highly suspected diagnosis, or under clear indication for usage | 4 |
| Routine use of sedative drugs or antihistamines are not used | 5 |
| **Total: Infection control & supportive care** | **65** |
| **Percentage: Infection control & supportive care** | **71.5%** |

**Appendix 6. Essential neonatal drugs**

| Drugs | Available (Yes or No) |
|---|---|
| Ampicillin | No |
| Penicillin | No |
| Ciprofloxacin | No |
| Co-trimoxazole | Yes |
| Chloramphenicol | Yes |
| Gentamicin | Yes |
| Chlorhexidine | Yes |
| Tetracycline eye ointment | Yes |
| Vitamin K 1mg vial | Yes |
| Vitamin D | No |
| Ferrous sulfate | No |
| **Percentage available** | **55%** |

## Appendix 7. List of equipment and supplies

| Delivery room - normal labour | Available (Yes or No) |
|---|---|
| Adequate lighting | Yes |
| Examination light (flashlight acceptable) | Yes |
| Wall clock | Yes |
| Delivery pack | Yes |
| Partograph forms | Yes |
| Towels for drying newborn babies | No |
| Oxygen cylinder | No |
| Flow-meters for oxygen | No |
| Equipment for the administration of oxygen<br>• via nasal prongs<br>• via catheters<br>• via masks | No |
| Sterile gloves (disposable) | Yes |
| Sterile gauze | Yes |
| Foetal stethoscope | Yes |
| Stethoscope | Yes |
| Sphygmomanometer | Yes |
| Infusion sets | Yes |
| IV catheters | No |
| Urinary catheter | Yes |
| Syringes | Yes |
| Needles | No |
| Suturing set (scissors, needles holder) | Yes |
| Suturing material | Yes |
| Balance for baby | Yes |
| Cord cutting/cord clamping set | Yes |
| Episiotomy scissors | No |
| Vacuum extractor | No |
| Vacuum aspirator | No |
| Beds – delivery beds | Yes |
| Beds – regular beds | Yes |

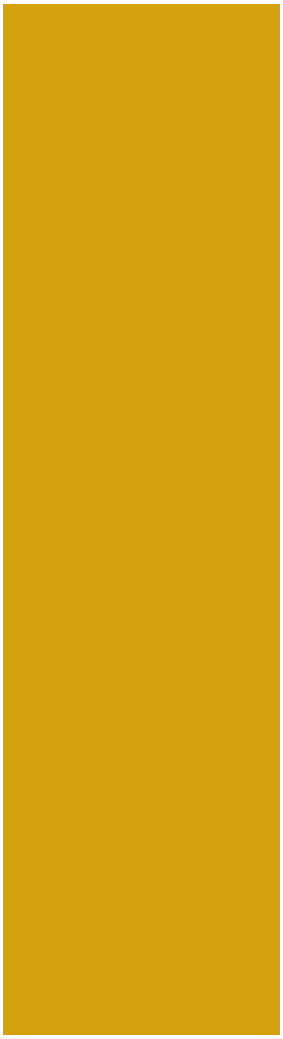
## Appendix 7. List of equipment and supplies

| Neonatal equipment | Available (Yes or No) |
|---|---|
| Resuscitation table | No |
| Newborn bag and mask size 1 for term babies | Yes |
| Newborn bag and mask size 0 for pre-term babies | Yes |
| Penguin suction device | Yes |
| Baby scales (pan) | Yes |
| **Percentage available** | **74%** |

## Appendix 8. Medical record review results

### Appendix 8a. Maternal assessment

| Maternal general assessment | Score (1-5) |
|---|---|
| Reason for visit | 1 |
| Significant findings | 5 |
| Procedures performed | 5 |
| Drugs and treatments | 5 |
| Discharge condition | 5 |
| Follow-up instructions | 1 |
| Clear & legible | 5 |
| Dated & signed | 5 |
| Danger signs | 1 |
| Foetal heart sounds | 5 |
| Blood pressure | 5 |
| Temperature | 5 |
| Abdominal assessment | 5 |
| Obstetric history | 5 |
| Medical and surgical history | 1 |
| Pelvic examination | 5 |
| Onset of labour | 5 |
| **Assessment total** | **65** |
| **Average scores** | **76.5%** |



**Appendix 8b. Partograph**

| Initial partograph | Score (1-5) |
|---|---|
| Name | 5 |
| Age | 5 |
| Gravida/para | 5 |
| Arrival time | 1 |
| State of membranes | 1 |
| Foetal heart rate | 1 |
| Liquor colour | 1 |
| Molding at each cervical examination | 1 |
| Partograph started at 4 cm | 5 |
| Blood pressure | 1 |
| Temperature | 1 |
| Maternal pulse rate | 1 |
| Cervical dilation | 5 |
| Head descent | 1 |
| Contractions | 1 |
| Hour & time | 1 |
| Hourly monitoring of women | 1 |
| Urine passed | 1 |
| Physician's orders written | NA |
| Meds or fluids | 5 |
| **Partograph total** | **43** |
| **Average scores** | **44%** |

| Second stage labour | Score (1-5) |
|---|---|
| Emergency signs monitored every 5 min | 1 |
| FHR monitored every 5 min | 1 |
| Perineum thinning & bulging | 1 |
| Head descent | 1 |
| Mood & behaviour | 1 |
| Active labour monitored every 30 minutes | 1 |
| Episiotomy NOT routine | 5 |
| Anaesthesia if episiotomy | 5 |
| Enemas NOT routine | 5 |
| Pubic shaving NOT routine | 5 |
| Vagina swabbed with antiseptics NOT routine | 5 |
| **Second stage labour percentage** | **45.5%** |

**Appendix 8b. Partograph**

| Third stage labour | Score (1-5) |
|---|---|
| 10 IU Oxytocin IM given | 5 |
| Outcome of the baby | 5 |
| **Percentage: Third stage labour** | **100%** |

**Appendix 8c. Newborn assessment and immediate care**

| Newborn assessment and immediate care | Score (1-5) |
|---|---|
| The room is warm | 4 |
| The newborn is assessed | 1 |
| The newborn is dried | 4 |
| Routine suctioning of the nose or catheterization of oesophagus not done | 4 |
| Newborn is kept in skin-to-skin contact with mother | 3 |
| Umbilical cord is clamped after pulsation stops | 4 |
| Stump of umbilical cord is left without dressing | 4 |
| Mother and baby are covered together | 4 |
| Baby given warm hat | 4 |
| Bathing or washing are postponed | 4 |
| Eye prophylaxis is provided | 5 |
| Vitamin K is given IM | 5 |
| Immunization are administered per protocol | 5 |
| **Subtotal: -Newborn assessment & care** | **51** |

### Appendix 8c. Newborn assessment and immediate care

| Newborn assessment and immediate care | Score (1-5) |
|---|---|
| **Exam of infections in newborns** | |
| Baby's breathing and warmth are monitored every 15 minutes in the first hours after birth | 4 |
| Complete clinical examination of the baby is done including weighing the baby | 4 |
| If the mother was RPR-positive for syphilis, baby is treated with benzathine (benzylpenicillin) intramuscular at the appropriate dose. | 1 |
| If mother is known to be HIV positive, ARV is given to newborn | 5 |
| **Total: Newborn assessment** | **14** |
| **Overall percentage: Newborn assessment** | **76.5%** |

### Appendix 8d. Early and exclusive breastfeeding

| Early and exclusive breastfeeding | Score (1-5) |
|---|---|
| Newborn is put on the abdomen or to breast for skin contact immediately after birth, if no need for resuscitation | 4 |
| Initiation of breastfeeding is encouraged within the first hour, and mothers are given a quiet atmosphere to do so | 4 |
| Staff are trained to assist mothers and babies in initiating breastfeeding correctly | 4 |
| There is no promotion of infant formula on the ward and samples are not distributed to mothers or staff | 5 |
| No restrictions on the frequency or length of breastfeeding | 3 |
| At discharge, exclusive breastfeeding is recommended until the age of six months and complementary breastfeeding until 24 months | 4 |
| Expressed breast milk is given by cup or NG-tube when the child is unable to feed or if the mother cannot stay with the child all the time | 3 |
| Infant formula, glucose supplementation and water supplementation are not used unless upon written medical instruction | 5 |
| Exceptions to exclusive breastfeeding are based on current evidence | 5 |
| **Total: Early & exclusive breastfeeding** | **37** |
| **Percentage: Breastfeeding** | **82.2%** |

**Appendix 8e. Monitoring of newborns before discharge**

| Monitoring newborns before discharge | Score (1-5) |
|---|---|
| Baby is not discharged before it is 12 hours old | 5 |
| Breathing rate is assessed and documented in the first day of life | 3 |
| Documentation maintained on frequency of breastfeeding | 2 |
| Documentation maintained on absence or presence of jaundice | 1 |
| Immunizations are administered according to the local policy | 4 |
| **Total: Monitoring of newborns before discharge** | **15** |
| **Percentage: Monitoring** | **60%** |

**Appendix 8f. Information and counselling of mothers**

| Information and counselling of mothers | Score (1-5) |
|---|---|
| Guidelines available to teach mothers on how to care for the baby at home. | 4 |
| Mothers shown how to bathe the baby, how to take care of the umbilical stump and their breasts | 4 |
| Every baby is recorded in the delivery room register | 5 |
| Documentation recorded includes: | 2 |
| • Gestational age recorded in the information provided to mothers<br>• Weight at birth recorded in the information provided to mothers<br>• Length recorded in the information provided to mothers<br>• Head circumference recorded in the information provided to mothers<br>• Weight at discharge recorded in the information provided to mothers | Yes |
| Mother is advised on danger signs and when to return for routine postnatal care | 4 |
| **Total: Information & counselling of mothers** | **19** |
| **Percentage: Information & counselling** | **76%** |

**Appendix 8g. Postnatal assessment**

| Postnatal assessment: Mother | Score (1-5) |
|---|---|
| Vaginal bleeding | 1 |
| Uterine contraction | 1 |
| Fundal height | 1 |
| Temp & HR 1st 24 hours | 1 |
| B/P after birth | 1 |
| Retake B/P in 6 hours | 1 |
| Void in 6 hours | 1 |
| Monitored per protocol | 1 |
| Minor tears not stitched | 1 |
| Vagina not swabbed with antiseptics postpartum | 1 |
| Bladder catheterization not routine | 1 |
| Cervix not routinely checked postpartum | 1 |
| **Postnatal assessment: Mother average** | **20.0%** |
| **Postnatal assessment: Baby** | |
| Stopped feeding well | 1 |
| Fast breathing (breathing rate > 60 per minute) | 1 |
| Severe chest in-drawing | 1 |
| No spontaneous movement | 1 |
| Fever (temperature > 37.5 C), low body temperature | 1 |
| Jaundice within 24 hours | 1 |
| **Postnatal assessment: Baby average score** | **20.0%** |

**Appendix 9. Maternal and neonatal registers**

| Information regarding mothers | Score (1-5) |
|---|---|
| Age | 5 |
| Residence (village, town) | 5 |
| Admission, delivery and discharge times | 5 |
| Mode of delivery | 5 |
| Delivery attendant | 5 |
| Expected postpartum visit date | 5 |
| **Mother total** | **30** |
| **Average score** | **100.0%** |

**Appendix 9. Maternal and neonatal registers**

| Information regarding mothers | Score (1-5) |
|---|---|
| **Data Compiled: Mothers** | **Yes/No** |
| Number of vaginal, vacuum extraction, forceps deliveries | No |
| Total deliveries | Yes |
| Obstructed labour | No |
| Postpartum haemorrhage | No |
| Sepsis | Yes |
| Eclampsia | No |
| Total complications | No |
| Maternal deaths | Yes |
| **Percentage compiled** | **37.5%** |
| **Information regarding newborn** | **Score 1-5** |
| Apgar score | 5 |
| Gestational age | 5 |
| Sex | 5 |
| Birth weight | 5 |
| Delivery outcome | 5 |
| Birth registration | 1 |
| **Newborn total** | **26** |
| **Average score** | **83.3%** |
| **Data compiled: Newborns** | |
| Stillbirths | Yes |
| Low birth weight babies | No |
| Birth asphyxia | No |
| Total newborn outcomes | Yes |
| Neonatal deaths 1st 24 hours | No |
| **Average score** | **40.0%** |

**Appendix 10. Management of sick newborns**

| Management of preterm and low birth weight babies | Score (1-5) |
|---|---|
| **Criteria** | |
| All preterm and low birth weight neonates receive warmth & feeding | 4 |
| Kangaroo medical care is in practice in the facility | 4 |
| Guidelines are available for the use of oxygen | NA |
| Neonatal sepsis is diagnosed and investigated according to the protocol | NA |
| Neonatal sepsis is treated according to protocol | 3 |
| Severe jaundice is recognized and appropriately managed | NA |
| Convulsions are diagnosed and managed according to protocol | NA |
| Specific feeding needs of low birth weight and other sick newborns are met | 3 |
| All preterm and low birth weight are admitted for monitoring | NA |
| Mothers' milk is given to low birth weight (LBW) babies as much as possible | 4 |
| Frequent feedings (at least eight per day) are provided to LBW babies and intake is monitored | 3 |
| Babies unable to feed are given expressed breast milk by cup, or spoon in adequate amounts according to age. Intake is monitored. | 5 |
| Room temperature is kept at 25˚C□28˚C | 1 |
| Heat loss is minimized by Kangaroo Mother Care and a cap on the head | 4 |
| Baby is weighed daily | 3 |
| **Other conditions** | |
| All babies are examined for jaundice | 4 |
| Phototherapy is administered according to protocol | 2 |
| Adequate hydration is ensured when jaundiced | 2 |
| Guidelines on how to manage convulsions are available in the ward | 5 |
| Convulsions are treated with an anti-convulsant according to protocol | 3 |
| **Total: Case management** | **50** |
| **Percentage: Case management** | **71.4%** |

**Appendix 11. Interviews with new mothers**

| No. | Questions | Responses | |
|---|---|---|---|
| | **Personal data** | **#1** | **#2** |
| 1 | Age of mother | 36 | 27 |
| 2 | Number of children | 3 | 2 |
| 3 | Level of education attained | Secondary | Secondary |
| 4 | Type of birth (vaginal, C-section) | V | V |
| 5 | Do you live close to the facility? (<15 minutes) | No | Yes |
| 6 | How long does it take you to get to the facility from home? | 20 | 10 (walking) |
| | **Antenatal visits** | | |
| 7 | Number of antenatal visits during pregnancy | 6 | 10 |
| 8 | Number of ultrasounds during pregnancy | 6 | 0 |
| | **Admission to the facility** | | |
| 9 | Full-term pregnancy? | Yes | Yes |
| 10 | Danger signs experienced? | No | No |
| 11 | How long before your delivery did you arrive at the health facility? | 3 hrs | Same day |
| 12 | Family member present during admission? | Yes | Yes |
| 13 | Vaginal examination during admission? | S-I-L | No |
| 14 | Baby's heart rate listened to at admission? | Father came later | Yes |
| | **Labour and Delivery** | | |
| 15 | Labour duration (hours) | 7 | 15 |
| 16 | How long did you push? (minutes) | 60 | Less than 1 hr |
| 17 | Vein puncture? | No | No |
| 18 | Vaginal examination during labour? | Yes | Yes |
| 19 | Number of vaginal examinations | 3 | 3 |
| 20 | Attained consent prior to examination? | Yes | Yes |
| 21 | How did they listen to the baby? | Pinard | Machine |
| 22 | Did the delivery team introduce themselves? | Yes | Yes |
| 23 | Were you offered something for pain relief? | No | No |
| 24 | Healthy baby delivered? | Yes | Yes |
| 25 | Baby's weight? | 3.2 kg | 2.9 kg |
| 26 | Skin-to-skin contact immediately after delivery? | Yes | Yes |
| 27 | Baby stayed in the room during entire admission? | Yes | Yes |
| 28 | Baby separated from mother at birth? | No | No |
| 29 | Reason for baby separation | NA | NA |

**Appendix 11. Interviews with new mothers**

| No. | Questions | Responses | |
|---|---|---|---|
| | **Newborn care** | **#1** | **#2** |
| 30 | Current age of baby? | 4 months | 1 year |
| 31 | What are you feeding your baby? | breast | breast |
| 32 | Who was the most supportive member of staff that assisted you with breastfeeding? | Midwife & nurse | Nurse |
| 33 | When were you asked to initiate breastfeeding after delivery? | As often as possible | Immediately |
| 34 | How often were you advised to breastfeed your baby? | Up to 5 times | No advice – told to breastfeed for 6 months then start formula |
| 35 | How did you find the quality of the facilities? | | |
| | Was the facility clean? | Yes | Yes |
| | Was the facility cluttered? | No | No |
| | Was the facility dirty? | No | No |
| | Was the facility crowded? | No | No |
| 36 | Did you feel that you could ask questions & that your questions would be answered? | Yes | Yes |
| | **Attitude of staff** | | |
| 37 | What was the attitude of the staff most of the time? | | |
| | Polite and helpful? | Yes | Yes |
| | Rude or unhelpful? | No | No |
| | **Discharge and follow-up** | | |
| 38 | Instructions on how to care for baby provided? | Yes | Yes |
| | Instructions for feeding options? | Yes | Yes |
| | Instructions for immunizations? | Yes | Yes |
| | Instructions for cord care? | Yes | Yes |
| | Instructions for bathing? | Yes | Yes |
| 39 | Instructions on specific circumstances to bring baby back to health care facility? | Behaviour or feeding changes, fever | Yes Behaviour changes, fever |
| 40 | Instruction on how to care for yourself after discharge? | Yes | Yes |
| 41 | Specific instruction on self-care | Personal hygiene | Salt water soaks |

**Appendix 11. Interviews with new mothers**

| No. | Questions | Responses | |
|---|---|---|---|
| | **Drugs and supplies** | **#1** | **#2** |
| 42 | What drugs were you given upon discharge? | Amoxicillin, fever & pain meds | None |
| 43 | Were you given a prescription to fill? | No | No |
| 44 | Were you given information about birth control options provided? | Yes | Yes |
| 45 | Were you given information about access to birth control? | Yes | Yes |
| 46 | Do you feel that birth control is an option for you? | Yes | Yes-pill |
| 47 | Are you satisfied with care received at facility? | Yes | Yes |
| 48 | Overall, how satisfied were you with your care at the facility? (excellent, good, fair, poor) | Good | Good |
| 49 | What do you think could be done to improve care? | Fix fence to prevent water entering centre | Water and ambulance |
| | **Access to health facility care** | | |
| 50 | Mother sought assistance within community during pregnancy? | No | No |
| | Preferred treatment from traditional practitioner? | NA | NA |
| | Treatment received from traditional practitioner? | NA | NA |
| | How much did you pay for traditional services? | NA | NA |
| | Why did you come to the facility? | NA | NA |
| | How much time passed between when the symptoms started and arrival to facility? | NA | NA |
| | **Referrals** | | |
| 51 | Referred to clinic from community? | Yes | Yes |
| 52 | Treatment received before referral? | No | No |
| 53 | Referral note received from health care provider? | No | No |
| 54 | What kind of transport did you use to get to the centre? | Taxi | Walked |
| 55 | How much did you pay? | 1500SLL | NA |

**Appendix 12. Health care worker interviews**

| No. | Question | Response #1 | Response #2 | Response #3 |
|---|---|---|---|---|
| **Ward** | | | | |
| 1 | How do you rate conditions for mothers and babies staying in the facility? (Satisfactory, occasionally inadequate, or usually inadequate/not available): | | | |
| | Accommodations | Satisfactory | Satisfactory renovated | Satisfactory |
| | Toilets and washing facilities | Occasionally inadequate | Occasionally inadequate - water shortages | Satisfactory |
| | Cleanliness of the ward | Occasionally inadequate clutter | Satisfactory staff pay cleaner | Satisfactory |
| | Food given to patients | Not available | Not available | Not available |
| **Quality of care** | | | | |
| 2 | What do you think about the quality of care given to patients? (satisfactory, occasionally inadequate, or usually inadequate/not available): | | | |
| | Quality of information and education about their condition given to patient and their families | Yes | Yes- weekly 10-15-minute health talks | Yes |
| | Time available to explain patient's conditions to them and their families satisfactory? | Yes | Yes | Yes |
| | Quality of perception that families have of the quality of the care that the staff provides to patients satisfactory? | Yes | Yes | Yes |
| 3 | How can staff improve patient's understandings of their conditions? | In-service training; training materials | We have everything we need | Availability of equipment & B/P machine |
| 4 | Can you recall a patient that you recently cared for that you were pleased with the clinical outcome of? | I made a patient feel proud & good about herself because I helped her understand her condition | Patient referred to hospital, didn't want to go, I convinced her & she came back to thank me | Lady had fever, sent to lab, malaria+, called & explained why she needed treatment; now making follow-up visits |
| 5 | Can you recall a patient that you recently cared for that you were not pleased with the clinical outcome of? | Sometimes patients have no money & staff have to use their own money to assist them | If we are unable to treat the patients here, they are unhappy | If husbands would treat them nicely, the women would not wait so long to come in |

**Appendix 12. Health care worker interviews**

| No. | Question | Response #1 | Response #2 | Response #3 |
|---|---|---|---|---|
| **Drugs and supplies** | | | | |
| 6 | Are the following readily available? (Satisfactory, occasionally inadequate, usually inadequate): | | | |
| | Medications | Usually inadequate (antibiotics, antimalarials) | Satisfactory | Satisfactory |
| | Oxygen | Not available; need at times | Not available | Not available |
| | Blood for transfusion | Not applicable | Not applicable | Not applicable |
| | IV fluids | Satisfactory | Satisfactory | Satisfactory |
| | Food/special milk for malnutrition | Not available | Occasionally inadequate lactating programme | Food provided on Fridays for malnutrition |
| | Laboratory tests | Usually inadequate | Occasionally inadequate | |
| | Functional equipment | Satisfactory; could use fan in labour room | Could use oxygen; neonatal area flooded & is broken down; placenta pit closed | Burning pits broken |
| **Staffing** | | | | |
| 7 | How do you rate staff availability (Satisfactory, occasionally inadequate, usually inadequate)? | | | |
| | Number of skilled staff available to care for patients at any time | Satisfactory | Satisfactory | Satisfactory |
| | Time available to provide the best care for a patient | Satisfactory | Satisfactory | Satisfactory |
| | Number of trained nursing staff available during night hours | Satisfactory | Satisfactory | Satisfactory |
| | Suitable number of trained nursing staff available on weekends and holidays | Satisfactory | Satisfactory | Satisfactory |
| 8 | Is there a fixed rotation of nursing staff in the clinic at regular intervals? | Yes | Yes | Yes |
| | What is the rotation? | 3 shifts | Monthly | Every 1-2 yrs. |
| | Are you comfortable with the rotation schedule? | Yes | Yes | Yes |

**Appendix 12. Health care worker interviews**

| No. | Question | Response #1 | Response #2 | Response #3 |
|---|---|---|---|---|
| **Staffing** | | | | |
| 9 | What do you think about the number and qualifications of staff available? | Adequate | Good | Excellent |
| **Guidelines, auditing and in-service training** | | | | |
| 10 | Are you clear in what your job description is? | Yes | Yes | No |
| 11 | Were you provided with terms of reference? | No | Yes | No |
| 12 | Do you perform any functions outside your role and responsibilities? | No | No | No |
| 13 | Do you feel confident with your level of knowledge of maternal/neonatal illnesses? | Yes | Yes | Yes |
| 14 | If you feel that your knowledge is inadequate what areas would you want training in? | NA | NA | NA |
| 15 | Are opportunities for continual professional education available to you? | Yes | Some would like more | Would like more opportunities |
| 16 | If you are having problems, is it because there are not enough skilled people to call? | Yes | Yes | Yes |
| 17 | If you are having problems is it because you are unable to contact the right people? | Yes | Yes | Yes |
| 18 | If you are having problems is it because the response to your request is too slow? | Yes | Yes | Yes |
| 19 | Are there any other reasons why you have issues getting help? | NA | NA | NA |
| 20 | What kinds of guidelines are provided to you to do your work? | Maternal care EmONC | IMCI, EmONC, malaria | Malaria |
| 21 | Are you satisfied with the available supportive supervision and mentorship provided from senior clinical staff to help manage sick patients? | Yes | Yes | Yes |

**Appendix 12. Health care worker interviews**

| No. | Question | Response #1 | Response #2 | Response #3 |
|---|---|---|---|---|
| **Guidelines, auditing and in-service training** | | | | |
| 22 | Do you participate in regular staff meetings? | Yes | Yes | Yes |
| 23 | How often are they held? | Monthly | Twice a month | Monthly |
| 24 | What are the topics of these meetings? | Patient care | Policies | Reports to help staff resolve problems |
| 25 | Are there forums where you can make suggestions/inform supervisors on issues? | Yes | Yes | Yes |
| 26 | Have you made suggestions for improvements to the clinical manager? | Yes | Yes | Yes - handovers |
| 27 | Did your suggestions generate a result? | Yes | Yes | Yes |
| 28 | Is feedback on decisions of managers & supervisors provided to staff? | Yes | Yes | Yes |
| 29 | Are reviews done to examine QoC and/or patient mortality at the clinic? | Yes | Yes | Yes |
| 30 | What kind of reviews are done? | MDSR | Policies | Patient care |
| 31 | When was the last review done? | April | This month | Last week |
| 32 | Overall do you feel that the quality of care provided to patients in this clinic is good? | Good | Good | Good |
| 33 | Do you have suggestions on what can be done to improve the care provided to patients? | Not enough encouragement. If we get shouted at, we get nervous | None | Keep equipped |
| 34 | Do you think that most of your colleagues are satisfied with their work in the clinic? | No | Yes | Yes |
| 35 | Why are people dissatisfied with their work? | Sometimes patients don't cooperate, and staff get frustrated | NA | NA |

**Appendix 12. Health care worker interviews**

| No. | Question | Response #1 | Response #2 | Response #3 |
|---|---|---|---|---|
| **Referrals** | | | | |
| | Responses (Always, often, sometimes, rarely, never) | | | |
| 36 | Do you feel that referred patients receive appropriate pre-referral treatment before being transferred? | Always | Always; we send a nurse with pregnant women | Often |
| 37 | Are referral patients provided with referral notes stating the condition, reason for referral and any treatment given? | Never | Always; usually comes from PCMH | Sometimes |
| 38 | Are patients able to get to the hospital without major delay when advised that they need referral care? | Rarely; takes 1-2 hrs & patients must use their own money | Always | Often; HCWs assist them if no ambulance |
| 39 | Do patients and caregivers adequately recognize signs and symptoms that require contact with health services? | Often; patients come late | Always | Sometimes |
| 40 | Are patients and caregivers given adequate information and advice about where and how to refer to hospital? | Often | Always | Often |
| 41 | Are sick women brought to health services without significant delay? | Sometimes | Sometimes | Often |