EMERGENCY OBSTERIC SERVICES IN KIYUNGA

Quality of Care in a Level IV Health Center in Uganda's Luuka District

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1. Background

Luuka district is one of 112 districts located in the south eastern region of Uganda and is projected to have about 260,000 residents, according to a 2018 census. Like other districts, Luuka is struggling with a high neonatal and maternal mortality rates. Luuka hosts a local Level IV Health Centre at the town of Kiyunga, however, emergency obstetric services were not readily available before 2017. This posed challenges for mothers seeking care, especially those in acute danger that required emergency treatment. In cooperation with the Makerere University Centre of Excellence for Maternal Newborn and Child Health's (CEMNCH) COMONETH project, the district's local Level IV Health Center at Kiyunga revitalized comprehensive emergency obstetric services in 2017.

Emergency obstetric services occupy an important position in maternal and neonatal healthcare and are integral to achieving COMONETH's overarching goal of reducing maternal and neonatal mortality. Cesarean sections or C-sections are one of the most widely practiced emergency obstetric procedures and surgically deliver a baby if there are factors prohibiting vaginal birth or if complications arise intrapartum. Complications during birth are associated with a high maternal and newborn mortality. Before COMONETH a lot of mothers were not able to receive quality emergency obstetric services. Luuka is a rural district, roads are unpaved and there is no public transportation system. Before the initiation of COMONETH, emergency services were not available in Luuka and mothers regularly had to be referred to Iganga Regional Referral Hospital 26km away for treatment.

The health center in Kiyunga fills a gap that previously existed in Luuka by moving the point of care closer to mothers' homes, thereby improving accessibility for them and their families. Since COMONETH, the number of referrals from Kiyunga for emergency obstetric services, which can be used as an indicator for service delivery achievement, has been reduced significantly, according to Dr. Christoph Wandira (District Health Officer Luuka). It is worth to appreciate the difference this makes for a mother in labour seeking health care. After having reached Kiyunga to deliver, a mother might have had to move further on to Iganga hospital in an advanced, critical stage of labour. Patients are now able to access services much faster and at a lower cost.

Quality of care is widely recognized as an important aspect of all healthcare. Especially experience of care has gathered increasing attention as an aspect of person centered medicine,

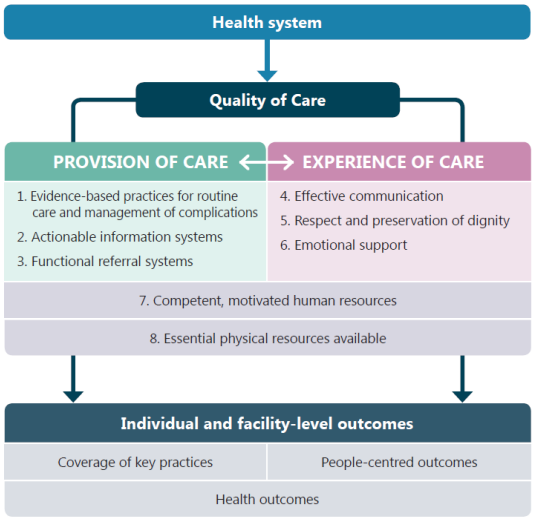
capturing both process indicators and person centered outcomes. Through the quality of care framework, we can get a holistic understanding of processes and outcomes in a given health care facility and environment.

2. Objective

Through this study, we hoped to gain an insight into the quality of care of emergency obstetric services provided at the Level IV Health Center in Kiyunga, Luuka. Using the WHO framework for quality of care, we wanted to identify aspects of care that function well as well as those, that might require improvement in the future and evaluate one part of the intervention implemented through the COMONETH project. All of this is in line with the project's overall objective to implement a facility-owned and community linked intervention with the overarching goal of reducing neonatal and maternal mortality and morbidity in Luuka district.

3. Methods

Fig. The Quality of Care framework



Using the framework for quality of care developed by the World Health Organization, quality of care can be analyzed in a holistic way. It identifies several domains: health care takes place in the context of a national health system. Human and physical resources constitute the basis for care provision. Care itself can be analyzed from the provision side, where we investigated the adherence to evidence-based practices in routine care and the management of complications, the availability of a functioning referral system and an actionable information system. Experience of care occupies a prominent position in the framework and is analyzed through the indicators: communication, respect and dignity and emotional support. All these factors contribute to individual and facility-level outcomes.

For data collection, we used a mixed-methods cross sectional study design. We conducted interviews with patients and health care professionals working at the Kiyunga facility. Surveys for patient interviews were informed by Afulani et al.'s work on reliably measuring experience

of care in maternal health care settings. Interviews were conducted in the local language and translated by an assistant at Kiyunga. Medical officers and midwifes were interviewed in English using a qualitative survey about standards prescribed by the WHO's 'Standards for improving quality of maternal and newborn care in health facilities'. A semi-structured interview was conducted with Luuka's DHO Dr. Christoph Wandira. Additionally, we analyzed patient files of mothers, that had recently had a cesarean section at Kiyunga hospital. Through interviews, we obtained information about processes, practices and treatments in Kiyunga concerning emergency obstetric services provision of care, experience of care and the physical and human resources available at the health facility. Information detailing the treatment history of several more patients was obtained from 'maternity files' at Kiyunga, including attendance of antenatal care, admission records, partogram and postnatal care.

The following presents the combined results of the analysis of patient files and the complete interviews conducted with patients and care providers. We did an exploratory analysis of 19 patient cases through files dated from April 2019 to February 2020. An experience of care interview was conducted with one patient mother. Two medical doctors and a midwife were interviewed on provision of care. All of the interviews took place on March 18th. To ensure a level of cohesiveness we compared reported standards to the standards for quality of care in maternal healthcare setting by the WHO as applicable.

There are severe limitations to the results presented in this report. Due to the Covid-19 pandemic, data collection and discussion of results was cut short. Because of this, everything presented in this report does not constitute a representative, comprehensive investigation but rather a subjective account, informed by the data collected until this point. Results will be presented in order of framework domains.

4. Results

4.1. Provision of care

4.1.1. Evidence-based practices

Standard: All women and newborn receive routine, evidence-based care and management of complications during labour, childbirth and the early postnatal period, according to WHO guidelines.

Providers and patients reported, that mothers and newborns were routinely examined, assessed and cared for in the Kiyunga facility. Midwifes are responsible for admitting patients,

doctors are consulted by the midwifes, to review mothers in labour eligible for emergency obstetric services. Mothers with delayed or obstructed labour, exhaustion, amniotic infection syndrome or fetal distress received cesarean sections as emergency treatment. The surgery was performed in the on-site operating theater in Kiyunga, usually by a doctor, nurse and anesthetist. Anesthesia was done using either ketamine or spinal anesthesia. All patient cases documented in the file collective received antibiotic treatment post-OP. However, antibiotic prophylaxis as recommended by the WHO was not regularly provided. Newborn babies are received and cared for by midwifes. APGAR scores, preterm status, date and time of birth were documented for all cases. Readiness for resuscitation is given in the Kiyunga facility. Post-natal care and examinations were only incompletely documented. Women with postpartum hemorrhage admitted to the ward can receive interventions like oxytocin or revision surgery from medical officers. Yet, doctors reported that their ability to handle severe complications was sometimes limited because of blood shortage at Kiyunga. The one fatality recorded in the 19 patient files was due to postpartum hemorrhage. Symptoms of distress of the mother were first recorded 10 minutes before her time of death.

4.1.2. Information System

Standard: The health information system enables use of data to ensure early, appropriate action to improve the care of women and newborn

Medical records of mothers and newborns were kept by medical officers and midwifes. Documentation was incomplete. Admission examinations, surgery reports and drug treatments were regularly reported. Anesthetics reports, partograms for monitoring labour progress or postnatal care was oftentimes not recorded. No clinical record fully documented all data. A midwife reported, that Kiyunga had a system for data collection in place. Primary data about admissions were recorded by midwifes and then forwarded to the District Health Officer's (DHO) office on a monthly basis.

4.1.3. Referral System

Standard: Every woman and newborn with condition(s) that can not be dealt with effectively with the available resources is appropriately referred.

Luuka's DHO reported that the number of referrals of mothers from Kiyunga had decreased significantly because of improved capabilities at the facility. Now referrals to Iganga Regional Referral Hospital were only happening on the weekends sometimes because of lack of staff a

Kiyunga. Of the 19 patient cases analyzed three were referred to Kiyunga from lower level facilites. Doctors at Kiyunga reported, that an ambulance for referrals was available at the facility, but that it was not operational because of fuel shortage on most days of the month. Mothers that could not afford the fuel for the ambulance would individually organize referral by private car or boda-boda.

4.2. Experience of Care

4.2.1. Communication

Standard: Communication with women and their families is effective and responds to their needs and preferences.

The mother interviewed at the Kiyunga facility reported, that the staff spoke to her in a language that she could understand. The reasons for examinations and procedures performed were explained to her

4.2.2. Respect and Dignity

Standard: Women and Newborn receive care with respect and preservation of their dignity.

The mother reported that the staff treated her respectfully. Her privacy was ensured during labour and surgery, she reported her and the midwife or medical officer being the only persons in the delivery room. She reported, that nobody abused her physically or verbally during her stay in the facility. Before the procedure (Cesarean section) was performed, counseling took place by the medical officer with her and her family and her consent was taken

4.2.3. Emotional Support and Supportive Care

Standard: Every Women and her family are provided with emotional support that is sensitive to their needs and strengthens the women's capabilities.

The patient reported trust in the staff and their professionalism. The staff was responsive to her needs. She did not receive pain relief during labour but reported, that the staff positively encouraged and reaffirmed her.

4.3. Human Resources

Standard: For every women and newborn, competent, motivated staff are consistently available to provide routine care and manage complications.

There is always a midwife available at the Kiyunga facility. Medical officers and doctors are available on most days. One doctor reported, that due to coordination issued between staff, weekends sometimes showed gaps in service provision. This was also confirmed by another medical doctor, who pointed out, that referrals to Iganga Regional Referral Hospital still happened on some weekends. A midwife pointed out, that the health center was understaffed, with shortages becoming apparent on days, where midwifes were also tasked with additional work like immunization programs or antenatal care (ANC) for out-patients. A patient mother interviewed at Kiyunga also reported, that the ward was overcrowded on ANC days and that she felt, staff was not sufficient on these days. Staff at the health facility were concerned with quality improvement and reported organizing and conducting trainings for the staff.

4.4. Physical Resources

Standard: The health facility has an appropriate physical environment, with adequate water, sanitation and energy supplies, medicines, supplies and equipment for routine maternal and newborn care and management of complications.

Physical resources pose a challenge in Kiyunga's health center. Running water was not available in all buildings at the time of investigation. Energy supply is intermittent, sometimes impeding with functions like autoclaving instruments for surgery according to one doctor. A patient mother reported that she did not find sanitation satisfactory at the facility. Out-patient care, delivery room and the ward are all located on the same corridor. The building assigned to maternal and newborn services was too small to handle the load of patients, especially on days offering out-patient services according to one midwife. Kiyunga regularly faces stockouts of basic medical consumables like disinfectant, gloves, sutures and bandages. Medicines are supplied in varying quantities, leading to shortages in anesthetics and pain killers. Instruments are short and for some broken equipment, replacing parts are not available.

5. Discussion

When analyzing obstetric emergency services at Kiyunga's Level IV Health Center, it is important to notice the improvement that these have brought to health services for mothers in Luuka. Before the revitalization of services in Kiyunga, emergency obstetric interventions were not readily available in Luuka. Mothers in need of treatment would have had to be referred to other facilities, starkly inhibiting the accessibility for many mothers and their families. The initiation of emergency obstetric services thus provides an immense benefit to

patients. Yet, the quality of the care provided is important for two reasons: to achieve good clinical results as well as because of its interaction with patients experience of care and other person-centered outcomes. We were able to identify several gaps in service provision, where best practice was not always followed. The roots of these can be found on several different levels: a national level, a district or facility level and on the individual level.

On the service provision side, we noticed that postnatal care was not always documented or provided. One midwife reported, that she felt the ward was understaffed, so she had to prioritize different tasks to be able to handle the workload. Understaffing on the facility level can explain, why certain best practices might not be adhered to on regular basis. One doctor noted, that finding an anesthetist would sometimes be difficult, so his ability to immediately respond to a complication was limited by the availability of human resources. Other supplies would also constitute bottlenecks. Stockouts of blood for transfusion directly influences a doctor's ability to treat a severe postpartum hemorrhage. Several staff reported that they were frustrated with the supply situation or that it directly impeded their ability to provide standard treatment. One midwife reported that she sometimes needed to discharge mothers earlier than recommended because newly admitted patients needed beds. Luuka's DHO conceded that the facility was to small, and that investment into new buildings was under planning, but procurement of funding was difficult. The supply situation can on the other hand, also influence behavior of staff. One doctor noted, that antibiotic prophylaxis was not taken as a priority in a short supply situation. Lastly, skills might be lacking on the side of health workers. For example, Luuka's DHO noted, that a specialized unit and treatment for preterm babies was still lacking in Kiyunga.

The referral and information system still provide challenges to quality of care of mothers in Kiyunga. The condition of infrastructure and lack of public transport in Luuka makes transportation difficult. Responsibility for referral rests at last with the individual mother, who needs to pay for the fuel or organize transportation herself. This increases the risk for mothers in critical stages of labour and their babies, because transportation is oftentimes unsupervised. The information system faces a challenge because documentation, especially on the individual record level, is not a top priority for health workers, that have many other tasks to handle. While there might be interindividual differences in diligence of record keeping, the problem seems to stem from understaffing at the facility level.

Experience of care is a central aspect of the WHO's quality care framework and concerns itself with people-centered health processes. It is important because it might directly influence health outcomes: better compliance with the prescribed treatment can be achieved through effective communication. Of course, one patient interview is not enough to generalize any statements about mother's experience of care in Kiyunga. If anything, it proves that staff at Kiyunga are able to provide good people centered outcomes. The mother interviewed on the ward reported a generally positive experience and stated, that she would recommend the service to a close relative or friend. This leads to another reason for the importance of experience of care: its potential impact on the facility delivery rate. The facility delivery rate in Luuka remains very low around 37% according to Luuka's DHO. While cultural factors like the importance of traditional birth assistants influence this number, trust into health facilities is another key factor. Luuka's DHO conceded, that trust in health services used to be low. This might influence a mother's decision to seek care in a health facility. Previous research suggests a relationship between mother's experience of care and their decisions to seek it in the future. A bad experience might make her less likely to seek it in the future or delay her decision to attend care at a health facility, possibly with multiplying because of verbal accounts in their communities. Mother's experience of care might thus influence community trust in health services and also the facility delivery rate on the district level.

The greatest challenges to service delivery are faced in the domains of physical resources. Staffs repeatedly reported, that stockouts impeded treatment. Shortages of supplies occurred in all areas of service delivery and regularly restricted service delivery capabilities. In surgery, shortage of disinfectant might lead to higher probabilities for infections. A lack of blood for transfusion limits a doctor's ability to treat with postpartum hemorrhages. One doctor reported that his decision about performing surgery was sometimes influenced by his concern about not being able to handle severe hemorrhages. On the anesthetist's side, narcotics and painkillers were notoriously short. The kind of anesthesia provided to a mother could oftentimes not be informed by the patients needs or preferences because of a lack of alternatives. Because of supply shortages, adherence to best practice was therefor sometimes not possible. On the other side, shortages influenced behavior and frustrated health workers. In the special case of Uganda, this problem of supply shortages is located at the national level, since supplies are provided by the Uganda National Medical Stores and ways of procuring medicines and supplies through other channels are limited.

Similarly, understaffing is also leading to deviations from best practices. Especially midwifes are tasked with a lot of different responsibilities for inpatients and outpatients. Aside from higher stress levels among health workers, dividing attention between many tasks can also lead to poorer adherence to treatment plans, incomplete documentation etc. The number of midwifes and nurses thus constitutes a key variable in the smooth functioning of the Kiyunga health center and an increase here would likely benefit quality of care and employee satisfaction.

The challenges faced by the Kiyunga Health Center can be targeted on different levels. While many problems can be traced back to the national level, such as the supply situation or infrastructure condition, these issues could be hard and slow to resolve. Some challenges could be relived on the district level. Luuka's DHO has reported how he engaged in coordinated efforts with other health facilities in the surrounding districts to distribute medicines to facilities with shortages or stock-outs. Similar cooperation could be imagined with human resources as well. As a part of COMONETH, midwifes from Iganga Regional Referral Hospital lead some efforts in antenatal care in Kiyunga, freeing up the time of local midwifes for other tasks. Leadership on the district and facility level could be fostered to build up on these achievements. To improve adherence to best practices, check lists could be introduced for designated areas such as the ward, surgery or examination room. When faced with a situation of supply shortages, priorities could be agreed on at the facility to ensure homogeneity in service provision and to help health workers when they are faced with tough decisions about the allocation of scarce supplies. Lastly, mothers that received treatment at the Kiyunga facility and reported high satisfaction and good experience of care could be recruited as champion mothers to promote the services in their respective communities in order to establish and improve links between service providers and recipients. Further research would be desirable to evaluate the potential benefits or caveats of each of these recommendations.

6. Conclusion

The initiation of emergency obstetric services in Kiyunga provides a big benefit to mothers seeking care in Luuka. Services that were previously hard to access in a timely manner are now available, more accessible and provided for free to mothers. The importance of this for mothers in need of emergency treatment cannot be overstated and it constitutes a great achievement that Kiyunga is now able to deliver these services. Concern for quality of care

helps to achieve good clinical outcomes for patients, but also centers around mothers experience of care. This could be of special importance in a district like Luuka, where facility delivery rate is still low.

While one interview is far from enough to reach a conclusive result about mothers' experience of care in Kiyunga, the overall good experience described by the mother proves that health workers are able to deliver good person-centered outcomes. This is very encouraging, because experience of care might directly and indirectly influence facility delivery rate. Mothers will share their experiences in their community and could influence discussions of health services in either way, depending on their experiences. The trust between the health service providers and community member, an important variable influencing facility delivery ratees and other health outcome indicators, would benefit from high satisfaction with care.

On the provision side, Kiyunga routinely provides emergency obstetric services in a manner that was not possible before the initiation of COMONETH. There are still components of service delivery that present challenges, such as the quality of the information system, referral system or certain standard best-practices. Generally, Kiyunga struggles with adherence to best practice most often because it operates in restrained health system. A lot of problems can be traced back to this higher level. Supply situations can frustrate health workers and limit their ability to provide standard treatment. While the health system is unlikely to change in the short-run, health workers prove very resourceful in dealing with the restraints placed upon them, mitigating short supplies through coordination with other facilities and ingenuity in the handling of resource limited situations. Leadership in cooperation and coordination between facilities could help alleviate some of the resource restraints and help improve the quality of care at the Kiyunga health center.

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7. References

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