Availability, Utilization and Quality of Normal Delivery and Emergency Obstetric Care in Eritrea.

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Abstract

Objective: To determine the availability, utilization and quality of delivery and emergency obstetric services in Eritrea.
Methods: All of the 17 hospitals that provide maternity services, 46 health centers and 41 randomly selected out of 210 health stations in Eritrea were included in this study. Clients of the health facilities who attended the facilities on the day of the visit and birth attendants were interviewed and record cards were reviewed to assess the quality of care provided for normal and complicated deliveries.
Findings: The assessment of the delivery and emergency obstetric services revealed gaps in availability, quality and utilization of the services. Some of the quality gaps identified were poor monitoring of normal and complicated labor especially lack of use of the partograph.
Conclusion: The availability of emergency obstetric care services in Eritrea could be doubled using the existing number of health facilities by upgrading the hospitals and the health centers to function as comprehensive and basic emergency obstetric care facilities respectively.
Key words: Availability, utilization, quality, skilled birth attendant, normal delivery, emergency obstetric care

Introduction:

Availability, quality and utilization of maternal health services and particularly that of emergency obstetric care as well as improving the proportion of births attended by skilled health workers are essential for achieving the millennium development goals (MDGs) especially MDG 5 targeted at reducing maternal mortality ratio by three-quarters between 1990 and 2015.

WHO, UNICEF and UNFPA[1], classify health facilities that offer emergency obstetric care services at two levels, as basic emergency obstetric care (EmOC) and comprehensive EmOC. The following functions are required to be undertaken by the basic EmOC facilities: administer parenteral antibiotics, oxytocic drugs, anticonvulsants for pre-eclampsia and eclampsia, providing assisted vaginal delivery as well as performing manual removal of placenta and other retained products.

In addition to the services offered by the basic EmOC facility, comprehensive EmOC facility provides blood transfusion as well as performing surgery (Caesarean section).

The Eritrean national safe motherhood protocol[2] identifies early detection and management of complications as an integral component (one of the four pillars) of safe motherhood. Should complications occur, they must be detected early and dealt with promptly and effectively.

Information on quality of care is often obtained from four sources: clinical records, health personnel, patients and caretakers, and the setting. The following four methods of data collection are generally combined in order to take advantage of strengths of each individual method: review of clinical records, direct observation of health personnel's activities; interview with patients or care-takers, and inventory of facilities and supplies [3].

Minimum standards which have been set for acceptable level for emergency obstetric care include one comprehensive and four basic EmOC facilities for half a million people[1]. In Eritrea, currently each zone can be considered as having roughly a population this population size except Debub, which has more than 750,000, and Southern Red Sea Zone, which has less than 70,000.

Materials and methods

All of the 17 hospitals that provide maternity services and all of the 46 health centers were included in this study. Mothers who came for immunization session on the day of the study visit were interviewed. Record cards of mothers who were admitted to the health centers and the hospitals for delivery in one year time prior to the day of the visit were also reviewed.

Five hundred and thirty five women who came to the health facilities on the day of the study visit for child immunization were asked about place of delivery for the child who was getting immunization.

Seven hundred and seventy seven normal delivery record cards were reviewed to assess the quality of care provided for normal deliveries. An assessment of the quality of care was made by comparing the actual practice as recorded in the cards with treatment norm

or standard to actual practice as recommended in the national safe motherhood protocol [2]. Quality gap was assessed through measuring the percentage of clients who got a service in compliance with the standards described in the national safe motherhood protocol. Some selected findings from the different sections pertaining to quality are briefly discussed below.

Record cards of patients who were admitted with eclampsia or pre-eclampsia and obstructed labor to the hospitals were assessed for the quality of management of the obstetric complications.

To assess the quality of the management of eclampsia/pre-eclampsia, 165 record cards that met either of the following inclusion criteria were selected for card review: eclamptic fits were recorded, or diastolic blood pressure was ≥ 100 mmHg.

Obstructed labor was defined as labor in which progress was arrested by mechanical factors or delivery requiring a caesarian section[1]. Delivery records of clients who experienced obstructed labor were reviewed for indicators of good management of obstructed labor. Three hundred and forty seven record cards that met either of the following selection criteria were reviewed: descent was static for three hours or more or strong contractions with no progress in labor for three hours.

Results

Utilization and Quality of Delivery Services

Only 198 out of the 535 clients (37 percent) who came to immunize their children who were less than one year of age reported that the child who was getting the immunization was delivered in a health facility.

In order to assess the quality of care provided in health facilities for normal delivery, five indicators that were described in the Eritrean National safe motherhood protocol were used (Table 1). Serious deficiencies were evident in quality of care provided to women who delivered in health facilities.

Vaginal examination was undertaken at least once every 4 hours only in 43 percent of the clients, while in 31 percent no vaginal examination was performed (or not recorded in the card) and only in 16 percent was fetal heartbeat monitored at least hourly, while in 32 percent it was not monitored (or not recorded) at all. Only in 6 percent was blood pressure monitored at least hourly, while in 30 percent it was not measured at all (or not recorded in the card). However, in the majority of the clients record cards showed birth weight (94 percent) and the condition of the baby (90 percent).

Table 1: Assessment of overall quality of normal delivery practice, using five indicators of performance

Action	Norm	According to norm	Not per formed /Not recorded
Vaginal examination	At least once every 4 hours	43.1%	31.1%
Fetal heartbeat monitoring	At least hourly	16.0%	31.5%
Blood pressure monitoring		6.1%	30.2%
Birth weight recorded on card	Should always be recorded on card	93.7%	7.3%
Assessment of condition of baby recorded on card		90.1%	9.9%
Number of cards sampled	777		

Availability of Emergency Obstetric Care

The Orotta National Referral Hospital and all Zonal referral hospitals except Edaga Hamus Hospital perform all of the nine functions and could be classified as comprehensive EmOC facilities. As the Orotta Maternity National Referral Hospital is located in Zoba Maakel (the capital, Asmara), this means all zones have at least one comprehensive EmOC facility. Edaga Hamus Hospital referred almost all complicated delivery cases to the national referral hospital, located in the same city. Although all Zonal referral hospitals, except Edaga Hamus Hospital perform caesarian section, only three of the six Zonal referral hospitals had gynecologists/obstetricians, or surgeons that could handle ruptured uterus and ectopic pregnancy.

Only four of the ten community hospitals (Akordat, Dekmhare, Adikeih and Sembel), functioned as comprehensive EmOC facilities, which means only three of the six Zobas (Maakel, Gash Barka and Debub) had more than one comprehensive EmOC facility (including Orotta Maternity Hospital National Referral Hospital for Zoba Maakel).

All Zonal Hospitals except Edaga Hamus Hospital, which referred complicated deliveries to Mekane Hiwet Hospital, provided all of the comprehensive emergency obstetric services. Provision of services was lowest for ectopic pregnancy and ruptured uterus as only half of Zoba referral hospitals and almost none of the community hospitals (except Sembel hospital in Asmara, which was included as a community hospital) provided services for ruptured uterus and ectopic pregnancy.

About 80 percent of the hospitals performed blood transfusion or replacement. Five out of the 6 of the Zonal Referral Hospitals and half of community hospitals (5 out of 10) performed caesarian section. All hospitals (except Edaga Hamus) and about one third of the health centers provided the services listed under basic EMOC facilities.

Quality of Emergency Obstetric Care

Delivery records of clients, who experienced eclampsia and severe pre-eclampsia, were reviewed for indicators of good management of eclampsia cases in health centers and hospitals.

Although both antihypertensive and sedative or anticonvulsive drugs were administered in almost all eclamptic patients (96.2 percent), use of drugs in pre-eclamptic mothers was low, as no drug was administered in 32 percent of them. Monitoring of eclampsia and pre-eclampsia patients was found to be poor, as blood pressure was monitored hourly only in 22.3 percent of patients was, and fetal heart beat measured hourly in only 14 percent.

Table 2: Indicators of good management of eclampsia cases in health centers and hospitals

Indicator	
Use of drugs in managing severe pre-eclampsia	
Antihypertensive administered	74.4%
Sedative or anticonvulsive administered	51.9%
Antihypertensive and sedative or anticonvulsive administered	68.0%
No drugs administered	32.0%
Number of records with severe pre-eclampsia sampled (n)	133
Use of drugs in managing eclampsia cases	
Antihypertensive administered	90.6%
Sedative or anti-convulsive administered	84.4%
Antihypertensive and sedative or anti-convulsive	96.2%
No drugs administered	3.8%
Number of records with eclampsia sampled (n)	32
Monitoring of eclampsia and severe pre-eclampsia cases	
Blood pressure checked hourly	22.3%
Fetal heart beat checked hourly	14.2%
Both blood pressure and fetal heart beat checked hourly	14.4%
Neither blood pressure nor fetal heart beat checked hourly	81.8%
Number of records with severe pre-eclampsia or eclampsia sampled (n)	165
N.B data excludes health Stations.	

Among the 347 record cards with obstructed labor that were reviewed, Caesarian section was performed in 190 (54.7 percent) of the cases. However, due to the absence of partograph, it was not possible to determine in how many of the remaining 45.2 % of the cases, a Caesarean section should have been performed.

There were 7% stillbirths, out of which one third were among those with Caesarian section and the remaining two thirds among those with no Caesarian section (Table 3). 47 babies were not in good condition at birth (Apgar score 6 or less) while about one third were from those with Caesarian section and the remaining two thirds from those with no Caesarian section, in 175 (50 percent) of the cases the baby was well, from which 54 percent were from those with Caesarian section and the remaining 46 percent from those with no Caesarian section. In 99 (29 percent) of the cases the condition of the baby was not recorded in the card, 70 percent of which were from those with Caesarian section, while the remaining 30 percent from those with no Caesarian section.

Table 3: Outcome of obstructed labor cases + Caesarian Section

Whether caesarean section was performed.	All cases	Still birth	Live birth, but not well (Apgar score 6 or less)	Live birth breathing well (Apgar score 7-10)	Condition of baby Not Recorded
C/S performed	54.7%	33.3%	31.9%	54.3%	70.0%
C/S not performed	45.5%	66.7%	68.1%	45.7%	30.0%
Number of records sampled (n)	347	24	47	175	99
N.B data only for hospitals					

Discussion

This study was undertaken to assess the availability, quality and utilization of maternal health services which are essential for improving maternal health (MDG5).

As far as the availability is concerned, this study revealed that that for every 500,000 population in Eritrea at least there is one basic emergency obstetric care facility (in fact for three of the Zones more and one for less than 70,000 people in Southern Red Sea). However, two third of the Zones do not have additional four basic emergency obstetric care facilities at the moment. This is because most of the health centers are not functioning as basic EmOC facilities.

As discussed above, there is wide room for improvement on the availability of emergency obstetric services, which can be accomplished using the existing physical structure of health facilities. If all (rather than only the current 50 percent) of the hospitals are made to function as comprehensive emergency obstetric care facilities and if all (rather than the current one third) of health centers are made to function as basic emergency obstetric care facilities and if some selected health stations in places where the no hospital or health center is available with in easy reach are made to function as basic emergency obstetric care facilities, the availability of emergency

obstetric facilities in Eritrea could be more than doubled. The number of health centers that provide vacuum extraction service is very low at 24 percent; this needs to be improved as it could save lives and unnecessary referral. There is need of special emphasis to improve the availability of postpartum care, which does not need any sophisticated skill or equipment, in all health facilities (currently about half of the health facilities do not provide postpartum service at all). Even among those who provide the service the number of clients is too low to claim that the service is actually being provided.

If a woman needing a surgical intervention is referred with a serious complication from a health station or a health center to one of the five out of ten community hospitals which are not providing caesarian section function, the women has to be referred again to a Zoba referral hospital, this could set the stage for the death of the mother that could have been saved otherwise.

Historically it was not that that women were less likely to develop obstetric complications, or more likely to survive complications in the absence of medical care, that led to low levels of maternal mortality in high-income countries. Rather, it was the fact that women had access to treatment for complications (this reasoning also applies to the huge difference in maternal mortality between low- and middle- income and high- income countries) [7, 8,9].

The main role of the health sector in reducing maternal mortality is to ensure the availability of good-quality essential services to all women during pregnancy and childbirth. With a minimum of good care most women will complete their pregnancies uneventfully; without it, many women suffer avoidable complications, which are sometimes life threatening and often have long-lasting consequences. There is a growing understanding that, while certain pregnancy complications can be prevented, a large proportion that occur particularly around the time of birth can be neither prevented nor predicted [8,9].

Pregnancy and delivery are normal physiological processes and the outcome of most pregnancies is good. However, all pregnancies involve some risk to the mother or infant and it is important to prevent, detect and mange complications early before they become life-threatening emergencies. This requires attendance of every delivery by a trained health worker, which is very low in Eritrea, as either TBAs or families and friends attend almost all home deliveries.

Our finding (37 percent) of health facility delivery is much higher than the 2002 EDHS (10) finding which revealed that only 26 percent deliver in health facilities. If we assume child immunization is almost universal, our finding may be an improvement as it pertains to more recent practice but it may also indicate that those who come for child immunization are more likely to have delivered in the health facility than the general population.

Mothers who experienced eclampsia and severe pre-eclampsia are critically sick patients in a very high risk of maternal and or fetal death and according to the national safe motherhood protocol should have their blood pressure and fetal heartbeat monitored hourly. Although use of antihypertensive and anti convulsive drugs were provided almost universally (96 percent) to eclamptic patients, hourly monitoring of blood pressure (22 percent) and fetal heart beat (14 percent) was poor in both eclamptic and pre-eclamptic patients.

Caesarian section was performed in 55 percent of the obstructed labor cases. The review of the cases of obstructed labor revealed that, the chance of stillbirth and baby not in good condition decreases by at least half (from two third to one third) when caesarian section was performed as compared to when it was not. However, the findings need to be interpreted with caution because as the main purpose of the data collected was to assess the overall quality of management of obstructed labor rather than to compare the outcome of caesarian section, some of the precautions that should have been taken to control confounding factors were not taken. The two conditions, namely the timing of the caesarian section and the condition of the mother could definitely affect the out come independently, but no information was available to measure their effect or to control them. However, in the Eritrean setting one can safely assume it is likely the mothers with more severe complication or condition that might end up with cesarean section. Hence, the effect of the caesarian section in terms of saving fetal life or condition might have been more, if the severity of the condition of the mother was controlled.

It is interesting to see that the condition of the baby is less likely to be recorded when C/S is performed than when it was not. But, it was also not possible to determine whether those with baby's condition not recorded were random or selective. It is possible those who ended up in bad outcome might have been more likely not to be recorded.

An attempt was made to determine the timing of the caesarian section in relation to the action line in the partograph, but it was not successful because almost all hospitals except the national referral hospital do not use partograph. In case of obstructed labor Caesarian section should be done with in an hour after the action line is passed, it was not possible to determine the proportion of obstructed labor, where this was fulfilled.

As conclusive remarks are difficult to make from the findings, we think that the issue of obstructed labor and cesarean section needs further investigation using more robust study design and more specific study objectives.

Conclusions

Utilization of delivery and emergency obstetric services is low. The quality of delivery and emergency obstetric services including monitoring of normal and complicated delivery was inadequate. Availability of emergency obstetric care could at least be doubled using the existing physical structure of health facilities, by upgrading (provision of the necessary personnel/skills, equipment, supplies and drugs) the 50 percent of the hospitals that are not functioning as

comprehensive obstetric services and the two third of the health centers that are not functioning as basic emergency obstetric facilities.

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