



Emergency obstetric care resources availability and service provision in Zaria LGA, Kaduna State

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ABSTRACT

Background: At least four out of ten women will develop unpredictable complications during pregnancy, childbirth and time after delivery which if not treated, contributes to the high observed maternal mortality worldwide. Access to Emergency Obstetric Care (EmOC) has been identified as one of the key strategies for maternal mortality reduction. This study assessed the availability of EmOC resources and service provision in Zaria Local Government Area (LGA) of Kaduna State, North Western Nigeria.

Methods: Using a cross-sectional descriptive study, twenty public and private health facilities that offered antenatal care and delivery services in Zaria LGA of Kaduna State were studied in July 2012. Data was collected on availability of EmOC resources and services using checklist and interviewer-administered questionnaire.

Results: None of the primary health care facilities had up to four midwives recommended for 24 hours delivery services, while five of the eight secondary health facilities (62.5%) had at least four midwives. There was dearth of equipment and drugs for EmOC service provision as only 10.0% primary health facilities and 40.0% of secondary health facilities had adequate equipment and drugs to provide EmOC service. Only two secondary health facilities (25%) performed signal functions recommended for comprehensive EmOC facility and additional three secondary health facilities (37.5%) performed signal functions recommended for basic EmOC facility, however, none of the primary health care facilities performed signal functions recommended for Basic EmOC facility. Availability of equipment was the only factor found to be significantly associated with EmOC service provision in the facilities ($p = 0.032$), but when stratified based on level of care (primary and secondary), no significantly associated was found ($p = 0.429$).

Conclusion: Health facilities in Zaria LGA lacked adequate resources to provide EmOC services and EmOC service provision was abysmally low. Health planners and policy makers should step up interventions for providing the necessary resources to accelerate the attainment of Millennium Development Goal 5 (MDG 5).

Keywords: Emergency Obstetric Care, Resource Availability, Service Provision, Maternal Mortality, Zaria, Nigeria

INTRODUCTION

Maternal Mortality Ratio (MMR), one of the indicators for assessing progress towards attainment of Millennium Development Goal (MDGs) has shown

a decline globally, from an estimated 400 maternal deaths per 100,000 live births in 1990 to 210 per 100,000 live birth in 2010.¹ MMR in Nigeria also declined from 1100 per 100,000 live birth in 1990 to

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630 per 100,000 live birth in 2010. Despite this decline, Nigeria still contributes 14% of global burden of maternal death.² At current rate of progress, Nigeria is not on track to attain the MDG 5 target.³ One of the key interventions proposed for maternal mortality reduction is Emergency Obstetric Care (EmOC), this is because an estimated 40% of all pregnancies are likely to develop unpredictable but treatable complications, while 15% of them develop life threatening complications that require immediate intervention.^{3,4}

EmOC is the term used to describe the elements of obstetric care needed for the management of complications of pregnancy namely: bleeding (hemorrhage); pregnancy induced hypertension (pre-eclampsia/eclampsia); unsafe abortion; prolonged obstructed labour and sepsis.^{5,6} EmOC is divided into two: Basic EmOC (BEmOC) and Comprehensive EmOC (CEmOC). BEmOC interventions are: administration of parenteral antibiotics, oxytocic and anticonvulsants drugs, manual removal of placenta, removal of retained products of conception and assisted vaginal delivery. These six signal functions are expected to be performed at Primary Health Care (PHC) level. A CEmOC facility should perform caesarean section and blood transfusion in addition to the six signal functions above. These signal functions must be performed by the health institution regularly at least once in three months for the facility to be deemed as providing EmOC services⁴. WHO, UNICEF and UNFPA recommended that there should be at least five EmOC facilities including at least one comprehensive EmOC facility per 500,000 populations and at least 15% of all births in the population (that is, all women with obstetric complications) should be treated in EmOC facility.⁴

Poor access to EmOC services has been a problem in Nigeria. In a study conducted by the Federal Ministry of Health (FMOH) and UNFPA in Nigeria in 2002, only 18.5 percent of facilities met the recommended EmOC facility criteria.⁷ The Integrated Maternal, Newborn and Child Health Strategy (IMNCH) adopted in Nigeria have identified provision of EmOC as one of its key strategies for maternal mortality reduction in pursuit of the attainment of MDG 5. To this end, the FMOH in collaboration with State

ministries developed strategic plans for the expansion of EmOC services nationwide.⁸ This study assessed the availability of EmOC services and EmOC service provision in Zaria LGA of Kaduna State, Nigeria.

MATERIALS AND METHODS

Study area

The study was carried out in Zaria LGA of Kaduna State North Western Nigeria. The LGA is semi urban with an estimated population of 408,198 made up predominantly of Hausa-Fulani muslims⁹.

Study design

The study was conducted in July 2012 using a cross-sectional descriptive study design.

Study population

There were twenty health care facilities that offers both antenatal care and delivery services in the LGA, they comprise of 12 PHC facilities (7 public, 4 private and 1 missions) and 8 Secondary Health Care (SHC) facilities (1 public and 7 private). All the twenty PHC and SHC facilities were surveyed in July 2012.

Data collection tools

Data was collected using checklist and interviewer-administered questionnaire. The respondents were Head of facilities that provided the information on EmOC resource availability and service provision, drug supply, equipment and infrastructure. A health facility was adjudged as providing a specific EmOC signal function if that service was provided at least once in three months preceding the study. Clinic statistics were reviewed to confirm EmOC services provided to patients three months preceding the study. Additional observation was carried out to validate information provided on available equipment and resources, such as man power, electricity, delivery room, maternity ward, theatre, blood bank etcetera.

Data analysis

Statistical Package for Social Sciences Version 20 was used for data analysis. Results were presented using frequencies and proportions of available drugs, equipment, man power and infrastructure based on level of care. Bivariate analysis, using Fisher's exact



test was carried out to determine factors associated with EmOC services provision, with level of significance set at p value of less than 0.05.

Ethical consideration

Ethical clearance was obtained from the Ethical Review Board of Ahmadu Bello University Teaching Hospital Zaria and permission was also obtained from the management of Zaria Local Government Secretariat to utilize their facilities for the study.

Limitations of the study

This study was limited in scope as it did not assess the caesarean section rate and the direct obstetric case fatality rates in the facilities due to poor record keeping.

RESULTS

Availability of resources such as Human Resource for Health (HRH), infrastructure and equipment as well as drugs for efficient delivery of EmOC services was assessed. All the SHC facilities had all the essential antibiotics, antihypertensive, oxytocic and anticonvulsant drugs. They also could provide electricity, water and laboratory services. However, only five SHC facilities (62.5%) had a functioning theatre and two SHC facilities (25.0%) had a blood bank and an ambulance. All the PHC facilities had some of the antibiotics (penicillin and metronidazole), antihypertensive (methyldopa) and oxytocic (oxytocin) drugs. However, only five PHC facilities (41.7%) had MgSO₄ and nine facilities (75.0%) had valium. Most of the PHC lacked adequate infrastructure and none had an ambulance (Table 1).

Table 1 Availability of Drug and Infrastructure in the Health Facilities in Zaria LGA

Essential drugs and infrastructure	SHF (n=8) freq (%)	PHF (n=12) Freq (%)	Total (n=20) Fre1 (%)
IV antibiotics			
Ceftriazone	8 (100.0)	4 (33.3)	12 (60.0)
Penicilin	8 (100.0)	12 (100.0)	20 (100.0)
Metronidazole	8 (100.0)	12 (100.0)	20 (100.0)
IV Anticonvulsants			
MgSO ₄	8 (100.0)	5 (41.7)	13 (65.0)
Valium/Diazepam	8 (100.0)	9 (75.0)	17 (85.0)
IV Anticonvulsants			
Hydralazine	8 (100.0)	3 (25.0)	11 (55.0)
Methyldopa	8 (100.0)	12 (100.0)	20 (100.0)
IV Oxytocics			
Ergometrine	8 (100.0)	12 (100.0)	20 (100.0)
Oxytocin	8 (100.0)	12 (100.0)	20 (100.0)
Infrastructure			
Theatre	5 (62.5)	-	5 (25.0)
Blood bank	2 (25.0)	-	2 (10.0)
Electricity	8 (100.0)	10 (83.3)	18 (90.0)
Water supply	8 (100.0)	12 (100.0)	20 (100.0)
Ambulance	2 (25.0)	0 (0.0)	2 (10.0)
Laboratory	8 (100.0)	9 (75.0)	17 (18.5)

All the SHC facilities had all the essential drugs; however none of the PHC facilities had all the

essential drugs. Only two SHC facilities (25%) had all the basic equipment while no PHC facility had all the basic equipment (Table 2).



Table 2 Availability of Essential Drugs and Equipment in the Health Facilities

Description of items	PHF (n=12) Freq (%)	SHF (n=8) Freq (%)	Total(n=20) Freq (%)
Percentage of availability of drugs			
100%	0 (0.0)	8 (100.0)	8 (40.0)
75% - 99%	2 (16.7)	0 (0.0)	2 (10.0)
50% - 74%	8 (66.7)	0 (0.0)	8 (40.0)
25% - 49%	2 (16.7)	0 (0.0)	2 (10.0)
Percentage of availability of equipments			
100%	0 (0.0)	2 (25.0)	2 (10.0)
75% - 99%	1 (8.3)	5 (62.5)	6 (30.0)
50% - 74%	4 (33.3)	1 (12.5)	5 (25.0)
25% - 49%	7 (58.3)	0 (0.0)	7 (35.0)
1% - 24%	4 (33.3)	0 (0.0)	4 (20.0)

Seven SHC facilities (87.5%) had at least one nurse; five SHC facilities (62.5%) had at least a doctor and four midwives and two SHC facilities (25%) had at least a general practitioner and an anesthetist, however, none of them had an obstetrician. Only three PHC facilities (25.0%) had at least a midwife

and a Community Health Extension Worker (CHEW) and one facility (8.3%) had a nurse and a Community Health Officer (CHO). However, no PHC facility had up to four midwives (Table 3).

Table 3 Availability of Health Workers Needed to Cover 24 hours per day, 7 days/week

Description of EmOC Staff	PHF (n=12) Freq (%)	SHF (n=8) Freq (%)	Total(n=20) Freq (%)
Facilities with at least 1 doctor	0 (0.0)	5 (62.5)	5 (25.0)
Facilities with at least 1 obstetrician	0 (0.0)	0 (0.0)	0 (0.0)
Facilities with at least 1 general practitioner	0 (0.0)	2 (25.0)	2 (10.0)
Facilities with at least 1 midwife	3 (25.0)	5 (62.5)	8 (40.0)
Facilities with at least 4 midwives	0 (0.0)	5 (62.5)	5 (25.0)
Facilities with at least 1 nurse	1 (8.3)	7 (87.5)	8 (40.0)
Facilities with at least 1 anesthetist	0 (0.0)	2 (25.0)	2 (10.0)
Facilities with at least 1 CHEW	3 (25.0)	0 (0.0)	3 (15.0)
Facilities with at least 1 CHO	1 (8.3)	0 (0.0)	1 (5.0)

For a health facility to qualify as a BEmOC or CEmOC facility, it must perform the six or eight signal functions respectively at least once in three months. Most of the SHC facilities performed manual removal of placenta, removal of retained product of conception and blood transfusion (>75.0%) and

administration of anticonvulsant drugs (62.5%). Three SHC facilities (37.5%) performed all the signal functions for BEmOC while another two SHC facilities (25.0%) performed all the signal functions for CEmOC. However, none of the PHC facilities performed signal functions for BEmOC (Figure 1).

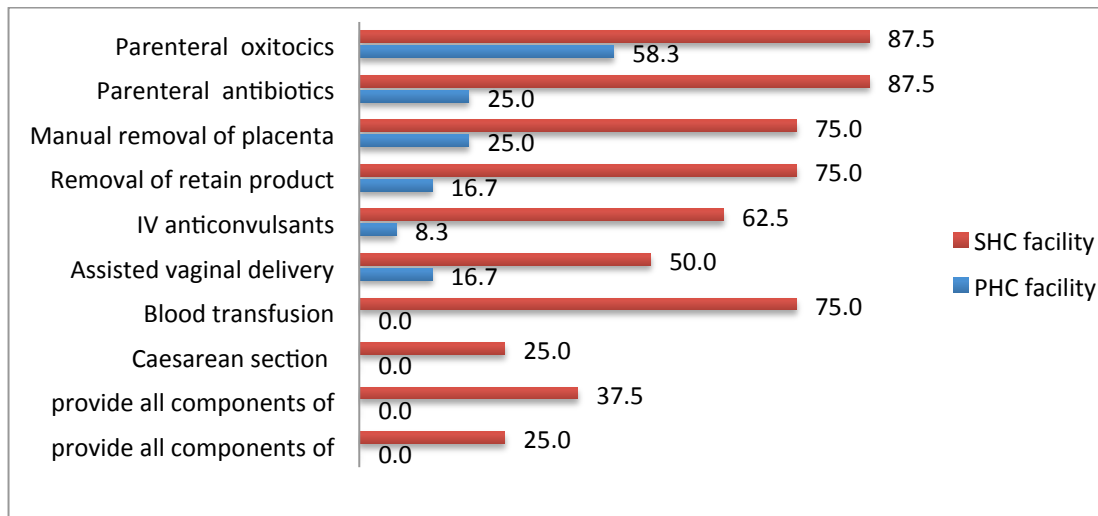


Figure 1 Performance of EmOC signal functions in twenty health facilities three months prior to survey

Availability of equipment was the only factor found to be significantly associated with EmOC service provision in the health facilities ($p < 0.032$). However, when the data was stratified based on level of care

(primary and secondary), the association was no longer significant ($p = 0.429$). Availability of drugs also showed no significant association with EmOC service provision ($p = 0.147$) (Table 4)

Table 4 Percentage of Signal Functions for EmOC by availability of basic equipment and drugs in the facilities

Availability of equipment/drugs in the facilities	Performance of signal functions of EmOC			
	Performed all EmOC signal functions	Did not perform all EmOC signal functions	Total	Fischer's exact value
Equipment				
Facilities with available equipment	2	2	4	0.032
Facilities without available equipment	0	16	16	
Total	2	18	20	
Drugs				
Facilities with available drugs	2	6	8	0.147
Facilities without available drugs	0	12	12	
Total	2	18	20	

DISCUSSION

Only two of the eight SHC facilities met criteria for CEmOC and another three for BEmOC. That is, five of the twenty facilities (25.0%) met criteria for EmOC of which only one (5.0%) is a public health facility. However, none of the PHC facilities met the criteria for BEmOC. This finding is slightly higher than that of a study conducted in Nigeria in 2002 in 12 randomly

selected States covering the six geopolitical zones by FMOH and UNFPA where only 18.5% of facilities met the EmOC criteria.⁷ It is also higher than the finding in a study conducted in Ife South LGA of Osun State, South-West Nigeria in 2007 among 26 PHC and SHC public, private and mission hospitals of which only 1.9% of the facilities met criteria for an EmOC facility.¹⁰ It is also comparable with a study conducted in 2008 in six PHC facilities and four SHC facilities in



three communities in Kaduna State Northern Nigeria of which none of the primary health facilities met criteria for BEmOC.¹¹

A study conducted in Malawi in 2008 on availability of EmOC also found inadequate number of EmOC facilities and PHC facilities were unable to perform EmOC signal functions for BEmOC.¹² A similar study examined the global pattern of availability of EmOC signal functions and concluded that CEmOC facilities are usually available to meet the recommended minimum, but BEmOC facilities are consistently not available in sufficient number both in countries with high and moderate maternal mortality.¹³

The presence of a Skilled Attendant at Birth (SAB) is a single most important approach to reducing maternal deaths. However, there is a serious shortage of these professionals in developing countries including Nigeria. In terms of material resources and skilled personnel for the efficient performance of EmOC signal functions in this study, all PHC facilities fell significantly short of national standards that require a minimum of four midwives per BEmOC to enable mandatory 24 hour service.¹⁴ Specialist Obstetricians were not available as permanent staff at the SHC facilities, this lack of skilled personnel to carry out EmOC services is not different from similar study conducted on EmOC facilities in Nigeria which revealed a critical shortage of HRH to operate 24-hours of skilled service. However, it contrasts with the same study which revealed that 15.7% of SHC facilities had at least one obstetrician per facility though the picture was said to vary from State to State.⁷

CONCLUSION

Health facilities in Zaria LGA lacked adequate resources to provide EmOC services and EmOC service provision was abysmally low especially at the PHC level. Health planners and policy makers should step up interventions for providing the necessary resources, especially equipment for EmOC service provision for acceleration of attainment of MDG 5.

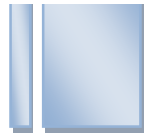
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