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TRENDS IN MATERNAL MORBIDITY AND MORTALITY AT CENTRAL HOSPITAL, BENIN-CITY, NIGERIA - A TWO YEAR REVIEW

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ABSTRACT

Aim: Maternal Mortality remains an issue of public health concern in Nigeria. Although available evidence shows that progress was made in reducing the Maternal Mortality Ratio in Nigeria, Nigeria is still among the top 13 highest Maternal Mortality contributor in the world. This study was designed to investigate the trends in maternal morbidity and mortality at the Central Hospital Benin-City, Nigeria. **Study Design:** The study was a retrospective cross-sectional study. **Place and Duration of Study:** The study was conducted in Central Hospital Benin-City from April to June 2015. **Methodology:** The study reviewed records by using women who registered and received antenatal care in Edo state Central Hospital, Benin City from 1st January 2013 to 31st December 2014. **Results:** The result shows that live birth deliveries in the year 2013 was higher than 2014. The number of maternal death recorded in 2013 was (12), however, only one maternal death was recorded in 2014. Furthermore, the Maternal Mortality Ratio was 322 per 100000 in the year 2013 and then reduced to 34 per 100000 in 2014. In addition, more pregnant women registered for antenatal care in the year 2013 (2599) than in 2014 (2002). Major causes of maternal death in the two year period under review were haemorrhage 46%, Infection 20%, Eclampsia 12% and Obstructed labour 8%. **Conclusion:** In conclusion the Maternal Mortality Ratio in the year 2013 was still high, though it reduced in the year 2014; more efforts should be made by the Federal, State and Local governments including non-governmental organizations and their partners in reducing maternal death in Nigeria and Africa at large.

KEYWORDS: Maternal Mortality, Maternal Morbidity, Antenatal care, Central hospital, Benin-City, Nigeria.

INTRODUCTION

Maternal mortality has been described as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.[1]

According to the World Health Organisation estimates, about 536,000 women die of pregnancy-related causes annually, and close to 10 million women suffer complications related to pregnancy or childbirth.[1],[2],[3] Similarly, the third goal of the newly launched Sustainable Development Goals is to ensure healthy lives and promote well-being for all, at all ages including women with a target of reducing the global maternal mortality ratio to less than 70 per 100,000 live births by the year 2030.[4]

Although available evidence shows that progress was made in reducing the Maternal Mortality Ratio (MMR) in Nigeria in a drive to achieve the then millennium development goal, Nigeria is still among the top 13 highest MMR contributor in the world. For instance, Nigeria saw a 27% decline in MMR between 2005 (820 per 100,000 live births) and 2010 (630 per 100,000 live births) mainly due to the implementation of free health care to pregnant women and under-five children.[4] Furthermore, despite this progress in reducing maternal mortality ratio in Nigeria about 36,000 women still die in pregnancy or at childbirth each year; with at least 5,500 of these deaths occurring among teenage mothers.[5] Most of this teenage death occurs more in the North-West and North-Eastern states of Jigawa, Katsina, Zamfara, Bauchi and Sokoto States. In addition, available data shows that Nigeria's maternal mortality ratio is highest in the North-East with an MMR of 1549 per 100,000 women as compared to 286 per 100,000 women in the South-East and 165 per 100,000 women in the South-West.[6] Although, a study conducted in the Niger-Delta area of South-South Nigeria over a ten year period showed a combined MMR of 2,232/100,000 live births.[8] The MMR indicated above shows Nigeria as a country is still experiencing challenges in critical aspects of her healthcare delivery system which continue to fail women and children.

According to a United Nations Children's Fund (UNICEF) report, some of the major causes of high Maternal Mortality in Nigeria include haemorrage, obstructed labour, puerperal infection, malaria and complicated abortions.[4],[7] Others explained that the high maternal mortality is caused by a combination of individual level factors such as attending antenatal clinics but choosing to deliver at home, at a church or by a traditional birth attendant, or show up at the hospital as emergency cases with varied degrees of complications.[8],[9] Therefore, this study was designed to assess the trend of maternal morbidity and mortality at Central Hospital, Benin-City, Nigeria which is a referral centre for pregnancy related complications from inhabitants of the city and its environs.

METHODOLOGY

Study Design

The research designed that was employed for this study is a retrospective cross-sectional study which reviewed maternal morbidity and mortality rate in Central Hospital (Benin-City) between 1st January 2013 to December 2014. This study is limited to the trend of maternal morbidity and mortality in Central Hospital (Benin City).

Study Area

The area of study is Edo State Central Hospital, Benin City. It is a government hospital located in and serene centre of Benin, on Sapele Road, few kilometers from the City centre.

Study Population

The study population for this study involved women who had their deliveries in Edo State Central Hospital in Benin-City from 1st January 2013 to 31st December 2014. The sample size was determined using women who registered and received antenatal care in Edo State Central Hospital, Benin City from 1st January 2013 to 31st December 2014. The total number of pregnant women that registered for the Antenatal care is 4601.

Instrument for data collection

The instrument used was a checklist containing the various sections

- No of live birth deliveries
- No of still birth deliveries
- No of maternal death
- No of Neonatal death
- No of premature birth
- No of caesarian section
- No of multiple deliveries
- No of patient admitted
- No of patient with gynecological and complicated issues
- No of Antenatal care registration.

Method of data collection: The method of data collection for the study was based on data retrieved from yearly summary report on live birth deliveries, antenatal care registration, still birth, maternal morbidity and mortality records of Edo State Central Hospital, Benin City. Moreover certain record of some women who died within the period has been added to the data base of Edo State Central Hospital because of some complicated cases and those suspected to be at high risk at primary health care facilities that are referred to the Edo State Central Hospital, Benin City. Data was collected from record department of Edo State Central Hospital Benin City, after receiving permission and approval from the Chief Medical director and the Head of Department.

Data Analysis: The Analysis was done manually.

Determination of Maternal Morbidity and Mortality Rate (MMMR): Measurement of maternal mortality was determined by using the number of maternal death as the numerator and the number of live birth as the denominator which is the recommended standard where measurement of obstetric risk as well as service delivery is required. The multiplier per 100,000 was chosen instead of per 1,000 to enable comparison with other previous local and international studies.

RESULTS

Comparison of the data presentation for 2013 and 2014: According to table 1 and 2 below the number of live birth deliveries in 2013 is higher (3721) than the number in 2014 (2950). Also more pregnant women (2599) registered for ANC in 2013, than in 2014 (2002). Furthermore (1691) patient were admitted and treated in 2013 but reduce to 848 in 2014. The number of still birth deliveries in 2013 was on high side (318), but reduced dramatically to 107 in 2014. Meanwhile the number of maternal death recorded in 2013 was (12), however, only one maternal death was recorded in 2014. Similarly, cases of neonatal death were more in 2013 (28) and reduce to 19 in 2014. Furthermore, the number of premature birth in 2013 was (28), but increased to 52 in 2014. In the same vein more pregnant women (600) underwent caesarian section in 2013 as compared to (440) women in 2014. Finally, gynecological cases and complicated issues were more in 2013 (799) as compared to 571 in 2014.

PRESENTATION OF RESULT 2013

Table 1 Determination of Maternal Morbidity and Mortality

Variables	Jan.	Feb	March	April	May	June	July	Aug	Sept	Oct.	Nov	Dec	Total
No. of live births Delivery	328	351	390	213	419	337	411	132	346	356	279	159	3721
No. of Still Birth Delivery	33	17	20	60	16	48	13	12	16	48	23	12	318
No. of Maternal Deaths	3	1	0	0	2	1	1	2	1	0	1	0	12

No. of Neonatal death	2	0	6	0	7	1	2	2	4	1	3	0	28
No. of Premature Birth	2	8	0	0	0	1	0	0	3	6	7	1	28
No. of caesarian section	23	44	33	61	58	20	70	62	71	48	89	21	600
No. of twins Delivery	2	8	12	6	2	2	6	10	2	0	26	0	76
No. of triplet Delivery	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of patient admitted	143	142	171	137	190	156	124	152	138	186	115	39	1691
Gynecological and complicated issue	46	61	89	66	68	77	68	69	73	81	79	22	799
No. of Antenatal care registration	260	210	270	150	280	250	230	210	184	185	190	180	2599

PRESENTATION OF RESULT 2014

Table 2 Determination of Maternal Morbidity and Mortality

Variables	Jan.	Feb.	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
No. of live births Delivery	254	307	332	360	329	331	47	93	214	181	236	266	2950
No. of Still Birth Delivery	9	12	9	9	11	O	O	2	6	9	18	22	107
No. of Maternal Deaths	0	1	0	0	0	0	0	0	0	0	0	0	1
No. of Neonatal death	8	2	3	1	1	0	0	0	1	0	1	2	19
No. of Premature Birth	8	2	4	1	2	2	0	0	4	14	7	7	52
No. of caesarian section	38	51	55	45	49	50	0	3	26	0	52	71	440
No. of twins Delivery	8	6	12	14	6	2	4	4	8	10	8	6	88
No. of triplet Delivery	0	3	0	0	0	0	0	0	0	0	0	0	3
No. of patient admitted	91	80	93	126	198	58	10	44	62	41	70	75	848
Gynecological and complicated issue	51	63	65	52	67	45	0	1	55	45	63	64	571
No. of Antenatal care registration	150	180	200	190	250	130	200	140	150	130	140	142	2002

Figure 1 show the maternal mortality ratio recorded in the year 2013 and 2014. The maternal mortality ratio in the year 2013 was 322 per 100000 and approximately 34 per 100000.

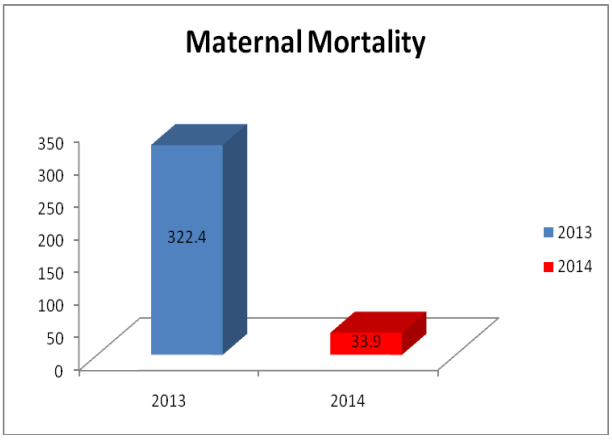

Figure 1: Showing the maternal mortality ratio per 100000 in the year 2013 and 2014

Causes of maternal death over the two year period

The causes of maternal death as recorded are as follows Hemorrhage 46%, Infection 20%, Eclampsia 12% and Ruptured uterus 6%.

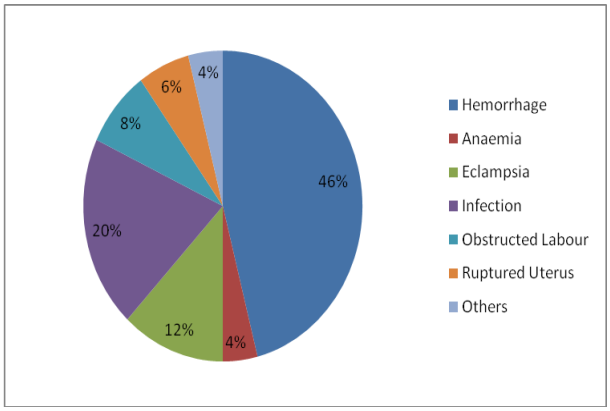

Figure 2: Showing the causes of maternal death in the two year period under review

DISCUSSION

The Millennium Development Goal five has the target of reducing maternal mortality ratio by 75 percent in the world especially in developing countries by the year 2015.[2] Although, progress was made in Nigeria in achieving that goal as Nigeria saw a 27% decline in MMR between 2005 (820 per 100,000 live births) and 2010 (630 per 100,000 live births), a lot still need to be done to bring down the maternal mortality ratio in Nigeria. Consequently, as a follow-up in achieving reduced maternal mortality rates in the world the Sustainable Development Goals were launched by the year 2016 to reduce maternal mortality to 40 or fewer deaths per 100,000 live births. Thus, most State Governments in Nigeria including the Edo State

government have introduced the free health care for pregnant women and under-five children, where a pregnant woman accesses free treatment from antenatal to post natal care including during delivery.

The study showed according to records that maternal mortality was higher in the year 2013 as compared to the year 2014 showing more than 80% decrease in maternal mortality. This finding is similar to a previous study in Nigeria which also saw the increase and decrease in maternal mortality for five years.[10] Similarly, the study findings also align with a previous study in the Niger-Delta area with high maternal mortality ratio over a ten year period.[8] The difference in mortality rate in the study can be attributed to fewer deliveries in the hospital in the year 2014 as there was an industrial strike action by medical personnel who grounded all activities at the hospital, thus patients had to be referred to other facilities for delivery. The scale of the strike action was also seen in the number of women that registered for antenatal care in the year 2014 as compared to the year 2013. Going by the trend the number of women who registered for antenatal care and number of deliveries in the year 2014 is supposed to be higher due to the free health care for pregnant women and under-five children been provided by the State Government; as the policy was put in place to ensure that all pregnant women especially the indigent all have access to adequate care and safe delivery. Specifically in terms of maternal mortality ratio, this finding is different from studies conducted in northern Nigeria which recorded higher maternal mortality ratio.[10],[11],[12] However, this finding is higher when compared to developed countries.[13],[14] Furthermore, other parameters followed the same trend as the number of still birth decreased from 318 in 2013 to 107 in the year 2014, number of neonatal death decreased from 28 in 2013 to 19 in 2014 and number of caesarian section carried out decrease from 600 in 2013 to 440 in 2014. The decrease in the year 2014 of all these parameters can also be attributed to access to improved emergency obstetric care provided by skilled workers who are usually present in both tertiary and secondary facilities nationwide. This is in line with WHO report which states that availability of trained personnel and skilled workers in health facilities will cause the reduction in maternal morbidity and mortality rate.[15]
The study also showed that the women suffered gynecological and complicated issues in the two years under review. This shows that pregnant women in Nigeria still suffer from complications during child birth and this usually results in high maternal mortality rate as was shown by the study especially in the year 2013. This finding is similar to the report by the World Health Organisation.[7] Furthermore, the three major causes of death as highlighted by the study include haemorrhage, infection and eclampsia. This finding is also similar to the report by the World Health Organisation.[7] However, this finding is a little different from a previous study in Maiduguri North-Eastern Nigeria and another study in the Niger-Delta area which highlighted the major causes of maternal mortality to be eclampsia, sepsis and prolonged obstructed labour/ruptured uterus and puerperal sepsis, abortion complications, pre-eclampsia/eclampsia respectively.[10],[8] One of the reasons highlighted for high maternal mortality rate and complications in Nigeria during pregnancy and delivery is that women who never attended ante natal clinics show up at the hospital as emergency cases with varied degrees of complications.[9]

CONCLUSION

In conclusion, the study showed that maternal mortality is high and pregnant women still suffer from gynaecological and pregnancy complications. Therefore more result yielding measures should be put in place by the Federal, State and Local governments including International partners and hospital administrators to reduce maternal mortality ratio in order to achieve the Sustainable Development Goals of reducing maternal mortality by the year 2030. The study also recommends that apart from assessing the trends in maternal mortality by researchers, other aspects that will improve maternal health such establishment of maternal death review committees in various health facilities around the country can also be implemented.

ETHICAL CONSIDERATION

Ethical approval for the study was obtained from the department of public and community health, Novena University ethical committee. Ethical approval was also sought from the Chief Medical Director, Edo State Central hospital, Benin City with a written permission.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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