

Trend in Maternal Mortality in the University of Benin Teaching Hospital: Re-Emergence of the Traditional Causes

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INTRODUCTION

Maternal mortality (MM) remains a global challenge especially in the developing countries. It is one of the primary indicators of the quality of health care globally, often expressed as maternal mortality ratio (MMR). Every day, over 800 pregnancy-related deaths are recorded, with 99% occurring in the developing countries. And Nigeria is believed to contribute close to 10% of global MM (WHO 2016). In 2015, MMR in Nigeria was 576/100,000 live births compared to a global figure of 214/100,000 live births (National Population Commission, 2013; WHO, 2015). The major causes of MM globally have been obstetric hemorrhage, puerperal sepsis, unsafe abortion and its complications, hypertensive diseases of pregnancy, and complications of obstructed labour (WHO, 2015). In the early part of 2000s, newer contributors to MM such as advanced retroviral disease emerged. MM due to viral haemorrhagic disease has been noted in certain endemic areas (Omo-Aghoja 2010; Okogbenin 2019).

This study was conducted to identify current and emerging causes of MM and to examine the recent trend in the aetiology of MM in our hospital.

MATERIALS AND METHODS

The case records of patients who suffered MM in the University of Benin Teaching Hospital, Benin City, Nigeria from 1st January, 2011 to 31st December, 2018 were retrospectively studied. Data on

sociodemographic characteristics, clinical diagnosis, and primary cause of maternal death were extracted and analyzed.

RESULTS

There was a total of 22,257 deliveries over the 8-year period. The booked patients were 15,774(71%) while other women were referred. Live births occurred in 21,083 (95%) women. Maternal mortality occurred in 235 women during the study period, giving a MMR of 1.1% (1,114/100,000 live births). MMR among booked women of 161/100,000 live births was 6 times lower than MMR for referred women of 953/100,000 live births. Almost half (48%) of the MM occurred within 24 hours of admission to hospital, and 74.5% were postpartum. A teenager had 3-fold risk of mortality, age older than 35 years increased risk of dying 2-fold, and grand-multiparity conferred a 3-fold risk of mortality. Those in the lower socioeconomic class were 7 times more likely to suffer mortality (Table1). Across the 8-year period, MMR range was 0.61% to 1.72%. A progressive decline in MMR was observed in the initial 5 years, with 58% reduction between 2012 (1.48%) and 2015 (0.61%). A further rise in MMR occurred in the last 3 years, climbing 53% from 2016 (0.81%) to 2018 (1.72%) (Table 2).. In the first year of this series, HIV-related deaths were the 5th major cause of MM, and this position was regained in the last 2 years contributing 4% and 5.4% to MM respectively (Table 2)

Table 1: Sociodemographic distribution of delivered mothers

Characteristic	Number of deliveries	Number (%) mortality	Specific fatality (%)
Age (years)			
19	106	3 (1.3)	2.8
20-24	1483	26 (11.0)	1.8
25-29	6452	51 (21.7)	0.8
30-34	10907	74 (31.5)	0.7
35	3309	81 (34.5)	2.4
Parity			
0	5342	35 (14.9)	0.7
1-4	15802	164 (69.8)	1.0
5	1113	36 (15.3)	3.2
Social class			
Upper	10683	19 (8.1)	0.2
Middle	9348	68 (28.9)	0.7
Low	2226	148 (63)	6.6
Booking status			
Booked	15774	34 (14.5)	0.2
Referred	6483	201 (85.5)	3.1

Table 2: Summary of annual maternal deaths based on aetiology

Cause of maternal death	Number of Maternal Deaths per Year							
	2011	2012	2013	2014	2015	2016	2017	2018
Obstetric haemorrhage	9	15	13	7	7	4	5	10
Hypertensive disorders	6	18	12	6	2	6	8	8
Puerperal sepsis	10	13	7	4	4	2	7	7
Septic abortion	0	0	2	2	0	0	1	2
Obstructed labour	0	2	2	2	0	0	0	0
Anaesthesia	1	0	0	0	0	0	1	0
HIV	3	1	0	0	0	0	1	2
Pulmonary embolism	0	1	0	0	0	0	1	0
Cardiac disease	1	0	1	0	1	0	0	0
Diabetic ketoacidosis	0	0	0	0	0	0	0	2
Others*	0	1	2	0	1	2	3	6
Total	30	51	39	22	15	14	27	37
MMR	1021	1478	1186	685	614	814	1257	1724

*others include Guillain-Barre Syndrome, viral haemorrhagic fever, ectopic pregnancy, pulmonary tuberculosis, tetanus infection, and subdural haematoma

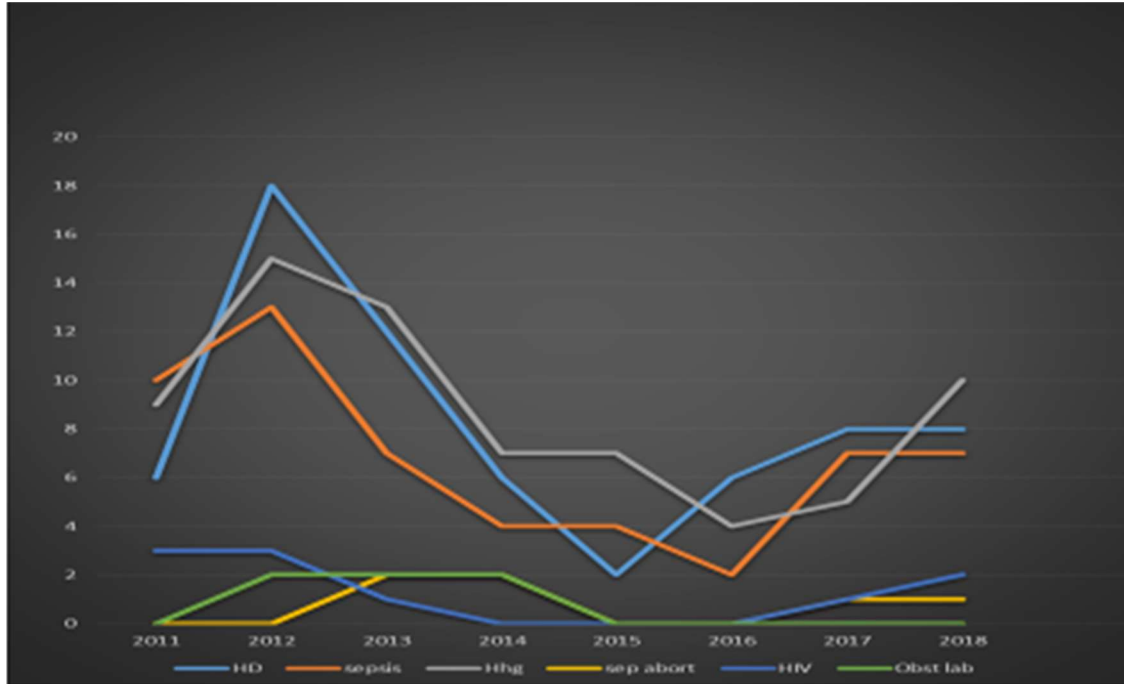


Figure 1: Graphical representation of major causes of maternal mortality

DISCUSSION

The leading causes of MM across the 8 years were obstetric haemorrhage, hypertensive disorders, puerperal sepsis and post-abortal sepsis. Within the last 4 years (2015-2018), however, MM from obstructed labour was not recorded. This is probably due to prompt diagnosis, early referral and availability of Caesarean section, coupled with increasing awareness and acceptance of Caesarean section. From 2000 to 2017, global MMR declined by 38 per cent – from 342 deaths to 211 deaths per 100,000 live births, according to UN inter-agency estimates.(WHO 2015) Even so, an increase was noticed in the last 3 years of the present study. The same pattern of rising mortality has been noted in other parts of Nigeria (Mustapha 2017). Risk increases with parity as grand multiparous fatality rate was 3.2% (RR- 3). This is due to co morbidities associated with increasing age. The lower socioeconomic class were 7 times more at risk of dying, as a result of poor health seeking behaviour and poverty. This is in keeping with the findings of a study done in western Nigeria.(Olonade, 2019). HIV resurgence may be possibly due to drug resistance and complacent attitude towards HIV.

CONCLUSION

This study highlights the continued role of the traditional causes of MM in our hospital and the

emergence of rare causes like tetanus and viral haemorrhagic fever, which deserves attention. Of particular interest is that deaths due to complications of obstructed labour have become rare in the last four years in our hospital. Septic abortion continued to make the list of the 5 major causes of MM in UBTH. Awareness of a possible re-emergence of HIV-related MM is instructive. The recent recommendation that antiretroviral drugs once initiated, be taken for life. Will probably help curtail the observed role of HIV in maternal death, in our environment. (Federal Ministry of Health, 2016). The burden of MM appears to be on the rise after an observed decline in our hospital. It is likely that, this pattern reflects the reality around the developing world.. Interventions to tackle MM, must continue to look closely at these identified contributors and explore the reasons for the recent increasing incidence of MM.

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Conflict of interest

The authors declare that they have no conflicts of interest.

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