REVIEW ARTICLE

Pragmatic approach to halt preventable maternal and neonatal deaths in Nigeria

***Komolafe A.O., Irinoye O.O.**

Abstract

Objectives: The objective of the paper is to promote a pragmatic approach to stem high maternal and neonatal mortality in Nigeria as it is becoming increasingly evident that ending preventable maternal and neonatal deaths goes beyond counting the numbers.

Methods: A literature search was performed of Pub Med, HINARI, Google scholar using keywords in the review to build a set of search terms. Reference lists of all the included studies were scanned to identify additional relevant studies.

Results: Facility-based death review, review of near-miss and clinical audit are quality improvement methods and on their own are health care interventions.

Conclusion: Though findings from reviews and audit provide actionable information, the commitment of health care providers to act on the information is key to achieving the purpose of reviews and audits. There is need to invest in health system researches that focus on quality improvements in maternal and neonatal care in Nigeria.

Keywords: audit, review, quality, improvement

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ARTICLE DE RÉVISION

Approche pragmatique pour mettre fin aux décès évitables chez les mères et les nouveau-nés au Nigéria

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Resume

Objectifs: L'objectif de ce document est de promouvoir une approche pragmatique pour enrayer la forte mortalité maternelle et néonatale au Nigéria, car il devient de plus en plus évident que mettre fin aux décès évitables de mères et de nouveau-nés va au-delà des chiffres.

Méthodes: Une recherche bibliographique de Pub Med, HINARI, Google scholar a été effectuée à l'aide de mots-clés dans la revue pour constituer un ensemble de termes de recherche. Les listes de référence de toutes les études incluses ont été numérisées pour identifier d'autres études pertinentes.

Résultats: L'examen en établissement, l'examen des quasi-incidents et l'audit clinique sont des méthodes d'amélioration de la qualité et constituent à eux seuls des interventions de soins de santé.

Conclusion: Bien que les conclusions des examens et des audits fournissent des informations exploitables, l'engagement des fournisseurs de soins de santé à agir en conséquence est essentiel pour atteindre l'objectif des examens et des audits. Il est nécessaire d'investir dans les recherches sur le système de santé axées sur l'amélioration de la qualité des soins maternels et néonatals au Nigéria.

Mots-clés: audit, revue, qualité, amélioration

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INTRODUCTION

Every day, there are 109 maternal deaths with one woman dying every 13 minutes and the risk of a woman dying from pregnancy and child-related causes is 1 in 13 (1). Nigeria has a maternal mortality ratio of 814 maternal deaths/100,000 live births, infant mortality rate of 69/ 1000 (2) and neonatal mortality rate of 34/1000 live births (3). These statistics rank Nigeria as the seventh most populous country in the world, the most populous country in the regions of West Africa (2) and the largest contributor to the world's maternal deaths in 2015 with 58,000 maternal deaths (19%) (3). As high as maternal mortality in Nigeria, it is just the tip of an iceberg of the burden of poor maternal health status in Nigeria. The maternal morbidity is higher, and for every maternal death, it has been documented that there are about twenty to fifty women who will experience severe complications and life-threatening morbidities (1,4).

Globally, maternal and neonatal mortality seems to be decreasing over the past five years, but maternal and neonatal mortality is still unacceptably high in Nigeria. Global neonatal mortality seems to be decreasing, but at a slower rate than post-neonatal under-5 mortality with a 47% decrease in neonatal mortality as compared with 58% decrease in post-neonatal mortality (5). In Nigeria, there was a decline in infant mortality rate (81.5/1000 to 69.4/1000 live births), and neonatal mortality rate (39/1,000 to 34/1,000 live births) in the past five years (3) although neonatal mortality seems to be decreasing at a slower rate than post-neonatal mortality (6). This is because the neonatal period is the most vulnerable period with one-third of child deaths occurring within the first week of life and half of these in the first day of life (5,7). There was also a slight decline of about 6% in maternal mortality ratio over five years from 867 maternal deaths/100,000 in 2010 to 814 maternal deaths/100,000 in 2015 (3). The leading causes of maternal mortality are haemorrhage (23%), puerperal sepsis (17%) (1). Others include eclampsia, obstructed labour, anaemia, malaria, each accounts for 11% of the maternal mortality. The causes of neonatal deaths are closely linked with the leading causes of maternal mortality. This is because the health of the mother and that of her baby are closely linked and inseparable. Most of these deaths and morbidities occur around birth and are preventable if quality care is provided through timely, effective and affordable interventions (8-11).

The information that the global and national communities need to tackle the challenge of high maternal and neonatal mortality and morbidity in Nigeria is beyond counting the numbers. To bring maternal and neonatal morbidity and mortality to a halt require the right data to inform evidence-based decisions on which to base interventions and programmes. Every maternal and neonatal death has a 'story to tell' which can provide information on solutions to tackle the problem. Understanding the circumstances, reasons, and solutions to maternal and neonatal morbidity and mortality are needful to stem the plague in Nigeria.

Why do Women Die? The Three Delays Model

Most pregnancy and childbirth-related complications and deaths though unpredictable could be prevented with facility delivery where emergency obstetric and neonatal care is provided by skilled personnel (12,13). The three delays model explains the delays involved in women and newborns having access to emergency obstetric and neonatal care (fig.1). The first delay is at the individual level, and it involves a delay in recognition of the problem, and the decision to seek care. The second delay is at the community level and it is the delay in access to the appropriate facility while the third delay is at the facility level, and it involves delays in the provision of quality care when the woman finally reaches the facility (12,14). While attention has been given to the first two delays, the 'third delay', the quality of care which has been identified as one of the key strategies has been neglected (14,15). Many authors have expressed concern and the documented gap in the quality of maternal and newborn care especially in the perinatal period at the health facilities (15-20).

Facility-based Care: The Focus in Ending Preventable Maternal and Neonatal Deaths

Quality of care has been a neglected strategy in the struggle for improvement in maternal and newborn health and ending mortality. Van Den Broek & Graham concluded that the quality of care is a “neglected agenda” (15) in an effort to improve maternal and neonatal health and end preventable deaths. After almost a decade, Akachi & Kruk affirmed that the quality of care is a “neglected river of improved health” (21) The current status of studies on the measurement and improvement of the quality of maternal and newborn care also attest to the fact that quality of care has been neglected over time. Initially, both quality of care and access, coverage

and utilization of services have received little attention until the MDGs were signed in 2000, and there was an explosion in research on coverage, access, and utilization of health services in low-income countries which were not witnessed in researches on the quality of care (21). This is depicted in fig. 2. While access, coverage, and utilization are important, they are not enough to end the deaths, and they must, therefore, be accompanied by improved quality of maternal and newborn care in pregnancy, childbirth and post-partum.

The quality of care a woman receives during pregnancy and childbirth determines the outcome of the pregnancy. A woman needs to have access to quality care especially during the perinatal period as most maternal and neonatal deaths occur around birth, especially within 24hours of birth and in the first week after childbirth (9-11). Previously, attention has been on the non-utilization of healthcare facilities by women for care during pregnancy and childbirth. The persistent high maternal and neonatal morbidity and mortality despite the recent increase in facility delivery in many developing nations and some zones in Nigeria demand that attention be shifted to the gap that exists in the quality of care.

The Quality of Maternal and Newborn Care in Health Care Facilities

Improvement in the quality of care received by both mothers and neonates especially around birth (perinatal care) is key to ending preventable maternal and neonatal mortality (17,18,22,23). Although facility delivery reduces mortality (24), previous studies affirmed that the poor quality of care in the health facilities is the major cause of high maternal and neonatal morbidity and mortality (8,17,25,26). The poor quality of care at the health facilities contribute directly and indirectly to high maternal and neonatal mortality in Nigeria (8,27). For instance, poor quality care hinders women from accessing facility care and deprives them of access to effective care to tackle obstetric emergencies resulting in maternal and neonatal mortality. According to Bohren et al, the perception of the health facility as medicalised or care as of poor quality hinders many women from patronising the health facilities (17). As such, the quality of perinatal care at the healthcare facilities is key to reduction in maternal and neonatal mortality

Nigeria has witnessed a disproportionate increase in facility delivery in many regions of the country (28). The increase in the rate of women that delivers at the facility should have been progress towards the reduction of maternal and neonatal mortality, but it only moved the deaths to health facilities (29). Tura, Fantahun &Worku in a systematic review of studies from Africa and Asia report that facility delivery reduces neonatal mortality by 29% (30). While facility delivery is capable of reducing perinatal mortality, the poor quality of care in the facilities is a major barrier to achieving a reduction in mortality (17,24-26,31). The poor quality of care at the health facilities contribute directly and indirectly to high maternal and neonatal mortality in Nigeria (8,27). Poor quality care hinders women from accessing facility care and deprives them of access to effective care to tackle obstetric emergencies resulting in maternal and neonatal mortality. The perception of health facility as medicalised (17) or care as of poor quality (23,32) hinders many women from utilising health facilities for maternity care. As such, the quality of perinatal care at the healthcare facilities is key to ending maternal and neonatal mortality.

Although there is a dearth of studies examining the quality of care in Nigeria, the few available ones document that the quality of care in the healthcare facilities is either poor or substandard (33-35). In a study carried out by Kabo et al., in the northern part of Nigeria, it was reported that maternal and neonatal care is sub-standard (34). The consensus among the studies is that facility-based care does not reduce maternal and neonatal mortality and if marked improvement in the reduction of maternal and neonatal mortality will be achieved, efforts must be directed to an improvement in the quality of care in the health facilities (36).

Towards Quality Improvement in the Health Facilities: Telling 'the Story'

Telling 'the story' is a quality improvement initiative, and it involves using data to provide information on 'why' and 'how' women die during pregnancy and childbirth. The use of data to provide information on events that surround morbidities and mortalities is the first step towards improving maternal and neonatal health and ending preventable mortality in the health facilities. Telling 'the story' involves reviewing a wide range of aspects of care such as the structure, process, and outcome of care and using routinely collected perinatal data as the source of information and basis for actions to improve the quality of care at in the perinatal period. The perinatal data are analysed and interpreted to provide information that could

guide actions towards the improvement of pregnancy outcome and enable health professionals to critically assess the care they provided with an intention to improve their practice.

Methods of Quality Improvements at the Health Facilities

There are different approaches or methods of 'telling the story' and using data to improve the quality of care in the healthcare facilities. These methods are also regarded as quality improvement methods, and they include facility-based death review, case reviews of near-miss and clinical audit (37). The goal of all the approaches is to reduce maternal and newborn mortality and morbidity. A major factor in deciding which of these approaches to use depends largely on the context of care and purpose of the quality improvement initiative.

Facility-based Death Review

Facility-based maternal and neonatal death review is operationally defined as an in-depth enquiry into causes and situations around the occurrence of maternal and newborn deaths at the facilities. The success of the review is dependent on the willingness of the health providers to accurately report on the management of the case (38). The deaths reviews are usually not expensive, and the merit lies in its ability to depict a better picture of the avoidable factors that contribute to a death in the facility. Also, the review process is a learning experience for health providers. However, facility-based deaths reviews are not as systematic as some other methods specifically, the clinical audit and the information generated may be quite difficult to comprehend and synthesise. Also, the review needs individuals who are skilful and committed to driving the process and implementing the recommendations.

Case Review of Near-miss

Near miss is increasingly recognised internationally as a surrogate of mortality and a more acceptable indicator of the quality of facility-based maternal and neonatal care. This is because facility maternal deaths are rare and despite high maternal and neonatal mortality in some regions of the world, the facility mortality in these regions is relatively low (39). Also, it has been documented that for every maternal death, about twenty more women are suffering from life-threatening complications as a result of pregnancy and childbirth (1,4). Maternal near-miss has been defined as a critically ill pregnant or recently delivered woman who survived a complication and narrowly escaped death during pregnancy, childbirth or within 42days of termination of pregnancy (40,41). Although there is no standard definition of neonatal near miss, a neonatal near miss could be a useful indicator to assess and improve quality in the context of neonatal care. Broadly speaking, neonatal near miss referred to neonates aged 0-28 days who nearly died as a result of the severe complication from events during pregnancy, birth or within twenty-eight days of birth (42).

The maternal near-miss has been classified into categories. The maternal near-miss tool by the World Health Organisation is grouped into three categories which are: severe maternal complications; critical interventions or intensive care unit use; and life-threatening conditions (near-miss criteria) (43,44). However, studies validating the WHO maternal near-miss have affirmed that the criteria for identification of the maternal near-miss should be contextually applicable for effectiveness in low and middle-income countries although this may jeopardise the global comparison (45,46).

The concept of near-miss has been proposed and reported as a useful tool in assessment and improvement in maternal and neonatal care (42,47,48) and this is so for a number of reasons. The cases of near-miss resemble those of mortality (41), and the audit of near-miss provides a unique dimension of the survivors' perspective (46,49). thereby contributing to quality assessment and improvement in maternal and neonatal care. Also, the audit of care of survivors seems less threatening to health providers and may reveal the true picture of the quality of care. In addition, near-miss helps to identify women at risk and preventable life-threatening events that resulted in deaths so that effective interventions could be initiated through audit recommendations (50). However, defining life-threatening morbidities and near-miss is not easy and may require reviewing a large volume of records, thus requires the involvement of all the care providers in the review process. Also, the ethical aspect needs to be considered as the women and neonates are alive, and there is a need to seek their consent and accent.

Clinical Audit

The word "audit" refers to a range of methods used to monitor, investigate and report on the structure and process of care as well as the

health outcomes. Clinical audit in a more specific term is a process of improving the quality of client care and ensuring positive outcomes by reviewing the care rendered against set standard or criteria to implement changes where necessary at the level health care providers or system with monitoring structures in place to confirm improvements in health care delivery (51). Clinical audit is also referred to as a criteria-based audit by some authors (38,51). It is implicit that clinical audit is a process that assesses and seeks to improve the quality of care on the basis of the audit findings. A unique feature of clinical audit is that the same process that assesses the quality of care and reveals that the set criteria were not met, also identifies the needed changes to improve the practice and quality of care. This feature made emphasis in the clinical audit to be more on improvement than the assessment of quality. Also, five key principles were identified as critical to the effectiveness of clinical audit in maternal and neonatal care (38). These are a selection of topic; explicit criteria which are essential, realistic and evidence-based; specific target; time scale, and representativeness of findings.

The improvement in quality itself can be measured against the set criteria (re-audit), and this involves five cyclical phases in a closed loop. These phases are the identification of cases, data collection, analysis of findings, recommendation and action, evaluation and refinement (38).

There are quite a number of merit in criteria-based audit for quality improvement in maternal and neonatal care. For instance, the participatory element that involves the local staff in setting the target and to use feedback from audit to reflect on their current practice provides an effective mechanism for quality improvement in care (38). The criteria-based audit can be initiated locally, and it involves the gathering of information that usually results in the production of locally relevant and immediately actionable information. However, criteria-based audit requires that contextual and locally appropriate and applicable set of criteria be available and developed. Health care providers must be committed to the process and willing to re-audit the care in order to close up the audit loop.

Feasibility of Clinical Audit in Low and Middle-Income Countries

Clinical audit is feasible in low and middle-income countries despite the resource limitation in these countries. Some studies on the criteria-based audit carried out in the developing countries allude to this fact. For instance, Purkle, Dumont & Zunzunegui in a systematic review affirmed the feasibility of criteria-based audit in the low and middle-income countries.(52) The study by Kabo et al. evaluated the standards-based management and recognition (SBM-R) approach used in maternal and neonatal care in Nigeria (34), Mgaya, Litorp, Kidanto, Nystrom & Essen conducted a study on criteria- based audit to improve quality of care of fetal distress in Tanzania (53), while Browne, Nievelt, Srofenyoh, Grobbee & Klipten-Grobusch carried out a study on criteria-based audit to improve the quality of care provided to women with preeclampsia and eclampsia in Ghana. In the same vein, Hamersveld, Bakker, Nyamtema & Akker identified barriers to criteria-based audit; a study also conducted in Tanzania (55).

The Importance of Telling 'the Stories' with Reviews and Clinical Audit

Learning a lesson is a prerequisite for action. There are so many lessons to learn from using the routinely collected perinatal data to tell stories in maternal and neonatal care. The information gathered from the data collected is used to improve the maternal and neonatal health outcome and to help healthcare providers assess their current practice. The quality improvement method: the facility death review, the near-miss review and the clinical audit (criteria-based audit) are 'telling the stories' of events that surround the death or severe morbidity of a woman or her baby in the perinatal period. They provide data and actionable information on individual and aggregate of cases to show trends and factors that will inform remedial actions to halt the preventable life-threatening complications and deaths.

Reviews and audit such as the ones described in this paper are methods of quality improvement and on their own are health care intervention Wekesah et al. referred to them as "non-drug intervention" (56). Literature abounds on the effectiveness of these methods in improving the quality of maternal and neonatal care (57-59). This is because the involvement of health care providers in the review and audit made them to be motivated to change their practice, they become advocates for change, thereby helping in the spread of evidence-based practice.

Also, severe disability or death of a woman is a tragedy for the family and community as a whole. The severe disability and death of a woman have a meaningful, lasting and personal

effect on the health care providers who participate in the reviews and audits. The reviews and audits tell a unique story about every woman's or neonates death or disability and highlight the actions that could have prevented the death. Most healthcare providers may change their clinical practice when they evaluate the care rendered to some cases of maternal deaths, whose faces they can still see and whose grieving families they can still remember.

However, confidentiality and anonymity are required in 'telling the story' with reviews and audits. This is to allow for openness in the process which provides a more detailed story of the sequence of events leading to severe morbidity or mortality. The health care providers and the participants are assured of the purpose of the review and audits in identifying health care system failure and not for litigation or blame.

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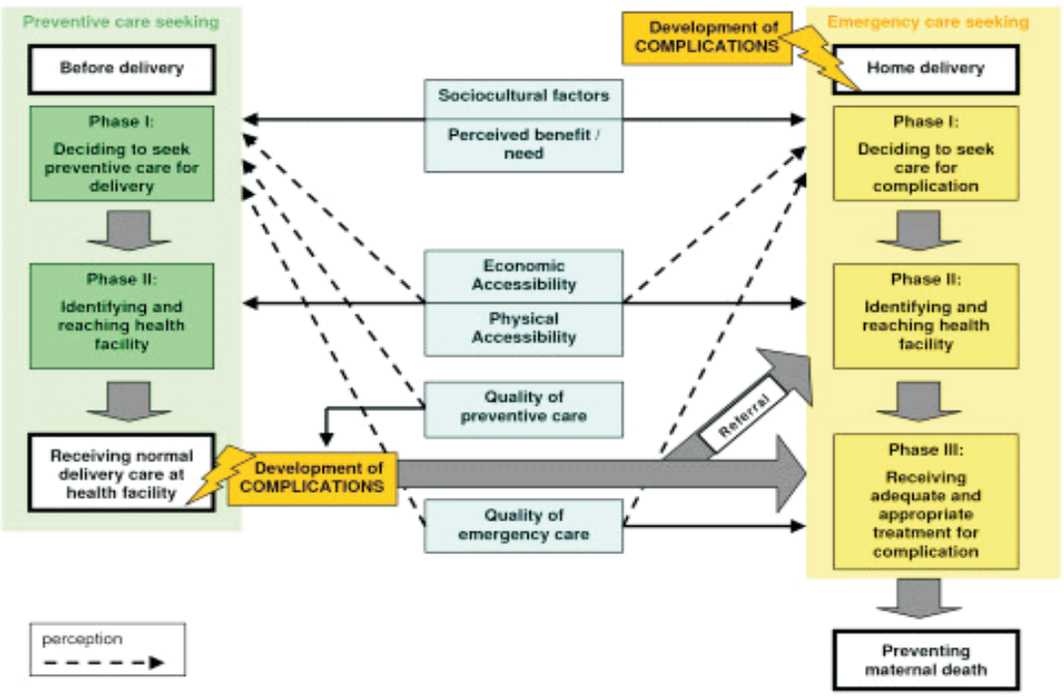

Figure 1: The three Delays Model (60)

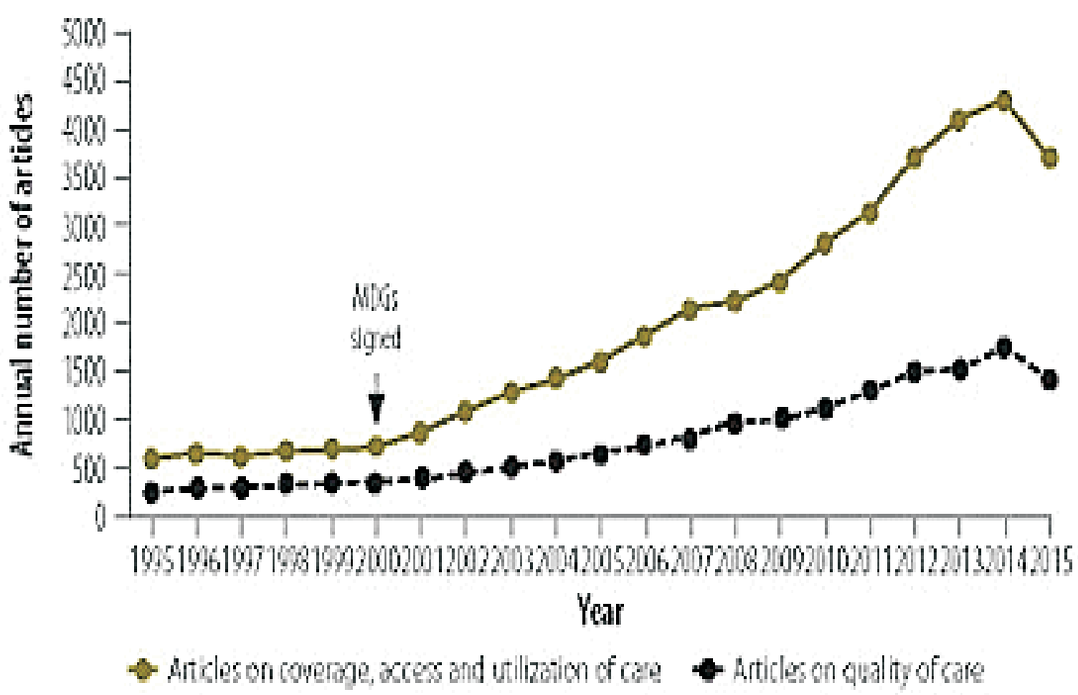

Figure 2: Annual number of articles published on quality and coverage of healthcare from the countries of Asia, Africa and Latin America, 1995–2015 (21)