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# Assessment, Training and Evaluation of Emergency Obstetric and Neonatal Care Competences for Midwives in Tharaka-Nithi and Embu Counties, Kenya

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**Abstract:** Midwifery education in many countries currently follows a didactic curricular model where students learn through classroom lecture with little opportunity for skills practice, simulation and role play needed to develop critical thinking, values and the clinical decision making abilities needed for effective practice. Many midwifery students graduate having attended a limited number of women in labour and some with minimal clinical experience in antepartum, family planning or newborn care. In addition, the assessment of student progress and readiness for practice may not be linked to the intended outcomes of learning and targeted clinical competencies. The aim of the study was to assess, train and evaluate training in “Emergency Obstetric and Newborn Care” for midwives in order to improve the availability of emergency obstetric and Newborn care (EmONC) in Embu and Meru hospitals, Kenya. A three phase explorative study was used involving assessment, training and evaluation of 113 midwives from the maternity units of two hospitals I Kenya. Data was collected by use of a questionnaire, case study and checklist. Data was analysed using SPSS 2.0. Correlational analysis was also used. The results indicated that respondents on assessment of antenatal skills scored an average of 95.2% while on normal labor, childbirth and immediate newborn care skills they scored an average of 89.63% on postpartum care (mother and baby) an average of 87.92%, on management of complications they scored a mean of 88.22%. Based on the findings, CPD in EmONC should be provided to all midwives at all levels of health care delivery in the country including incorporating such activities in the induction programmes for midwives.

**Keywords:** Evaluation, Essential Obstetrics Care, Nursing Education, Midwifery Education, CPD

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## 1. Introduction

Midwifery education in many countries currently follows a didactic curricular model where students learn through classroom lecture with little opportunity for skills practice, simulation and role play needed to develop critical thinking, values and the clinical decision making abilities needed for effective practice [1, 2]. Many midwifery students graduate having attended a limited number of women in labour [2] and some with minimal clinical experience in antepartum, family planning or newborn care. In addition, the assessment of student progress and readiness for practice may not be linked to the intended outcomes of learning and targeted clinical competencies [3, 4].

Many articles published in the decade since promulgation of the Millennium Development Goals (Sustainable Development Goals) have acknowledged the distinct advantages to maternal and newborn health outcomes that can be achieved as a result of expanding access to skilled birth attendant (including midwifery) service ((United Nations Population Fund [5, 6]. However, these advantages are often predicated on the assumption that the midwifery workforce shares a common definition and identity. Regrettably, a clear delineation of midwifery competencies is rarely addressed [7]. A core set of midwifery competencies is essential to providing the high quality services that lead to the desirable health outcomes described in that body of research [8]. Attribution of improved outcomes to access to

midwifery cannot be made without a common understanding of a defined set of services provided to standard by the midwifery workforce across the inter-conceptional and childbearing time frame [9]. The International Confederation of Midwives (ICM) has developed a clear list of competencies that delineate the domains of practice for the fully qualified, professional midwife. These domains frame the educational outcomes that must be conveyed within competency-based education programmes [10, 11]. Access to a qualified competent midwife during pregnancy and the day of birth would prevent many of the 350,000 maternal deaths each year from pregnancy related complications and the high burden of newborn morbidity and mortality (World Health Organization [12, 13]. Regrettably, there are profound shortages of fully qualified midwives (WHO 2010b) where they are needed most. In Ethiopia, for example the government projects a need for almost 10,000 midwives to care for its population of 91 million [13]. As of 2012, Ethiopia had fewer than 3000 midwives; and many of these individuals are not fully qualified according to the ICM definition [14, 15]. A body of research details the distinct advantages to maternal and newborn health outcomes that can be achieved as a result of expanding access to skilled birth attendant (including midwifery) services [16]. However, these advantages are often predicated on the assumption that the midwifery workforce shares a common definition and identity. Regrettably, a clear delineation of midwifery competencies is rarely addressed [16, 17].

Each year, more than 536,000 women worldwide die from complications of pregnancy and childbirth – that is one woman die every minute [17]. The complications include Antepartum haemorrhage, postpartum haemorrhage, obstructed labour as well as sepsis [18] and many more survive but will suffer ill health and disability as a result of these complications [18]. In addition, an estimated 4 million neonatal deaths occur each year accounting for almost 40% of all under 5 deaths [18]. Moreover, more than  $\frac{3}{4}$  of all these deaths occur in Asia and sub-Saharan Africa [19]. Additionally, the health of the neonate is closely related to that of the mother and majority of deaths in the first month of life could also be prevented if interventions were in place to ensure good maternal health (Bluestone et al 2013). Over 80% of all maternal deaths result from five well understood and readily treatable complications: (1) haemorrhage, (2) sepsis, (3) eclampsia, (4) complications of abortion and (5) obstructed labour. It is well known how to prevent these deaths – there are existing effective medical and surgical interventions that are relatively inexpensive [20]. To reduce maternal mortality it is important that all women have access to maternal health care services, particularly skilled attendance at birth and timely access to Essential (or Emergency) Obstetric Care (EOC) when an obstetric complication occurs (WHO 2010). Two levels of EOC can be distinguished, that is Basic Essential Obstetric Care (BEOC) and Comprehensive Essential Obstetric Care (CEOOC) (Ouma et al 2010). BEOC has 7 signal functions: Parenteral Antibiotics, Parenteral oxytocics, parenteral anti-convulsants,

Manual removal of a retained placenta, Removal of retained products of conception by Manual Vacuum Aspiration, Assisted vaginal delivery (vacuum extraction) and Resuscitation of the newborn (using bag and mask). CEOOC– 9 signal functions: All 7 BEOC functions (above), Caesarean Section and Blood Transfusion).

Approximately 15% of expected births worldwide will result in life-threatening complications during pregnancy, delivery, or the postpartum period [21]. Providers skilled in Emergency Obstetric and Neonatal Care (EmONC) services are essential, particularly in countries with a high burden of maternal and newborn mortality [21]. [22] has implemented three global programs to enhance provider capacity to provide comprehensive EmONC services to women and newborns in resource-poor settings. Providers have been educated to deliver high-impact maternal and newborn health interventions, such as prevention and treatment of postpartum hemorrhage and pre-eclampsia/eclampsia and management of birth asphyxia, within the broader context of quality health services [22] and this has been seen to reduce maternal and neonatal mortality.

Literature identifies gaps in knowledge and practice of EmONC skills to improve maternal and neonatal care [22, 23]. The status in Kenya has not been established. [22, 23] examined various articles in order to assess the effectiveness of training programs aimed at improving emergency obstetric care in low resource environments and the review revealed limitations which hamper their usefulness in evaluating the effects of postgraduate educational interventions to improve obstetric care in low resource environments. [23] stated that failure of most studies to underpin the results with adequate evidence precludes valid pronouncements on the effectiveness of the courses described. Furthermore, although the introduction of the Reproductive Health Library and the Perinatal Education Program led to an improvement in knowledge and skills, no positive effects on behaviour were reported and patient outcomes were not evaluated [24]. It is the responsibility of organizations that initiate and fund training programs to make evaluation an integral part of programs and ensure that the results, assessed by a proper peer-reviewed process, are made available to those who stand to benefit the most from a successful program [25]. Large parts of the world are behind schedule in reaching the fourth and fifth Millennium Development Goals (addressed in sustainable Development Goal 3). Improving knowledge and skills through training can contribute to the attainment of these Goals. In order to do so successfully, sound research is needed to provide reliable evidence to support the implementation of effective training programs.

[26] stated that while remarkable progress has been made toward the reduction of maternal and child mortality in many low-resource countries, critical challenges remain in provision of high-quality EmONC services, particularly in Sub-Saharan Africa and Southeast Asia [27]. The global community must focus on reaching the poorest and most vulnerable populations to address persistent inequities. These inequities include, among other things, a shortage of skilled

birth attendants (SBAs) in the most vulnerable communities that is driven by lack of targeted workforce planning strategies, for example matching deployment with the competencies of providers and addressing well-known factors that discourage workforce retention [28]

## 2. Methods

The study adopted assessment (phase one), intervention (phase two) and evaluation (phase three) exploratory design. The study participants were midwives from the maternity units of Embu and Meru level five hospitals in Meru and Embu counties respectively. The study was three phased. Phase one (June to November 2013) involved a needs assessment survey of the perspectives of CPD among midwives working in the above mentioned hospitals. A total of 113 midwives were involved in the study (54 from embu hospital and 59 from Meru). During this phase, data was collected using a questionnaire (knowledge, confidence and experience questionnaire), interview checklist and case studies. The main objective of this phase was to identify skills and knowledge gap in the area of maternal and neonatal health among midwives in Meru and Embu hospitals respectively. Method triangulation helped in yielding more valid data than if a single method was used. Quantitative data was analyzed using SPSS version 20.0 and qualitative data was analyzed using the themes that emerged. Pearson's chi square was used to describe the associations between participant's demographic characteristics and participation in CPD activities. The findings of phase one formed the basis for phase two.

Phase two (December 2013- September 2014) involved training of all the midwives in Phase one based on the results of the analysis of the data obtained in phase one. The training programme followed a modular format and competency-based approach. The training content was prepared based on the findings of phase one in reference to *the WHO materials in the Integrated Management of Pregnancy and Childbirth (IMPAC) series*. In addition it used relevant local guidelines and protocols developed by the Division of Reproductive Health, Kenya and ministry of health, Kenya. There were five modules in the package and each module described the learning objectives, learning outcomes, course content, teaching methods, and evaluation methods. The evaluation guidelines contained the data collection tools, data analysis templates and guidelines on how to use each tool. Module one was introduction to maternal and newborn health, module two on rapid initial assessment and emergency management; module three on care during pregnancy; module four on care during labor and child birth and module five on post partum maternal and newborn care.

This training was completed over three weeks period with 8 days classroom theoretical sessions & practice on anatomical model and 10 days of clinical practice in the two health facilities. The trained midwives were followed and monitored in the study areas for three months as they cared for mothers and neonates.

Phase three (November 2014- December 2014) data collection from the trained midwives' evaluation of the impact of the knowledge and skills acquired during the training using the model developed in phase one. Data was analyzed and results compared with those obtained in phase one. Paired t-tests of mean differences between participant's scores and performance of CPD activities before and after intervention were computed. Mean differences in performance of CPD activities between the two hospitals and the nursing qualifications were analyzed using ANOVA.

## 3. Results

Overall results showed marked improvements in midwives' knowledge/skills in all areas of antenatal care, normal labor, childbirth, immediate newborn care skills, postpartum care and management of complications. Generally their skills in maternal and newborn care skills improved after training. The results showed that knowledge improved after the training from a pretest mean of 55.92 to a posttest mean of 86.003. This indicates 30% after training improvement. The results were further subjected to paired samples test. The improvement in knowledge was statistically significant with a  $T= 15.684$  ( $P=0.001$ ). Therefore, the hypothesis that, 'there is no relationship between an educational intervention on nursing essential maternal and neonatal skills and knowledge in these skills was rejected.

## 4. Conclusion

The results in phase one identified gaps in knowledge/skills, experience and practice of EmONC in improving maternal and neonatal health in Kenya. The training in phase two which was a CPD activity was associated with increased level of practice of EmONC skills. The results indicated that respondents on assessment of antenatal skills scored an average of 95.2% while on normal labor, childbirth and immediate newborn care skills they scored an average of 89.63% on postpartum care (mother and baby) an average of 87.92%, on management of complications they scored a mean of 88.22%. This indicated that midwives showed an improvement after training and this implied that they were well prepared to solve various midwifery related conditions and complications.

It is therefore confirmed that CPD activities are essential in engaging midwives in practising EmONC skills according to laid down guidelines with the aim of reducing maternal and neonatal mortalities in the country.

## Recommendations

Based on the findings, CPD in EmONC should be provided to all midwives at all levels of health care delivery in the country including incorporating such activities in the induction programmes for midwives. There is need to review the nursing curricula to be more focused on skills

development and retention in the area of EmONC. The findings lead to development of a framework to enhance provision of CPD and also development of evaluation guidelines for assessing development of competences in EmONC. These guidelines should be used in the country with the aim of improving maternal and newborn health.

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