

# Impact of Competency of The Non-Clinicians on Obstetric Emergency Response in Bungoma County Referral Hospital (BCRH)

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***Abstract- The inclusion of non-clinicians in obstetric emergencies offers multifaceted advantages through prompt intervention, community insights for culturally adept responses, and relief for clinical personnel. This study examined non-clinicians' competency in obstetric emergency response at Bungoma County Referral Hospital. Using a cross-sectional survey design, 93 non-clinicians were sampled through questionnaires and interviews. Results showed 63.4% were aged 31-45 years with 45.2% having college-level education. Access to information demonstrated a coefficient value of 0.412 with a marginal effect of 0.184 ( $p < 0.05$ ), indicating that acquired information enhanced competency by 18.4%. Training had a marginal effect of 0.470 ( $p < 0.05$ ), showing 47% improvement in competency. The study concludes that competency positively impacts non-clinicians' obstetric emergency response by changing attitudes and encouraging participation. Qualified non-clinicians should be recruited to supplement clinical service delivery, alleviating clinical burden and improving maternal and infant outcomes.***

***Keywords: Competency of Non-Clinicians, Obstetric Emergency Response, Bungoma County Referral Hospital***

## I. INTRODUCTION

Obstetric emergencies are life-threatening health problems for pregnant women and their babies, arising during pregnancy, labour, and birth (WHO, 2016). Globally, 10.7 million women have died from obstetric emergencies and complications over two decades (Geleto et al., 2018), with nearly 15% of pregnancies ending in fatal perinatal complications. While maternal mortality rates have declined recently, changing health needs, growing public expectations,

and ambitious health goals demand better health outcomes and greater social value from health systems (Kruk et al., 2018).

More than 80% of maternal deaths globally result from obstetric emergencies (UNFPA, 2012). Though mostly unpredictable, these emergencies can be prevented or treated in properly networked and equipped facilities. In 2015, 303,500 women died during childbirth and 2.7 million babies died within their first month due to obstetric emergencies (NFHS 4 Fact Sheet, 2017).

In Kenya, obstetric emergencies constitute principal causes of morbidity and mortality among women, with 362 maternal deaths per 100,000 live births (Ameh et al., 2016). Bungoma County recorded 488 deaths per 100,000—significantly higher than the SDG Target 3.1 of 70 per 100,000 (WHO, 2015; KDHS, 2014; DHIS, 2015). Many deaths are preventable with proper emergency obstetric response.

Skilled attendance at birth and access to emergency obstetric and newborn care (EmONC) are crucial for preventing maternal and perinatal deaths (Campbell et al., 2006). While universal facility deliveries with skilled birth attendants (SBA) reduce mortality (Miller et al., 2016; Moller et al., 2018), this alone is insufficient. Essential interventions and innovations can accelerate strengthening of obstetric emergency response, improving maternal and newborn health outcomes (Yambi, 2019).

Non-clinicians are hospital personnel who interact with patients but do not dispense medical advice or perform procedures (Brookings, 2014). They work behind the scenes and form an important support system without which emergency response systems would be ineffective (NAIC, OWEs Survey, 2021). As defined by WHO (2006), health workers include any

person whose primary intent is to enhance health. Approximately half of healthcare workers are non-clinical staff, including patient navigators, human resource officers, record officers, maintenance officers, registration clerks, drivers, cleaners, cooks, accountants, and procurement officers.

This study focused on non-clinicians along the continuum of care for pregnant and labouring mothers, including hospital administrators, human resource staff, procurement officers, supplies officers, gatekeepers, cleaners, drivers, registration clerks, patient navigators, and accountants working in antenatal clinics, labour wards, and postnatal wards where obstetric emergencies occur.

Evidence worldwide demonstrates that investment in emergency obstetric care significantly reduces avoidable maternal and newborn deaths. This study evaluated the impact of non-clinicians in strengthening emergency obstetric care at Bungoma County Referral Hospital.

## II. METHODOLOGY

### 2.1 Study Area

This study was conducted at Bungoma County Referral Hospital (BCRH), a level five public health facility operating under Bungoma County Government. Bungoma County, one of three counties in former Western Province, neighbours Kakamega, Mt Elgon, Busia, Uganda, and Trans-Nzoia. The county covers 3,032 km<sup>2</sup> with a population of 1,670,570 (2019 census).

BCRH has 223 beds and approximately 800 health personnel, with doctor-to-population ratio of 1:6.7 and nurse-to-population ratio of 1:6. Non-clinicians comprise nearly half the healthcare workforce. The hospital operates 24-hour emergency medical and trauma services, blood transfusion satellite, caesarean delivery section, imaging services, and trauma care. The maternity unit, the busiest department, serves approximately 600 mothers monthly and serves as a referral centre for all Bungoma County health facilities and beyond.

The study was conducted in maternal and newborn departments: Antenatal Clinic (ANC), Maternity

ward, Postnatal ward, and Gynaecological ward (Female ward)—areas handling obstetric emergencies.

### 2.2 Study Design

A cross-sectional descriptive survey design was employed to describe, explain, and validate various aspects of the phenomenon. This design provided a statement of affairs at the time with no researcher control over variables, shedding light on issues through data collection for complete situation description.

### 2.3 Study Population and Sample Size

The study captured non-clinicians working in the aforementioned departments from January to May 2023, including hospital administrators, accountants, registration clerks, gatekeepers, drivers, procurement and supplies officers, and cleaners. The estimated population was 176. Sample size was calculated using Fischer's formula (1998):

$$n = z^2(pq)/e^2$$

Where:

n = Sample size

z = 1.96 (95% confidence level)

p = 0.5 (proportion with desired characteristics)

q = 0.5 (1-p)

e = 0.05 (acceptable error)

$$n = (1.96)^2(0.5)(0.5)/(0.05)^2 = 93$$

Ninety-three non-clinicians were interviewed.

Table 1: Sampled Non-Clinicians in BCRH

No.	Non-clinicians	Number
1	Hospital administrators	1
2	Human resource officer	1
3	Accountant	1
4	Procurement & supplies	4
5	Clerical officers	14
6	Drivers	7
7	Gatekeepers	14

8	Cleaners	45
9	Records officers	4
10	Medical engineers	2

2.4 Sampling Procedure

Purposive sampling selected participants on duty during data collection.

2.5 Data Collection

Quantitative data: 93 non-clinicians were interviewed using semi-structured open-ended questionnaires with research assistants regarding their competency to identify obstetric emergency signs/symptoms, available resources and capacity, and encountered challenges.

Qualitative data: Key Informant Interviews (KII) were conducted with hospital managers and policy makers including the Medical Superintendent, Nursing Officer in charge, Obs/Gyne NO i/c, gynecologist, hospital administrators, HR officer, and procurement officers. Focused Group Discussions (FGD) validated structured interview outcomes and explored questions not easily answered in written surveys.

The cross-sectional study (January-May 2022) used in-depth interviews with 93 non-clinicians. Verbal permission was obtained from hospital leadership. Participants were conveniently selected based on availability and willingness. Interviews were conducted in English and/or Kiswahili by trained research assistants using interview guides covering knowledge about obstetric emergencies, signs/symptoms, causes, attitudes about integration, experiences, fears, and decision-making. Interviews were scheduled during free time and audio-recorded with consent. Five research assistants and two independent guides conducted the interviews.

2.6 Data Analysis

Upon reaching saturation, data were checked and cleaned. Descriptive and inferential statistical analyses were performed. Data were cleaned, edited, entered into Excel database, and analysed using SPSS version 22.0. Adherence to ethics and COVID-19 protocols was stringent.

III. RESULTS AND DISCUSSION

3.1 Education Level of Respondents

Education level determines how non-clinicians handle emergency obstetric care. Table 2 displays the findings.

Table 2: Distribution by Academic Level

Education Level	Frequency	Percentage
Primary	10	10.8
High School	31	33.3
College	42	45.2
University	10	10.8
Total	93	100

Results showed 45.2% (n=42) of non-clinicians had college-level education, while 10.8% (n=10) possessed qualifications exceeding college level. This demonstrates strong academic qualifications providing informed opinions on factors associated with non-clinician integration at BCRH.

3.2 Marginal Effect Analysis on Competency

Table 3: Marginal Effect Output on Competency

Variable	Coefficient	Marginal Effect	P-value
Source of information	0.412	0.184	0.000*
Role of non-clinician	0.009	0.004	0.141
Sensitization training	0.381	0.150	0.007*
Length of stay in hospital	0.062	0.025	0.043*
Trained non-clinician	0.856	0.470	0.000*

Number of observations=93, LR chi2(5)=62, Prob>chi2=0.000, Pseudo R2=0.824

\*Statistical significance at 5% confidence level

Source of information: This variable examined where non-clinicians acquired information on handling obstetric emergencies (media, healthcare workers, continuous CPD, or college training). With coefficient value 0.412, marginal effect 0.184, and statistical significance ( $p < 0.05$ ), results indicated that increased information acquisition improved probability of knowledgeable non-clinicians attending to obstetric emergencies by 18.4%. Information source was identified as a key competency element.

Role of non-clinician: This variable stated that non-clinicians have roles in obstetric emergency response. With coefficient 0.009, marginal effect 0.004, and statistical significance ( $p < 0.05$ ), increased recognition of non-clinician roles improved probability of knowledgeable emergency response by 0.4%.

Trained non-clinician: This variable had the highest coefficient (0.856) with marginal value 0.470, statistically significant ( $p < 0.05$ ). A unit increase in trained non-clinicians increased probability of knowledgeable emergency response by 47%—the strongest predictor of competency.

Sensitization training: With coefficient 0.381 and marginal effect 0.150 ( $p < 0.05$ ), sensitization training improved competency probability by 15%, indicating its importance in enhancing non-clinician capabilities.

Length of stay: With coefficient 0.062 and marginal effect 0.025 ( $p < 0.05$ ), longer hospital tenure increased competency probability by 2.5%, suggesting experience contributes to improved emergency response capabilities.

#### IV. DISCUSSION

The educational composition of non-clinician participants offers valuable insights into capacity for informed engagement. The significant proportion with college-level (45.2%) and advanced education (10.8%) indicates strong academic backgrounds suggesting critical thinking, analytical proficiency, and robust healthcare systems understanding (Harmer, Lee, & Petty, 2015). These attributes elevate the depth and quality of perspectives on enhancing obstetric emergency response.

The recognition of non-clinicians' multifaceted roles—maintaining cleanliness, facilitating communication, supporting patient movement—mirrors broader healthcare research acknowledging vital contributions of non-clinical personnel to hospital operations. Pannick et al. (2016) emphasizes that this alignment underscores the importance of collaborative approaches between clinical and non-clinical staff for comprehensive, efficient healthcare ecosystems. The recommendation for clear policies, guidelines, and integration into leadership frameworks resonates with research advocating structured governance for standardized, effective healthcare delivery.

Training emerged as the strongest predictor of competency (47% improvement), emphasizing the critical need for systematic capacity building. This aligns with Ameh et al. (2016), who demonstrated significant knowledge and skills improvement following competency-based training in emergency obstetric and newborn care across Sub-Saharan Africa and Asia.

The 18.4% competency improvement through information access highlights the importance of knowledge dissemination channels. Whether through media, healthcare workers, continuous professional development, or formal education, access to information significantly enhances non-clinicians' ability to respond effectively to obstetric emergencies.

#### V. CONCLUSION

The educational composition and training outcomes demonstrate that non-clinicians possess capacity for meaningful contribution to obstetric emergency response when properly equipped. The high representation of respondents with college and advanced credentials implies critical thinking capacity, analytical proficiency, and robust healthcare systems understanding.

Competency positively impacts non-clinicians' obstetric emergency response at BCRH by exposing them to attitude changes and encouraging free participation in emergency response processes. The integration of non-clinicians is a multifaceted endeavor, with training (47% improvement), information access (18.4% improvement), and

sensitization (15% improvement) serving as key factors fostering effective integration.

## VI. RECOMMENDATIONS

1. Develop comprehensive sensitization training programs for non-clinicians to improve understanding and integration into obstetric emergency response systems.
2. The Ministry of Health should develop memoranda of understanding with training institutions to provide training opportunities and motivate non-clinicians toward higher qualifications through incremental credits and promotions.
3. Offer employment opportunities on permanent and pensionable terms for non-clinicians with relevant competencies and skills to ensure sustained, effective contributions.
4. Conduct regular appraisals to establish needs analysis and competency gaps, then design training matrices to equip non-clinicians with relevant knowledge, skills, and attitudes.
5. Establish clear policies, guidelines, and integrate non-clinicians into hospital leadership frameworks to ensure structured governance and standardized healthcare delivery.
6. Invest in systematic information dissemination through multiple channels (media, healthcare workers, CPD, formal education) to enhance non-clinician competency continuously.

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