

# Factors Influencing Adherence To National Guidelines On Emergency Obstetric Care And Associated Outcomes Among Pregnant Mothers And Newborns In Samburu Central sub-County

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## ABSTRACT

Every day about 830 women die due to complications of pregnancy and child birth. Of the 830 daily maternal deaths, 550 occurred in sub-Saharan Africa and 180 in Southern Asia, compared to 5 in developed countries. The risk of a woman in a developing country dying from maternal-related causes during her lifetime is about 33 times higher compared to a woman living in a developed country. This has been attributed to many factors including cultural knowledge systems. However it is not quite clear how this has influenced adherence to National Guidelines on Emergency obstetric care and associated outcomes among pregnant mothers and Newborns. The current concern in Samburu Central Sub-county among parents and other stakeholders in health sector is that, adherence to national guidelines on emergency obstetric care and associated outcomes among pregnant mothers and newborns was more likely to be negatively affected. This study was sort to determine the effect of factors influencing adherence to national guidelines on emergency obstetric care and associated outcomes among pregnant mothers and newborns in Samburu Central Sub-county. This was a descriptive survey research in nature with specific use of cross-sectional retrospect use study design involving a review of maternity records for the last six months in each of the Health facilities in Samburu Central Sub-County. In addition, key-information interviews were conducted among the officers in-charge of each Health facility to determine their facility level factors associated with adherence to National guidelines on Emergency obstetric care. A checklist was also used to inspect the infrastructure in Health facilities on provision of emergency obstetric care to Mothers and newborns within the Health facilities. The results of the study showed that, most health facilities were poorly equipped with acute shortage of personnel trained on EMOC. The deliveries of newborns and adherence to National guidelines on Emergency Obstetric Care had no statistically significant relationships. The study also concluded that the Ministry of health should train more personnel on EMOC and also equip all the health facilities with proper maternity equipment. The findings of this study were of great benefits to the pregnant mothers, health curriculum developers and policymakers in addressing current poor adherence to national guidelines on emergency obstetric care and associated health outcomes among pregnant and newborns and also realization of strategies for boosting emergency obstetric care in health facilities countrywide.

**Key words:** Emergency Obstetric care, Health outcome, pregnant mothers, Newborns.

## I. INTRODUCTION

Throughout Sub-Saharan Africa, Women with complications of labor and delivery arrive at referral hospitals, only to die due to lack of prompt quality care. This situation is compounded by challenges of delays in arrival of expectant Mothers to hospitals due to poor or non – existent roads, poverty and other factors (Lesswell

2012). The world Health Organization (WHO), United Nations population fund (UNFPA) and United Nations children's fund (UNICEF) recommended that all pregnant women should have access to good quality emergency obstetric care (EMOC). This is due to the fact that most of maternal deaths cannot be predicted. For example, regardless of the best obstetric care due to an emergency, a pregnant woman can go into comma

due to bleeding in third trimester of pregnancy (Purohit & Gaig, 2012), in fact, ante-partum hemorrhage is one of the leading causes of maternal and fetal mortality globally, regionally, nationally and rural areas of our country for example in Samburu central Sub-County (Smith & Walsh, 2001).

It is estimated that over half a million maternal deaths occur worldwide annually due to pregnancy related complications. Out of these, 99% of the deaths occur in least developed countries (Lawn,2005). Moreover, a total 130 million babies are born every year, from which 4 million babies die in the first one month. Equally, there has been slow progress in reducing the rate of maternal and new born deaths globally (Bhutta *et al*, 2014). This is despite the fact that most maternal deaths are to a large extent preventable if the complications are diagnosed and managed effectively and in time. It is estimated that only 16 countries globally will achieve the Millennium Development Goals target of reducing maternal deaths by 75% by year 2015 (Kassebaum *et al*, 2014).

Throughout the developing countries and particularly in Sub-Saharan Africa, women with complications of labour and delivery arrive at referral hospitals, only to die due to lack of prompt quality care. This situation is compounded by challenges of delays in arrival of expectant mothers to hospital due to poor or non-existent roads, poverty and other factors (Cresswell *et al.*, 2012; Lori & Starke, 2012).

The World Health Organization (WHO), United Nations Population Fund (UNFPA) and United Nations Children's Fund (UNICEF) recommend that all pregnant women should have access to good quality Emergency Obstetric Care (EMOC). This is due to the fact that most of maternal deaths cannot be predicted. For example, regardless of the best obstetric care due to an emergency, a pregnant woman can go into coma due to bleeding in third trimester of pregnancy (Purohit, Desai, Jodha, & Garg, 2012). In fact, ante partum hemorrhage is one of the leading causes of maternal and fetal mortality globally.

Therefore, Emergency Obstetric Care and services are necessary to save the lives of women who experience obstetric complications. They include; removal of

retained products of conception, assisted vaginal delivery, administration of parenteral antibiotics, parenteral oxytocic drugs, parenteral anticonvulsants, manual removal of placenta,, surgery and blood transfusion.

Within the emergency services, there are facilities that are useful in the provision of medical interventions (signal functions). The basic EMCOR facilities used to treat obstetric complications comprise eight packages recommended by the World Health Organization (WHO), the United Nations Children's Fund (UNICEF) and United Nations Population Fund (UNFPA). This are summarized in Dogba & Fournier (2009) and include; administration of parenteral antibiotics, oxytocic drugs, anticonvulsants as well as manual removal of placenta, removal of retained products of conception and assisted vaginal delivery.

Comprehensive EMOC facilities perform all the basic signal functions as well as perform surgery (caesarean sections) and provide blood transfusion. Currently almost all health centers in the country are not basic EMOC facilities and all patients who require comprehensive services are referred to the secondary facilities. A detailed description of the Emergency obstetric care is given in Table 1. EMOC is often discussed in terms of "basic" and "comprehensive" care available within a facility that provides care for women with obstetric complications.

**Table 1 :** Basic and Comprehensive Emergency Obstetric Care Description (Source: UNICEF, 2007)

Basic Emergency Obstetric Care	Comprehensive
Administration of parenteral antibiotics	All (functions included in
Administration of parenteral oxytocic drugs	basic EMOC
Administration of parenteral anticonvulsants for	plus
preeclampsia and eclampsia	Performance of surgery
Performance of manual removal of placenta	caesarean section)
Performance of manual removal of retained	Performance of blood
products (e.g., manual vacuum aspiration)	transfusion
Performance of assisted vaginal delivery	

## II. METHODS AND MATERIAL

### Study Site

The study was conducted among six sampled health facilities in Samburu central sub county rift valley region of Kenya. Health facilities are sparsely distributed in the sub county and serving an approximate population of about 140,000(Census, 2009).Most of the people living in the sub county are nomadic pastoralists.

### Study Design

This was a descriptive cross-sectional retrospective study involving a review of maternity records for the last six months in each of the facilities within the study area. In addition, key- informant interviews were conducted among facility in-charges to determine facility level factors associated with adherence to national guidelines. A checklist was also be used to inspect the infrastructure in the health facility which facilitates in provision of emergency obstetric care to mothers and new born in the facility.

### Ethical Approval

Ethical clearance from the ethical committee at the University of Nairobi and the Scientific Health Committee was sought. Specifically, permission to conduct the research was sort from the county director of medical services in Samburu County and respective in-charges of health facilities in the sub-county .The data collected was coded and keyed in a database that was pass-word protected to ensure Confidentiality. In addition no harm on the study subjects will be anticipated since this is largely, a retrospective study. Finally potential benefits were dissemination of the information to health facilities and the ministry of health and this may help improve outcomes in the future.

### Data Management and Analysis

Data was analyzed using the computer program, statistical package for social sciences (SPSS) Version 23.0 for windows. Descriptive statistics was used where means, percentages and frequencies were determined. Chi-square and Pearson's correlation(r) was used to establish relationships between the independent and

dependent variables in the study. Pearson's correlation coefficient was used where both data was in interval scale. The cause and effect relationship between factors affecting the values in question was not assumed. Consequently, the correlation coefficient was used to indicate the strength and direction of the relationship between scores of variables. To make reliable inferences from the data, the correlation was subject to test of significance at alpha (a) equal to 0.05.

## III. RESULT AND DISCUSSION

The study showed a comprehensive but summarized observation and statistic outlook of human resources factors in Samburu Central Sub County. Workers in facility had a high of 39.8% staff trained as midwives being 31.1% staff trained taking 12.4% and the least was health workers per shift with 8.0%.

**Table 2 :** Delivery and New born outcomes Associated with Adherence to National Guidelines on Emergency Obstetric Care (N=6)

Month	Observed	Percentage (%)	95% CI
June	155	15.7	
July	153	15.5	
August	153	15.5	
September	203	20.5	
October	169	17.0	
November	157	15.8	

Source: Field Data, 2015

**Table 3 :** Summary of results of obstetric emergency cases encountered in health facilities for the last six months (N=6)

Complication	Frequency (F)	Percentage	95% CI
Ant Partum Hemorrhage	04	26.7	
Post-Partum Hemorrhage	04	26.7	
Eclampsia	01	06.6	
Abortion	00	00	
Puerperal sepsis	00	00	
Obstructed Labor	06	40	

Source: Field data 2015

**Table 4 :** Human/Personnel Resources Factors (N=6)

Resources Factors	Frequency	Percentage	95% CI
No of Health Workers in the facility	45	39.8	
No of Deliveries conducted per day	11	9.7	
No of Health workers per shift	09	8.0	
No of staff trained	14	12.4	
No of staff trained as midwives	34	30.1	
<b>TOTAL</b>	<b>113</b>	<b>100</b>	

Sources : Field Data, 2015

### Challenges faced in providing emergency care services in health facilities

The following are the challenges faced in providing emergency care services are:

- ✓ Acute shortage of staff in providing emergency cares services whereby 14 staffs trained on EMOC in the sub county and an average of 2 staff per health facility.
- ✓ Among the six health facilities selected only four had some basics drugs available
- ✓ The patient had difficulty in accessing health facilities due to long distances and poor road networks within the sub county.

**Table 5 :** Health facility type and availability of BEMOC & CEMOC services are summarized below (N = 6)

Health Facility Type	Frequency (f)	Percentage (%)	95%CI
BEMOC	05	83.3	
ii) CEMOC	01	16.7	
<b>TOTAL</b>	<b>06</b>	<b>100</b>	

Source : Field Data, 2015

In Samburu Central Sub County, there is only one CEMOC facility which is a referral hospital in the whole county. This constitutes 16.7 % of the facility and 83.3 %. CEMOC and BEMOC respectively. Table 6 provides the organizational structure of maternity in the selected health facilities.

**Table 6.** Organizational Structure of the Maternity in the selected health facilities (N=6)

Responses	Frequency (f)	Percentage (%)
The number of rooms in maternity	17	35.4
Number of delivery coaches	10	20.8
Number of Beds in Postnatal wards	21	43.8
<b>TOTAL</b>	<b>48</b>	<b>100</b>

Source : Field Data. 2015

The table showed that 43.8% of the observation cited out that the number of beds in post natal wards was the main organizational structure of the maternity in Health Facilities of Samburu Central Sub county, This was followed up closely by the number of rooms in maternity wards with a percentage of 35.4% the least organizational structure of the Maternity was availability of less number of delivery coaches.

**Table 7 :** Availability of Emergency Obstetric care in the Health facility: Basic Emergency Obstetric care Kit (N=6)

Observation	Frequency (f)	Percentage
Inject able Antibiotics	06	26.1
Inject able Oxytocics	06	26.1
Inject able Sedatives/Anticonvulsants	05	21.7
Intravenous fluids	06	26.1
<b>TOTAL</b>	<b>23</b>	<b>100</b>

Source: Field Data, 2015

The study revealed that 26.1% of respondents agreed with the availability of inject able Antibiotics, oxytocic and intravenous fluids in Health facilities of Samburu Central Sub County. The least available Emergency obstetric care kit was injectable sedatives/ Anticonvulsants with a percentage of 21.7%.

**Table 8 :** Availability of emergency obstetric care services in health facilities (N=6)

Observation	Frequency (f)	Percentage (%)
Fully Equipped Labour Rooms	04	66.7
Partially Equipped Labor Rooms	02	33.3
Non Equipped labor Rooms	00	00
<b>TOTAL</b>	<b>06</b>	<b>100</b>

Source : Field Data, 2015

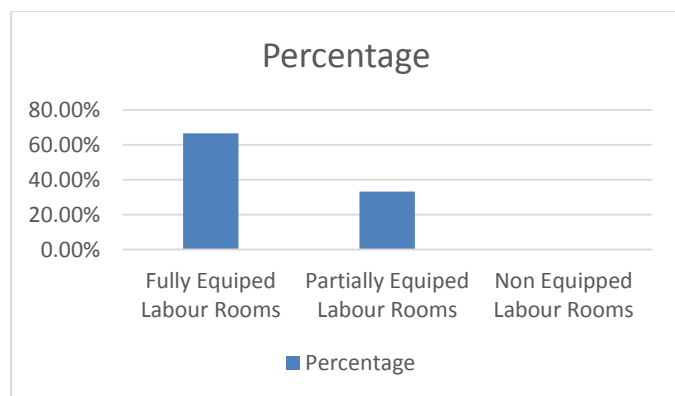
All the basic emergency functions were provided in all health facilities at 33.4%. The caesarean section and blood transfusion were performed at 33.3% respectively were in the county referral hospital which is the only Comprehensive facility in the county. Table 9 summarizes the availability of maternity Supplies/equipment's availability in the Maternity labour room supplies.

**Table 9 :** Maternity Supplies/Equipment's availability in the Maternity Labour room supplies/Equipment (N=6)

Observation	Frequency (f)	Percentage (%)
Fully Equipped Labour Rooms	04	66.7
Partially Equipped Labor Rooms	02	33.3
Non Equipped labor Rooms	00	00
<b>TOTAL</b>	<b>06</b>	<b>100</b>

**Source:** Field Data, 2015

Results in Table 9 indicated that 66% and above of Health facilities in Samburu County had fully equipped labor rooms while 33% had partially equipped labor rooms while 33% had partially equipped labor rooms. This indicates that in general maternity care services in the County are uphold to the desired levels. The summary of results in table 9 are also summarized in figure 2



**Figure 2.** Bar Graph of Maternity Supplies/ Equipment availability in the Maternity Labour Rooms

**Table 10 :** Availability of Neonatal Resuscitation Kit fully Equipped with: Suction Machines, Cord clumps, Ambubags, Resuscitation coach and Vitamin K Injection (N=6)

Response	Frequency (f)	Percentage (%)
Yes	04	66.7
No	02	33.3
<b>TOTAL</b>	<b>06</b>	<b>100</b>

**Source:** Field Data, 2015

**Table 11 :** Correlation between availability of emergency obstetric care services and total emergency obstetric cases encountered in the health facilities

Percentage (%) Availability of Emergency Obstetric Care services	Total Obstetric Emergency cases encountered	Person's Correlation coefficient (r)	P-Value (2-Tailed)
26.1	04	0.064	0.904
21.7	04		
17.3	01		
12.9	00		
08.5	00		
04.1	06		

The correlation is not significant at 0.005 levels (2tailed) r-critical =0.064, P>0.05

**Source:** Field Data, 2015

Table 11 showed the correlation resulted between the percentage (%) availability of emergency obstetric care service and total emergency cases encountered in health facilities in Samburu central sub-county of research question two of the study. Question two of the study sought to find out whether the health outcomes associated with adherence to national guidelines on emergency obstetric care has influence on obstetric emergency cases encountered. Results in figure 12 revealed a negative correlation between percentage availability of emergency obstetric care services and total obstetric emergency cases encountered, alpha(a) equal to 0.05(r=0.064,N=6, P>0.005). This means that percentage availability of emergency obstetric care services has a negative influence on total obstetric emergency cases encountered in the sub-county. This was attributed to unavailability of some basic obstetric care services and trained personnel on obstetric emergency services in the health facilities of Samburu central sub county.

The Chi-square value for the outcome of deliveries for the last six months.



Observed (O)	155	153	153	203	169	157
Expected (E)	165	165	165	165	165	165

NB

165- Is the mean (x) of the Total Observed deliveries for the last six months

$$X^2 = \frac{\sum (O-E)^2}{E} = \frac{1,912}{165} = 11.59$$

$$\text{Degree of freedom (df)} = (r-1)(c-1) \\ = (2-1)(6-1) = 5$$

Re-reference to the table shows that a  $\chi^2$  Value of 9.49 is significant at  $P < 0.5$  (d.f) 4.1 since the obtained value of 11.59 greatly exceeds this value, it is concluded that delivery and new born outcomes do not adhere to the National guidelines on Emergency obstetric care in Health facilities of Samburu County. This study revealed that 83.3% of respondents cited out a number of main challenges faced by patients in health facilities of Samburu central sub county; constrained health facilities at the main referral hospital (Samburu county referral hospital), scarce resources in the health facilities and some being incomplete by both the national and county governments and lastly acute shortage of staff trained on EMOC. The findings of this study are contrary to the findings of Mehta (2015), which states that pregnant women perceived triage care can be of superior quality and more accessible compared to outpatient prenatal care.

The results of the correlation between availability of emergency obstetric care services and emergency obstetric cases encountered revealed a significant negative correlation between the variables, at alpha ( $\alpha$ ) equal to 0.05 ( $r = 0.0640$ ,  $n = 6$ ,  $P > 0.05$ ). The findings of this study concur with those of Bailey *et al.*, (2006), who reported that the indicators were insufficient for measuring progress in reduction of maternal mortality.

The results obtained in this study revealed that 21.7% of the secondary data cited out that some emergency obstetric devices packing in health facilities were like anticonvulsants while 33.3% cited out that some maternity facilities were lacking equipment like suction

machine ambubags and vitamin K injection. The findings of this study are consistent with those of Freeman (2003), who reported that, antenatal care and nutrition program will not substantially reduce maternal health. In her version, all women must have access to EMOC in case they experience complications.

#### IV. CONCLUSION

Most of the health facilities in Samburu central sub county lack physical facilities, essential drugs and services for emergency obstetric care and adequate emergency obstetric care. Also among the list is the human resource shortage trained on emergency obstetric care. The correlation between availability of emergency obstetric care services emergency obstetric cases encountered revealed that availability of emergency obstetric care services were independent of emergency obstetric cases encountered. This implies that a gap has to be bridged between the two variables through retraining of medical staff on EMO also, Having public awareness on the same. Results on delivery and newborns outcomes associated with adherence to national guidelines on emergency obstetric care revealed a significant rift which needs much attention in addressing it. This involved acute shortage of maternity equipment in a large percentage of health facilities in Samburu central sub county.

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