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**BUMBULI CLINICAL OFFICERS’ TRAINING CENTRE (COTC)**

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**A RESEARCH REPORT**

**RESEARCH TITLLE WAS TO ASSESS CAUSES AND CONTRIBUTING FACTORS OF NEONATAL MORTALITY AT LUSHOTO DISTRICT HOSPITAL.2019/2020.**

**By**

Munguatosha R Masha

REGISTRATION NO : BMBL/DIP.CLM/124/2016

NACTE REG NO : NP0378/0051/2015.

SUPERVISOR : Dr Antidius.

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**LIST OF ABBREVIOTION**

AIDS……………………………… Acquired Immunodeficiency Syndrome

HIV …………………………………………..Human Immunodeficiency Virus

STD…………………………….Sexual Transmitted Diseases

WHO ……………………………….World Health Organization

B-COTC ……………………………… Bumbuli Clinical Officer’s Training Centre

CTC………………………………………….Care Treatment clinic

CO ……………………………………..Clinical Officer

GCP………………………………………Good Clinical Practice

HMT ……………………………………Health Management Team

LDH........………………………………LushotoDisrtictHospital

OPD…………………………………………………. Out Patient Department

**DEFINITION OF TERMS**

**PREVALENCE:** In epidemiology is the proportion of a particular population found to be affected by a medical condition, typically a disease or a risk factor such unprotected sexual intercourse. Statistical concept referring to the number of cases of disease that are present in particular population at given time

**HEALTH:** is the state of completeness/ fitness in physical, mental, and psychological wellbeing of an individual, not just merely the absence of disease or infirmity.

**NEONATAL DEATH**: is the death of the baby within the first 28 days of life (WHO definition)

**NEONATAL SEPSIS**: refers to generalized bacterial infection documented by a positive blood culture in the first 28 days of life. It encompasses various systemic infections of the new born such as septicemia, meningitis, pneumonia, arthritis, osteomyelitis and urinary tract infections.

**STUDY POPULATION**: Population is the group of people or elements that the researcher had in mind from whom obtains the required information or data. Also population has been defined by Best and Khan (1998:75) “as any group of individuals who have one or more characteristics in common that area of interest to the researchers

**METHODOLOGY**: Is the systematic, theoretical analysis of the methods applied to the field of study or the theoretical analysis of the body of method and principle associated with a branch of knowledge? It typically, encompasses concept such as paradigm, theoretical model, phases and quantitative or qualitative techniques**.**

**EPI-INFO** 7 software: is public domain software designed by Centre of disease control and prevention (CDC) for the global community of health practitioners and researchers for easy questionnaire and data base construction, data entry and analysis with epidemiological statistics, graphs and maps

**CHAPTER ONE**

**RESEARCH QUESTIONS**

* What are the causes of neonatal death in LDH catchment area?
* How prevalent the problem is?

**RATIONALE**

This study sought to identify the causes of neonatal deaths and providing inputs into developing feasible and sustainable community-based interventions to improve neonatal life survival receiving health services at Lushoto District hospital.

**PROPOSED HYPOTHESIS**

The probable causes of neonatal death/mortality could be

* Neonatal sepsis/infectious cause
* Premature birth, low birth weight and mismanagement of first and second stages of labor.
* Poor & local delivery practices such as home deliveries, local midwives
* Birth asphyxia
* Maternal causes such as maternal distress, diseases & health status
* Place of delivery including inadequate labor space, equipment, septic environment or home.

**OBJECTIVES**

* **The General Objective was**
* To determine the prevalence and causes of neonatal death to neonates receiving health services at Lushoto district Hospital (LDH).
* **The Specific objectives were:-**
* To determine death caused by birth asphyxia
* To determine the extent of neonatal death
* To determine death caused by prematurity and low birth weight
* To determine death caused by Infections (neonatal Sepsis/Pneumonia)
* To determine neonatal death in relation to maternal age
* To determine frequency of neonatal death( duration)
* To determine the cause of death in relation to where birth take place

**LITERATURE REVIEW**

Neonatal death is the death of infants in the first 28 days of life. The neonatal deaths account about 40% of death in children under age of 5 years. James, B. Arey, (2005).

These deaths occur in context where about half of all births take place at home, with assistance from relative or traditional birth attendant. Most of these births take place in unhygienic conditions. If life threatening complications develop at home the realization and decision making often comes too late to reach appropriate care at health facilities in time.

Neonatal deaths are inextricably linked to the health of the mother during the pregnancy and to the conditions of delivery and newborn care. Close to 8000 women die every year during pregnancy and child birth as a result of conditions that could have been prevented or treated. Poor quality of care due to insufficient number of skilled health workers and lack of basic equipment as well as distance from home to health care facility are major deterrents to facility delivery.

Women living in rural areas, those who come from poorest families and those who are less educated, have least access to skilled attendance at delivery. Women who start having children in adolescence tend to have more children and shorter spacing between pregnancies, all of which are risk factors for both maternal and neonatal mortality. The neonatal mortality rate is highest among mothers under 20 years of age at 45 per 1000 live births compared with 29 per 1000 for mothers aged 20 to 29 years.

Neonatal death is the death of the baby within the first 28 days of life (WHO) definition). Neonatal death have been increasing despite the tremendous effort made by health care facility in providing health services during antenatal, intrapartum and postpartum services in Bumbuli hospital. Also the majority of pregnant women are aware of health services provided for them as well as hospital delivery.

Recently there have been reported data of infections (neonatal and maternal), low birth weight, birth defects, birth asphyxia, prolonged rupture of membrane and premature birth which are the contributing factors for neonatal death. Whereas premature birth and low birth cause about 1 in 4 neonatal death (25%) and birth defect cause about 1 in 5 neonatal deaths (20%). WHO, (2005)

`More associated risk factors of neonatal death are lack of breastfeeding, aspiration of feeds, lack of reproductive health education, poor infrastructure, shortage of skilled health care providers, teenage pregnancy, disruption of skin integrity with needle pricks and use of IV fluids. Beattie, J. & Karachi, R. (2005).

We expect to reduce neonatal mortality by 50%, through maternal screening and treatment of infections, prevention and early treatment of neonatal infections and good obstetric care by providing appropriate reproductive health education to the women of reproductive age on benefit of hospital delivery as well as insuring presence of competent and adequate number of health care providers.

Since the causes of neonatal death vary by country and with availability of quality of health care, understanding neonatal mortality in relation to prematurity, infection and birth asphyxia is very crucial. Tanzania is among those countries that success in reducing child mortality, but there has been no measurable progress in reducing neonatal death. The neonatal mortality rate was 40.4 per 1000 live births in 1999 and 32 per 1000 live births in 2004-2005. Up to 50% of neonatal deaths occur in the first 24 hours of life, with over 75% of them arising in the first week of life. New born mortality is sensitive indicator of quality of care provided during the antenatal period, delivery and immediate postnatal period.

According to the modeled estimates for Tanzania, 79% of newborn deaths are due to the 3 main causes, which are: Infections including sepsis/pneumonia (29%), birth asphyxia (27%) and complications of preterm births (23%). Sepsis was the most common cause of death noted in study conducted in Mbulu and Hanang districts of rural southern Tanzania. Many of these conditions area preventable and closely linked to the absence of skilled birth attendance at delivery. 86% of neonatal death in Tanzania is also low birth weight, many of whom are premature. On average in Tanzania, new born deaths as 67% higher in poorest families as compared to the wealthier families, and majority of deaths occur in rural areas. (National road map strategic plan-2008-2015).

Older and younger women are at increased risk of prenatal mortality (Fox Koepsell, Daling 1994 and Turnbull 1971). While babies to mothers between age of 25-34 are at lower risk (Kotagal 1993). Teenage mothers tend to have greater proportional of low birth weight infants (Kotagal 1993,Sweeney 1989).Teenagers are also more likely to have complications such as pregnancy induced hypertension, toxemia, or anemia (Smith 1990). A pregnant adolescent’s body is still growing and hence the mother’s body competing with the developing fetus for nutrients.

The highest risk of infant deaths occurs among infants born by uneducated mother. The female infants are generally reported to have better perinatal outcomes despite having lower birth weight than male infants (Copper et al. 1993, Mc Gregory, Leff Orleans, Baron 1992). Many studies have found that difference between birth weights in male and female is significant (Amini, Catalano, Hirsh, Mann 1994, Turnbull 1971).

**CHAPTER TWO**

**METHODOLOGY**

**Study site**

The study was conducted Lushoto District hospital in Tanga region Tanzania.

**Study design**

The study was done by cross-sectional study because the information was collected at one point in time and by reviewing literature including patient files, MTUHA books, HMIS. Both quantitative and qualitative data were collected using different tools.

**Study population**

The study population involved a total of 50 samples 15 pregnant women(ward 1), 15 post-delivery women and their neonates ward as well as 10 health care providers from both antenatal and postnatal wards and 10 women attending post-natal RCH clinic center at Lushoto hospital.

**Mainly services**

Commercial and industrial economic activities, agricultural and livestock keeping.

**Duration of my study**

The study was done from 26th January-15th February, 2020 inclusive..

### **Study variables**

The dependent variable measured was the number of neonatal death. The independent variables include: knowledge of nurses toward neonatal sepsis and death, number of nurses, premature delivery and application of aseptic technique during delivery.

### **Sample size**

Women found at antenatal, post natal and all labor nurses working in labor ward and special care baby unit at were included in the study.

### **Sampling techniques**

I used convenient sampling method, the women and nurses were picked on convenient basis. (Those present in the wards during the study time participated).

### **Data collection technique**

The data collection techniques included were self-administered questionnaires with both open and closed ended questions. Open-ended questions were intended to collect qualitative information and closed ended questions were used to collect quantitative data. A checklist was used to observe aseptic technique in wards. An interview guide was used to collect information from nurse in charges in labor ward.

### **Data processing and analysis**

An English questionnaire translated to Swahili was used for data collection. Interpretation was done using Epi info computer software. Other instruments are calculators, pens, pencils, plain papers and rulers.

The data was checked for completeness and consistency of information. The process was done on the time of receiving questionnaire from the respondents, and grouped into their respective study groups and numbered serially. Quantitative data were analysed manually using the data master sheet and electronic calculator, while qualitative data were coded and summarized categorically. The data were sorted in relation to the objectives and variables. The findings were presented in tables, figures and narrative form.

**Pre- testing of the questionnaire**

This was done before the study among few women attended RCH clinic, who were not included in the study. Pre testing of the questionnaires were within the students’ community and health Centre’s due to time constraints.

### **Ethical issues**

Permission was obtained from Medical officer in charge of BLH, before conducting the study. The purpose of the study was explained and how the results would help the hospital authority to reduce neonatal sepsis. The respondents were assured confidentiality for the information they provided and instructed not to write their names on the questionnaire.

**CHAPTER THREE**

## 

## **FINDINGS**

**HOSPITAL RECORDS**

**Table 1: Hospital Birth In formation (from maternity register) - January - December 2018**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total live births** | **Macerated SB** | | **Fresh SB** | | **Causes of neonatal death** | | | | | |
| **No** | **%** | **No** | **%** | **Cord prolapse** | **Prematurely** | **Congenital Malformation** | **True knot** | **Fetal distress** | **Other** |
| 1455 | 62 | 4% | 42 | 2.7% | 5 | 3 | 2 | 2 | 4 | 0 |

***Comments:*** Fetal complications and poor management of second stage of labor are among the main causes of neonatal death. In addition, not all resuscitation equipment are available in maternity ward and space is insufficient in the labor room.

### **CHARACTERISTICS OF THE SAMPLE** N=50

Thirty nurses were involved in the study. Most of the respondents 26 (87%) were aged between 20-29 years and all respondents had Ordinary level education. Twenty two (73%) were enrolled nurses and 8 (27%) were registered nurses.

### **THE NUMBER OF HEALTH PROVIDERS PRESENT IN THE WARDS**

Table 1: Number of nurses required and present

|  |  |  |  |
| --- | --- | --- | --- |
| **Location** | **Present** | **Required** | **Deficit** |
| **labor ward** | 8 (60%) | 10 (100%) | 2(20%) |
| **Antenatal WD** | 4 (57%) | 7 (100%) | 3(43%) |
| **Postnatal WD** | 4 (50%) | 8 (100%) | 4 (50%) |

***This indicates that, nurses are fewer than the number of patients to be attended***.

**DELIVERY ALTITUDES**

The findings from distributed questionnaires shows that out of 40 (100%) women from antenatal, labor and postnatal wards,

* 28 (70%) were between the age of 15-19 years,
* 15(38%) delivered at home,
* 8 (20%) developed complications such as cord prolapse, low birth weight, still birth, anencephaly & fetal distress.
* 12 (30%) deliveries were assisted by local midwives

**The reported number of deaths is 5 (10%) out of 50 births**

**TYPE OF DELIVERY**

The findings shows that, out of 20 women admitted at labor and post natal wards, 8 (40%) were undergone/ were to undergo Caesarean section, while 12 (60%) delivered by spontaneous vaginal delivery

**PREMATURE DELIVERY**



Figure 2: Contribution of premature delivery to neonatal sepsis

Figure 2: Shows that most of the respondents 26 (87%) associated premature delivery with neonatal sepsis.

### **APPLICATION OF ASEPTIC TECHNIQUES**

Table 2: Applications of aseptic techniques in the SBU

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **s/n** | **Standard procedure** | **Observations** | | |
|  |  | **Done** | **Not done** | **Comments** |
| 1 | Washed hands before handling the baby | √ |  |  |
| 2 | Dried hands with clean towel/tissue | √ |  |  |
| 3 | Used towel/tissue paper once | √ |  |  |
| 4 | Put on sterile gloves before the procedure | √ |  |  |
| 5 | Used spirit to clean the cord |  | √ | Clean water and soap |
| 6 | Cleaned the cord daily | √ |  |  |
| 7 | Prepared clean clothes for covering the new born baby |  | √ | Used mother’s clothes |
| 8 | Cleaned the area for lying down the baby | √ |  |  |
| 9 | Used sterile forceps to cleaning the cord |  | ✓ | Cleaned by hands |
| 10 | Prepared sterile resuscitation equipment | √ |  |  |
| 11 | Washed hands after conducting the procedure | √ |  |  |

Table 2: **Shows that, most of the aseptic techniques observed 8 (73%) are followed by nurses when performing standard procedures.**

Table 3: Checklist for assessing applications of aseptic techniques during delivery

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **s/n** | **Standard procedure** | **Observations** | | |
|  |  | **Done** | **Not done** | **Comments** |
| 1 | Washed hands before conducting delivery | √ |  |  |
| 2 | Dried hands with clean towel |  | ✓ | Use tissue paper |
| 3 | Used towel /tissue paper once |  | ✓ |  |
| 4 | Put on sterile gloves before conducting delivery | ✓ |  |  |
| 5 | Used antiseptic solution before vagina examination | √ |  |  |
| 6 | Worn a gown before conducting delivery | √ |  |  |
| 7 | Prepared clean clothes for covering the baby |  | ✓ | Use mother’s clothes. |
| 8 | Cleaned the area for receiving the baby | √ |  |  |
| 9 | Used sterile delivery park during delivery | √ |  |  |
| 10 | Prepared sterile resuscitation equipment | √ |  |  |
| 11 | Washed hands after conducting delivery | √ |  |  |

Table 3: **Shows that, most of the aseptic techniques observed 8 (73%) are applied by nurses in** **labor ward when assisting delivery**

**CHAPTER FIVE**

## **DISCUSSION**

### **GENERAL KNOWLEDGE ON NEONATAL DEATH**

The study showed that 30 (100%) nurses who responded to questions assessing their knowledge on neonatal sepsis were knowledgeable. However, their knowledge varied from moderate to a high level based on the predetermined criterion. The questions covered three areas including the definition, signs and symptoms and the complications of neonatal sepsis. The study considered these three area to caver basic information common to all the nurses regardless of the differences in their level of training. The criterion used was that, the nurses who got all questions in the three area correct were considered to have high knowledge. Those who responded correctly on the definition, signs and symptoms only had moderate knowledge.

According to Squire (1979) any newborn baby presenting with signs related with sepsis should be evaluated clinically for effective measures. The differential diagnosis for such signs is extensive including transient tachypnea and disseminated viral infection due to herpes simplex virus (HSV) or an inborn error of metabolism. Therefore, nurses should have knowledge on neonatal sepsis so that proper diagnosis is made and correct treatment can be provided to safe life.

### **INADEQUATE NUMBER OF NURSES**

When the number of nurses is smaller than the number of patients to be attended, the quality of care may be compromised. The study findings show that the number of nurses is not enough compared to the number of patients admitted. In labor ward there is a deficit of **2 (20%)**, **3 (43%)** in antenatal ward and **4(50%)** in postnatal ward.

The findings show that there is shortage of nurses in labor ward and SBU. The nurse patient ratio observed was 1:50. This number is significantly high considering the nature and agency of the activities carried out in the labor ward and SBU. The recommended nurse patient ratio is 1:5 in normal circumstance (International Council of Nurses, 2001). Huber and Clark (2007) stated that an actual and perceived nurse to patient ratios could affect the quality of health care in their institutions. In his study quality care was associated with workload leading to unfinished clinical work and patient safety.

**DELIVERY ALTITUDES**

Bad health altitude including maternity at early age, home delivery with local midwives assistance, and delaying to access health care until complications arise, has contributed tremendously to the neonatal deaths at LDH catchment area.

The findings from distributed shows that out of 40 (100%) women from antenatal, labor and postnatal wards, 28 (70%) were between the age of 15-19 years, 15(38%) delivered at home, 8 (20%) developed complications such as cord prolapse, low birth weight, still birth, anencephaly & fetal distress and 12 (30%) deliveries were assisted by local midwives

### 

### **PREMATURE DELIVERY**

The study findings show that 26 (87%) of the respondents agreed that premature delivery contributes to neonatal sepsis. The reasons given were low immunity because the organs of premature babies are not matured predisposing them to infection. Babies born before terms are more vulnerable to infection because the skin and membranes are thin and easily damaged (Myles, 1993). Furthermore, premature babies require invasive procedures because they are at a higher risk of infection due to lowered immune response (Klingenberg et al., 2003).

### **APPLICATION OF ASEPTIC TECHNIQUES**

The study findings show that nurses observe aseptic techniques when performing standard procedures. Burke (2003) suggested that aseptic techniques should be observed in neonatal ward to prevent infection. Equipment and supplies also need careful attention to keep them free from contamination. The instruments can be sterilized by chemical treatment, radiation gas or heat exposure.

# **CHAPTER SIX**

## **CONCLUSIONS AND RECOMMENDATIONS**

Based on the study findings the major cause of neonatal death is neonatal sepsis due to fetal complications and poor management of second stage of labor. In addition, not all resuscitation equipment are available in maternity ward and space is insufficient in the labor room. **The prevalence of the problem from the total of 50 assessed women, is about 10%**

### **CONCLUSIONS**

* Nurses have knowledge on neonatal sepsis
* Ignorance about the hospital delivery is major contributing factor for fetal complications and therefor neonatal deaths.
* There are few nurses compared to the number of clients to be attended in wards
* Prematurity, early maternity age and home is a predisposing factor to neonatal deaths
* Nurses observe aseptic techniques during delivery

### **RECOMMENDATIONS**

Recommendations are made to the following:

**1. RECOMMENDATIONS TO THE NURSE IN-CHARGE IN THE WARDS**

* Provide supportive supervision in labour & postnatal wards.
* Conduct continuing education for all nurses on infection prevention and control.

**2. RECOMMENDATIONS TO THE HOSPITAL ADMINISTRATION**

* Employ qualified nurses as per staff establishment
* Ensure availability of equipment and supplies for delivery and neonatal care.

**3. RECOMMENDATIONS FOR NURSES WORKING IN ANTENATAL, LABOR & POSTNATAL WARD**

* Nurses should follow the principles of infection prevention and control to avoid transmission of infection within the ward.
* Share knowledge and skills on infection prevention and control and practise it.
* Staffs in the wards should make sure that instruments are sterile before using them by checking expiring date or change of color on the tape fixed on the package.

4. **RECOMMENDATIONS TO THE COMMUNITY AT LARGE**

* Community should be educated about the importance of hospital delivery, effects of home local deliveries, including poor management of labor and neonatal sepsis.

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