



**NEONATAL RESPIRATORY DISTRESS IN THE NEONATAL INTENSIVE CARE
UNIT AT A NATIONAL REFERRAL HOSPITAL IN THE SOUTHERN PROVINCE OF
RWANDA.**

by

Jeanne AMANI

A dissertation submitted in partial fulfilment of the requirement for the degree of masters

in nursing (neonatal track)

In the

Department of Nursing

DIRECTORATE OF POST GRADUATE STUDIES

SCHOOL OF NURSING, COLLEGE OF MEDICINE AND HEALTH SCIENCES

UNIVERSITY OF RWANDA

Supervisor: Dr. Marcella GOWAN

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DECLARATION

I do hereby declare that this dissertation "Neonatal Respiratory Distress in the Neonatology at the National Referral Hospital in the Southern Province of Rwanda" submitted in partial fulfillment of the requirements for the degree of **MASTERS OF SCIENCE in NURSING**, at the University of Rwanda/College of Medicine and Health Sciences, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

Jeanne AMANI

Reg. No: 216.337.569

Date and Signature of the Student

June 12th, 2017

a. Authority to Submit the dissertation

Surname and First Name of the Supervisor

Dr. Marcella Gowan

In my capacity as a Supervisor, I do hereby authorize the student to submit his/her dissertation.

Date and Signature of the Supervisor

June 12th, 2017.....


DEDICATION

I would like to dedicate this dissertation to a number of significant people in my life. To my supervisor for her kindness and support in regards of this study, to my employer who provided the recommendation letter in order for me to continue further studies, and to my friends and family for their invaluable love, support and patience.

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My deep sincere of gratitude is due to my supervisor MsDr Marcella GOWAN for her invaluable guidance, collaboration, available constructive ideas, support and her encouragement. I actually express thanks to her.

I can't forget to express my gratitude to the government of Rwanda through the Ministry of Health, who partnered with the Human Resources for Health (HRH) program so that health care professionals like myself were able to do graduate studies in our own country. I am grateful to have had this opportunity to study for a Master's of Science in Nursing Degree and specialize in Neonatal Nursing at The University of Rwanda/ College of Medicine and Health Sciences School of Nursing and Midwifery Sciences in partnership with leading universities in the United States.

ABSTRACT

Background: Throughout the world NRD is a major reason for admissions into neonatal intensive care units. NRD presents in many different ways but the main symptoms are; tachypnea, nasal flaring, chest retractions, and grunting. The complications can lead to serious morbidity and mortality. Despite high neonatal morbidity and mortality due to NRD there has been no studies focusing on NRD in Rwanda. This study determined the prevalence, associated risk factors and outcomes of NRD in a selected referral hospital.

Methodology: Quantitative descriptive, retrospective, cross-sectional design was used and stratified random sampling method was used to select a sample of 247 patients' files through the population of all neonates n=683 admitted to the NICU during 2016. An adapted checklist from a Cameroon study was used to collect data and were analyzed by SPSS version 20 and presented using tables and figures.

Results: The prevalence rate of NRD was 60% among the total number of admissions in the NICU. The associated risk factors were prematurity (61%), low birth weight (62.8%), male gender (56%) and Apgar score <7 at 5 min (21%). The main etiologies of NRD identified were neonatal infections (40, 3%), TTN (28%), and RDS (18%). TTN was statistically significant to be associated with NRD with p value .000 and also neonatal infections with a p value .004.

Outcomes: 53.1 % of newborns were discharged home and 43.2 % of neonates died.

Conclusion and recommendation: It has been found that the prevalence of NRD is high in Rwanda compared to other African countries like in the Cameroon where NRD is high at 47.5%. The deaths of newborns (43.2%) was high demonstrating the serious mortality associated with NRD. These findings point to the need for implementing evidence based practices in prevention and management of NRD.

Key Concepts:

Neonatal respiratory distress: is defined as clinical signs of effort breathing, such as tachypnea, grunting, intercostal retraction, nasal flaring and cyanosis. Ma et al. (2010).

Prevalence: is the proportion of a population who have or had a specific characteristic in a given time period. It can be an illness, a condition, or a risk factor. (Blexit, 2013)

Neonate: A baby who is less than 28 days old (Reuter et al, 2014).

Neonatal Intensive Care Unit (NICU): is defined as a therapeutic environment or area where a Newborn receive an specialized nursing care, treatment and rehabilitation according to her or his condition. (Torres et al. 2016)

A nurse: is a health provider who works together with the doctor in the decision conducting treatment, performing direct neonatal care and offering emotional support to families (Torres et al. 2016).

Preterm: is defined as babies born alive before 37 weeks of pregnancy are completed. There are sub-categories of preterm birth, based on gestational age: extremely preterm <28 weeks. Very preterm- 28 to <32 weeks, moderate to late preterm -32 to <37 weeks (WHO, 2016).

Risk factors: A risk factor is any attribute, characteristic or exposure of an individual that increases the likelihood of developing a disease or injury. WHO, 2017

Outcome: The outcome of an activity, process, or situation is the situation that exists at the end of it (Blexit, 2013)

ACRONYMS AND ABBREVIATIONS

NICU: Neonatal intensive care Unit

CPAP: continuous positive airway pressure

MAS: meconium aspiration syndrome

MSAF: meconium-stained amniotic fluid

PROM: prolonged rupture of membranes

NRD: Neonatal respiratory distress

TTN: transient tachypnea of the newborn.

WHO: World health organization.

MOH: Minister of health

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CHAPTER 1: INTRODUCTION

1.1. Introduction

This chapter one in this study contain background of the study that gives a history of neonatal respiratory distress with related prevalence and associated risk factors. This chapter explains also the problem statement, including main objective and specific objectives, research questions, significance of the study, and shows subdivision of the study.

1.2 Background

There are many conditions that cause neonatal respiratory distress (NRD) in the newborn from birth to 28 days of life, such as neonatal infections, transient tachypnea of the newborn (TTN), Meconium Aspiration Syndrome (MAS), and birth asphyxia.(Torchie et. al., 2016). Hyaline Membrane Disease today known as Respiratory Distress Syndrome (RDS) is one of the conditions of NRD specifically to the preterm neonates due to surfactant insufficiency, it should not be confuse with overall respiratory distress of the newborn. NRD is a major reason for admissions into Neonatal Intensive Care Units (NICUs) throughout the world (Tochie et. al., 2016). NRD presents in many different ways but the main symptoms are tachypnea (more than 60 breaths per minute), nasal flaring, chest retractions, and grunting. We cannot predict that an infant will develop respiratory distress however the complications can lead to serious morbidity and mortality (Reuter et al., 2014).

Neonatal mortality is the death of an infant during the first 28 days of life. This is the most vulnerable time and greatest risk of death for a child. The majority of these infants die on the same day they are born (WHO, 2015). Neonatal mortality is more observed in developing

countries and its rates are highest in sub-Saharan Africa, this region accounts for over 60% of estimated global total, mainly because of the large population and high fertility rate.

The case fatality rate for NRD in India is 30% to 40%. (Abdelrahman et al. 2014).

Efforts to decrease child mortality have been an international concern for many years. With the commitment to significantly reduce the mortality of children five years of age and under by 2015 a decline has been seen (WHO 2015). However, the goal of reducing child mortality by 2/3 percent was not met and Abdelrahman et al. (2014) point out how a new concerted effort was made with the development of the Sustained Developmental Goals (SDGs).

In NICUs, several studies showed that the most admissions are due to NRD. (Reuter et al. 2014).

A study in China (Ma et al. 2010) also showed that respiratory distress is the most common cause of NICU admissions and 42% of the infants hospitalized with neonatal respiratory distress are late preterm infants. A Sudanese study (Abdelrahman et al. 2014) showed that among 177 newborns admitted to the NICU, 100 of them were due to NRD. Chalacon et al. (2012) identified risk factors of NRD of the newborns in high income countries to include, prematurity, male gender, asphyxia, cesarean birth, pregnancy induced hypertension, any antepartum hemorrhage and meconium-stained amniotic fluid (MSF). Antenatal factors include gestational diabetes, chorioamnionitis, and ultrasound findings, such as oligohydramnios or structural lung abnormalities (Reuter et al. 2014).

Liu et al, (2012) showed that respiratory distress syndrome of the preterm is a great risk factor of NRD and leads to death twelve times higher among newborns in Africa than in Europe and the reason is due to lack of proper treatment. In the 1990s, RDS was diagnosed in 70% of very low birth weight infants (501–1500 g) in the United States and contributes to high rates of neonatal mortality in

premature infants in low-income countries. (Kamath et al., 2011).

In India, around 200,000 infants per year are affected by respiratory distress syndrome that is associated with a 40% to 60% mortality rate which is similar in USA during the 1950s and 1960s when oxygen was the only treatment (Kamath et al. 2011). Respiratory distress is an urgent neonatal condition worldwide and is still a serious problem. Tochie, et al., (2016).

Noutakdie (2016) reported a prevalence of 47.5% in the NICU in Douala, Cameroon in a study conducted in 2011-2013; he also reported prevalence rates in Pakistan (4.24%), France (18.5%), Ivory Coast (23%) and Burkina Faso (14.5%).

A Rwandan study (Nahimana et al., 2015) explained that there is a challenge in implementing hospital-based interventions for Neonatal respiratory distress in resource limited settings. Some interventions may be expensive like mechanical ventilation, which is often not available due to high costs, maintenance demands and the need for highly trained staff. The prevalence and risk factors associated with NRD have not been well cited in low-income countries particularly in Sub-Saharan Africa (Macguire et al., 2011

1.3. Problem Statement

Over the past sixty years there has been a significant decrease in NRD mortality rate in high-income countries. This is due to increase neonatal technologies and innovations. (Reuter, 2014) The etiologies and risk factors associated with NRD have not been well cited in low-income countries particularly in Sub-Saharan Africa (Macguire et al., 2011). Even if There has been some improvement in sub-Saharan Africa in care of neonatal patients but it has been slow (Tochies, 2016). In Kigali, the capital city of Rwanda there are now NICUs with high admissions rates of newborns with NRD and adequate treatment is lacking (Nahimana et

al., 2015). Despite high neonatal morbidity and mortality due to NRD of the newborn (Martin et al., 2013) there is a gap in the literature as there has been no studies focusing on NRD in Rwanda. Although there is high admissions due to NRD, the prevalence is not known and the etiologies and risk factors associated with NRD have not been well cited in our country too. With that purpose the present study was done to the selected hospital.

1.4. Main objective

The researcher aimed to determine the prevalence, associated risk factors and outcomes of neonatal respiratory distress in a referral Neonatal Intensive Care Unit in the Southern Province of Rwanda.

1.5. Specific objectives

1. To determine the prevalence of neonatal respiratory distress in the Neonatal Intensive Care Unit at a national referral hospital in the Southern Province of Rwanda.
2. To identify risk factors associated with neonatal respiratory distress among newborns in the Neonatal Intensive Care Unit at a national referral hospital in the Southern Province of Rwanda.
3. To determine the outcomes of neonates admitted to the Neonatal Intensive Care Unit in a national referral hospital in the Southern Province of Rwanda.

1.6. Research questions

1. What is the prevalence of respiratory distress among newborn admitted in the Neonatal Intensive Care Unit at a national referral hospital in the Southern Province of Rwanda?
2. What are the risk factors associated with neonatal respiratory distress among newborns in the Neonatal Intensive Care Unit at a national referral hospital in the Southern Province of Rwanda?

3. What are the outcomes of neonates admitted to the Neonatal Intensive Care Unit at a national referral hospital in the Southern Province of Rwanda?

1.7 Significance of the study

The study is significant as it goes together with the government of Rwanda's plan, for achieving the SDG 3, which is to ensure healthy lives and promote well-being for all children. It is hoped that the information from this study will be significant to the development of strategies and recommendations for reduction of the prevalence, morbidity and mortality due to neonatal respiratory distress. The Rwandan Ministry of Health experts will benefit from this study in designing protocols and policies related to NRD. The result from this study will also provide to the selected hospital information about the NRD in their neonatology unit and underlying contributing factors to the development of respiratory distress. This study could contribute to nursing curriculum education and hopefully to inspire future research.

1.8. Structure / organization of the study

This research study was divided into six main chapters.

Chapter 1: The introduction that includes: definition of key terms, background of the study, research objectives, research questions, problem statement and significance of the study.

Chapter 2: The literature review,

Chapter 3: The methodology,

Chapter 4: The results

Chapter 5: The discussion of the findings

Chapter 6: The conclusion and recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Literature review is the body of the study where the researcher present what has published to the topic by accredited scholars and researchers to convey the readers what knowledge and ideas have been established on a topic, and what their strengths and weaknesses are (proctor and Taylor,2005, p.6)

The purpose of this study was to describe NRD, to discuss various prevalence of NRD among newborns admitted in NICU in different countries, to discuss associated risk factors and etiologies contributing to NRD among newborns.

2.2Theoretical Literature

The theoretical literature is explanations that provide the understanding of concepts and its phenomena. In this study a theoretical literature provide some explanations and understanding of Neonatal respiratory distress (NRD) as described by Eduard et al, 2013 who demonstrate that NRD is common serious neonatal problem, which is significantly associated with morbidity and mortality. NRD is manifested by tachypnea (more than 60 breaths per minute), apnea, retraction of respiratory muscles, reduced air exchange, nasal flaring, cyanosis, grunting, inspiratory stridor and feeding difficulties. Furthermore the risk of NRD increases the lower the weeks of gestation for example at 37 weeks, the chances of having NRD in a neonate are three times greater than at 39-40 weeks gestation (Edwards et al., 2013). However, in developing countries there are few published studies concerning NRD (Selma et al., 2014).

2.2.1 Prevalence

Respiratory distress is an urgent neonatal condition worldwide and is still a serious problem in some counties and prevalence rates in some countries are 47.5% in Cameroon, in Pakistan (4.24%), France (18.5%), Ivory Coast (23%) and Burkina Faso (14.5%) Fedakar (2011) also reported a prevalence of 61.5% in neonates admitted in an NICU in Istanbul, Turkey Torchie, et al., (2016). In a referral neonatal unit in the Cameroon Torchie et al., 2016 determined the prevalence, predictors, etiologies and outcomes of NRD. By quick identification of increase risk factors associated with NRD and prompt treatment the morbidity and mortality can be reduced (Reuter et al. 2014). Before birth, we cannot predict that an infant will develop respiratory distress or not. Unmanaged treatment of NRD: can lead to a cascade of events: respiratory failure which may leads to cardiopulmonary arrest (Bortle, 2016)

2.2.1 Risk factors associated with respiratory distress

Torchie et al. (2016) found associated neonatal factors for NRD such as; prematurity, gender, birth weight, APGAR score and obstetrical factors. Hibbard (2010) also included meconium-stained amniotic fluid (MSAF), cesarean section delivery, gestational diabetes, maternal chorioamnionitis, and prenatal findings such as oligohydramnios or structural lung abnormalities that can be found on ultrasound.

2.2.2. Etiology

Torchie et al. (2016) also discussed possible etiologies of NRD as; hypoxic ischemic encephalopathy, meconium aspiration syndrome (MAS), hyaline membrane disease, transient tachypnea of the newborn (TTN) and neonatal infections. Other etiologies included anemia,

hypoglycemia and congenital malformation. According to Reuter et al. 2014 , Meconium Stained Amniotic Fluid (MSAF) occurs when the fetus passes meconium before birth and Infants born through MSAF are at risk for aspiration of meconium in uterus or immediately after birth and are at increased risk to develop respiratory distress after delivery, which cannot be attributed to another cause. Moser et al.(2014), also demonstrated that some abnormalities and malformations that present after birth like trachea esophageal fistula, broncho pulmonary malformations, bronchogenic cysts, pulmonary hypoplasia from congenital diaphragmatic hernia or severe oligohydramnios, may contribute to respiratory disease. TTN, RDS, neonatal pneumonia, MAS, and persistent pulmonary hypertension of the newborn (PPHN), all are possible etiologies of NRD which may result from complications during the prenatal to postnatal transition period (Monnaf, 2013). Martin et al., 2013, also suggests elective caesarean section as another factor known to be associated with NRD. According to Reuter et al. 2014 , Me conium Stained Amniotic fluid (MSAF) occurs when the fetus passes meconium before birth and Infants born through MSAF are at risk for aspiration of meconium in utero or immediately after birth and had great risk to develop respiratory distress after delivery, which cannot be attributed to another cause.

2.2.3 Immediate Outcome

Immediate outcome of newborn with NRD may be cure, death or discharge with complications. (Nasr,2014).

2.3 Burden of neonatal respiratory distress

NRD increases the newborn's activities due to tachypnea and thus metabolic requirements, which can lead to hypoglycemia; hypoxia, severe infections (Lunze et al. 2014). Preterm and late

preterm infants admitted to the NICU can develop significant respiratory morbidity, the more preterm the infant the more severe s the infant may become (MOH, 2007).

2.4 Empirical Literature

The literature confirmed that Neonatal respiratory distress is a frequent cause of neonatal admission and mortality in low-income countries; and Low-income countries do not dispose optimal means for its management.(Langmia et al, 2016)

Some risk factors were statistically significant, like neonatal factors; Prematurity with P value= 0.039, Gender male; p=0.027, high birth weight p value=0.034 and APGAR score at 1min<7, p=0.0001.Obstetrical factors; Fetal distress p value0.001, elective sectarian section p value 0.004, number of antenatal care visits with p value 0.045, Prolonged rupture of membranes > 12hours with p value 0.02 and maternal fever>38 degree celecius p value 0.047.(Torchies,2016)

2.4.1 Management of neonatal respiratory distress

Reuter et al.2014, suggests the introduction of technology and treatments such as the use of oxygen, antibiotics and continuous positive airway pressure can decrease the burden of disease on babies with NRD.In high income countries, the improved survival of infants was observed due to effective strategies to treat NRD, such as exogenous surfactant replacement therapy, CPAP, and mechanical ventilation (Mcadams et al. 2015).

However, in low-income and middle-income countries most therapies like exogenous surfactant replacement therapy, CPAP, and mechanical ventilation are not accessible due to high costs and implementation (Mcadams et al. 2015).A simple and low cost treatment of respiratory distress is Bubble CPAP a device for treating neonates with respiratory distress to improve survival rates in

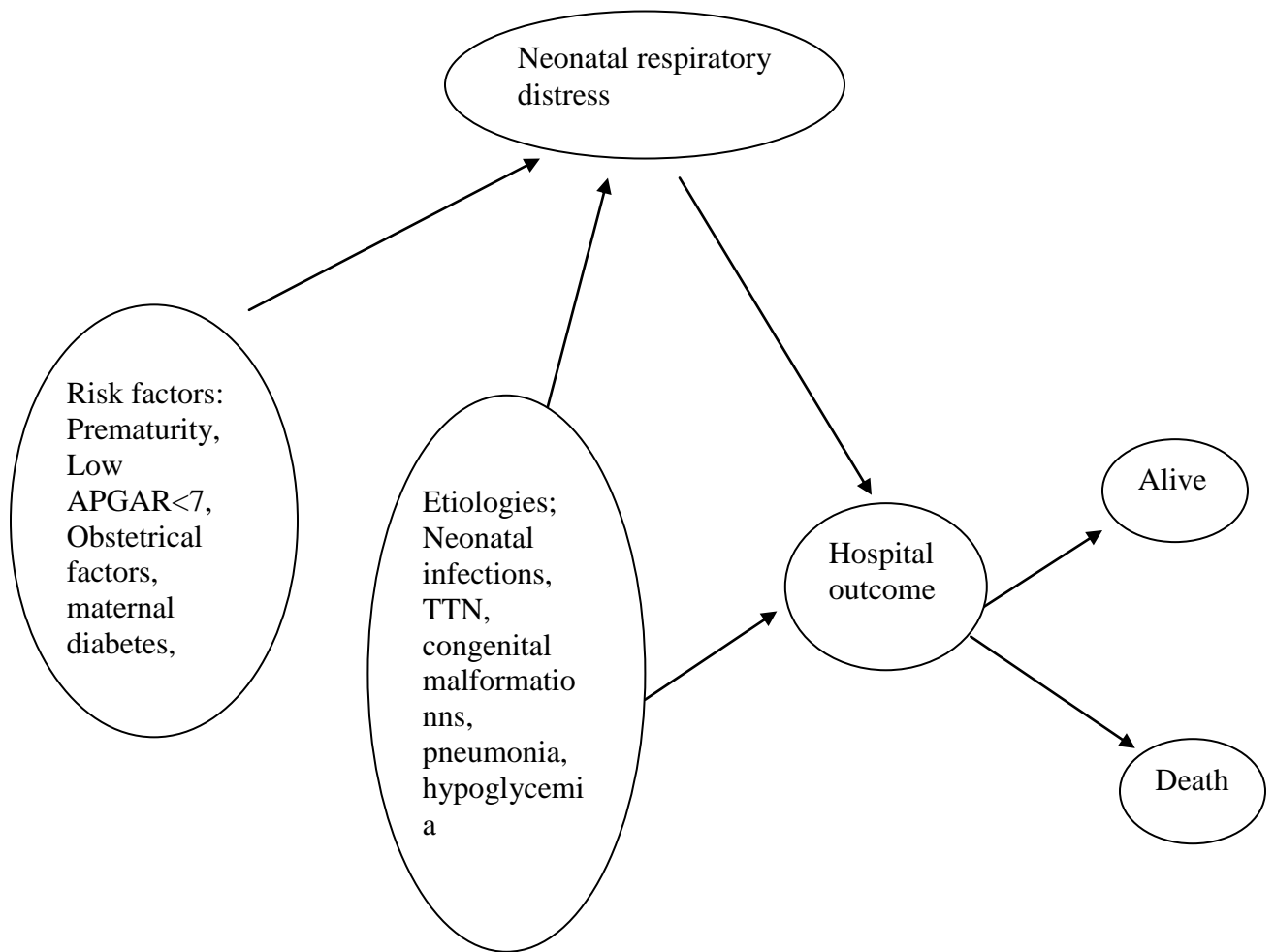
settings lacking mechanical (Mcadams et al. 2015). In Rwanda, NRD is a problem in rural area District Hospitals the use of simple bubble CPAP as a low cost treatment among neonates struggling with various forms of respiratory distress (Nahimana et al,2015).

2.5. Critical Review and Research Gap identification

NRD is still a global urgency and its incidence still a problem in some counties as the study done by Torchie, et al.,2016. The highest rates of neonatal mortality are still observed in sub Saharan Africa and Asia and one of the leading causes of neonatal mortality is NRD. In Asia an estimated global total of 60% was observed due to their large population and high fertility rate (Sirageldin et al. 2014). In the high income country there have been seen some improvement due to the high technologies and innovation. Reuter ,2014

2.6 Concept framework

The conceptual framework for this study is based on literatures evidenced etiologies, risk factors and outcomes of NRD. According to Torchieset al, 2016, the main etiologies of NRD are Neonatal infections, TTN, congenital malformationns, pneumonia, hypoglycemia, hyaline membrane disease and meconium aspiration. Associated risk factors are neonatal factors; Prematurity, Gender male, high birth weight and APGAR score at 1min<7, Obstetrical factors; Fetal distress, elective sectarian section, number of antenatal care visits with p value 0.045, Prolonged rupture of membranes > 12hours and maternal fever>38 degree celecius and outcome was alive, death or discharged with complications.



Neonatal respiratory distress Concept framework (Torchies, 2016).

CHAPTER 3: METHODOLOGY

3.1 Introduction

Research methods are all those methods/techniques that are used for conduction of research it refer to the behavior and instruments used in selecting and constructing research technique (Katari,2004,p.7). Therefore, this chapter describes the methods or principle to be used in this research.It consists description of the study area, study design, study population, sample size and sampling strategy, instrumentation, data collection procedure, data analysis and ethical considerations.

3.2. Research design

Research design is a plan according to which the research must be carried out and focuses on the kind of study is being planned. (Almec, 2015,p.6).

In this study, the study design used was a retrospective, descriptive and a cross sectional.

3.3. Research approach

This was a quantitative research approach as it involves the generation of data in quantitative form which can be further sub-classified in inferential, experimental, and simulation approach to reach(Katari,2004,p.22)

3.4. Study population

Population is the group of people that the researcher wants to make a conclusion about once the research study is completed (Korb, 2012,p.4)

All newborns born admitted to the neonatal intensive care unit in a selected national referral hospital in the southern province of Rwanda. the total number of target population was 683 newborns admitted.

3.4.1 Inclusion criteria

The inclusion criteria are all neonates admitted in the NICU.

Admitted into NICU, with or without a diagnosis of respiratory distress.

The diagnosed of NRD is when a neonate presents with at least one of the following signs: an abnormal respiratory rate, expiratory grunting, nasal flaring, chestwall recessions with or without cyanosis, in their files.

3.4.2 Exclusion criteria

The study excluded all newborns' files were not well completed. Newborn who died at admission.

3.5. Research settings

This study was carried out in the NICU of the selected referral hospital located southern province of Rwanda.

The selected referral hospital is located in Southern Province, of Rwanda. It provides medical services including: emergency, ICU, NICU, maternity, internal medicine, pediatrics, surgical wards, operating theatre, radiology, laboratory, dentistry, ophthalmology department, OPD (outpatient department) in each service. The NICU at this hospital is near the maternity ward, in the pediatrics department and it composed by four rooms;

NICU 1 where patients are received after being born in the obstetric ward. In NICU 2, patients here are transferred from others hospitals especially the district hospitals. There is also a feeding room; where mothers are assisted with expressing breast milk and where equipment is stored

related to breastfeeding, there is also a Kangaroo mother care (KMC) room. The Neonatal intensive care unit is staffed by twenty nurses including nurse in charge. The present study was concerning the babies admitted to this area with respiratory distress that appeared to be many.

3.6. Sampling

Neonates who have been admitted during 2016 were retrieved from the NICU register and constituted the population of this study. All neonates born at the hospital and or transferred into the hospital NICU were included in this study and those transferred from other hospitals.

The hospital NICU register book of 2016 was used to identify Newborns cases admitted from January 1 to December 31, 2016. The sample method for this study was stratified random sampling because the researcher looked the files in archive department and select systematically some files in each month of the year, i.e from January to December.

The sample was taken using the files for newborns admitted in 2016 representing all newborns including preterm and term newborns.

3.6.1. Sampling strategy

Systematic stratified random sampling method was used to obtain sample of 247 patients' files for which every n th record were selected from files archived from January to December, 2016. This sampling strategy was stratified because each month was considered as strata. This sampling method was selected as it is good as the random sampling method. Its only advantage over the random sampling technique is simplicity. Where n is determined by dividing the number of people in the population by the number of people you want in your sample (StatPacInc, 2014).

Nth =3rd

To select patient's files in Archive department, the researcher reached the cupboard where the files were classed according to each month of the year 2016. Then after, the patient's files of every 3rd in each month was taken to obtain a sample of 247 patient files.

3.6.2. Sample size.

Sample size is the number of units (individuals) needed for the study to represent the study population. In this study sample size was the population who represented the whole population. The sample size was calculated as below.

Sample for this study was obtained using formula given by Taro Yamane 1967 as follow

n=sample size, N= Population, e= marginal error set at 95% of CI = 0.05

$$n = \frac{N}{1 + N(e^2)}$$

According to this Formula, n was 252 files

After selecting the files, 5 files were completely empty, and a researcher considered the remaining 247files.

As the total number of admission files the whole year from January, 2016 to December, 2016 was 683 newborns admitted the whole year.

3.7. DATA COLLECTION METHODS AND PROCEDURES.

A data collection method is defined as an activity of gathering facts or information about a subject with a purpose to obtain the information to keep on record, to make decisions about important issues and to pass information.

3.7.1. Data collection instruments

Data collection instrument for this study was done using an adapted checklist from Cameroon where the same study was done from data gathered from patient's files. The permission of using this checklist was obtained from the concerned people and is in appendix document. This checklist had the following sub-groups: demographics of the participants, perinatal history, maternal history, and part to assess risk factors both neonatal risk factors and maternal risk factors. The questionnaire was designed in English.

3.7.2. Data collection procedure

After full ethical clearance was obtained the researcher collected data three times a week Monday, Tuesday and Wednesday for a period of 2 weeks. The researcher accessed the registration book to know the total number of admissions for the whole year and additional information was taken from pertinent neonatal admission files from the complete 2016 calendar year. The data collection tools have been kept confidential on the researcher computer that is password protected and known only to her.

3.8 DATA ANALYSIS (QUANTITATIVE)

The techniques used was descriptive statistics (i.e. mean, standard deviation, etc.) graphs, tables, use of computer with SPSS software which is, a Statistical Package for Social Sciences (SPSS version 20) was used in this study for the analysis of the data. Chi-Square statistical test of significance was used to determine the level of significance of association between variables at 95 % confidence level (± 5 % sampling error). Level of significance will be set at $p \leq 0.05$. Results are presented with tables, figures and charts made in Microsoft word. Demographic information was also used for comparing results. Analysis percentages (i.e. frequencies) were also used

3.9. ETHICAL CONSIDERATIONS

Ethical clearance was obtained from the University of Rwanda /College of Medicine and Health Sciences IRB committee, as well as permission from the Dean of the School of Nursing and Midwifery and from the selected hospital research review board.

Codes were strictly used codes other than names of the patients in order to ensure confidentiality. The other critical principles of individual rights such as beneficence and privacy were respected throughout this study.

3.10. DATA MANAGEMENT

Data collected are stored in secured lap top in the database locked by password and are valid for 10 years

3.11. DATA DISSEMINATION

I will publish the finding from this study under a given permission and a copy will be given to the same hospital and as well as my education institution

3.12. LIMITATIONS AND CHALLENGES

3.12.1. Challenges

The main problems associated with this study was the short time frame and minimal financial resources. Risk of missing some informations into files because of poor documentation.

3.12.2. Limitations

We acknowledge some limitations of our study.

a) As a retrospective analysis conducted in a single and selected hospital, the results cannot be generalized to the entire country because some data were missing.

b) Data may contain some inaccuracies due to missing information and lack of documentation.

CHAPTER 4: PRESENTATION OF RESULTS

4.1 INTRODUCTION

This chapter presents the results of the study starting by presentation of demographic information, tables, graphs and figures. Returning to the study objectives, research questions and the conceptual framework provides a structural organization to the data analysis.

PART ONE. DESCRIPTIVE STUDY

1. DEMOGRAPHIC ASPECTS OF NEWBORNS

Gender

Table 1 Distribution of participants by their gestational age.

Gestational age	Frequency	Percent
<28 weeks (Extremely preterm)	18	7.28
28to <32weeks(Very preterm)	21	8.50
32-37 weeks (Moderate to late preterm)	115	46.55
38-42 weeks (Term babies)	93	37.65
More than42weeks (Post term)	0	0
Total	247	100.0

The table 1 indicates the gestational age according to WHO, 2015 classification of prematurity. The findings from this study indicate that Term babies (38-42 weeks) were 37.6%. However, most of participants (46.55%) were moderate to late preterm: (32 to <37 weeks). while a little participant 7.28 % of the babies wereextremely preterm (<28 weeks).

Table 2 Age of newborn at admission into neonatal unity

Age of newborn at admission	Frequency	Percent
0 hour to 24 hours	172	69.6
24 to 72 hours	37	15.0
3daysto 7days	17	6.9
8 to 28 days	21	8.5
Total	247	100.0

The table 2.indicates age of newborn at admission and the findings show that 15% of the newborns admitted between 24 to 72 hours after being born. However most of participants 69.6% were admitted in the early neonatal period (0hr to 24hrs). While the minority 6.9% were between 3 to 7 days. Those who came in late neonatal period (8 to 28 days) represented 8.5%.

Table3Distribution of participants according to their gender of the newborns.

Gender	Frequency	Percent
Male	135	56.0
Female	106	44.0
Total	241	100.0

Of the newborns admitted to the NICU135(56%) were males and 106(44%) were females. Six files were missing the gender of the newborns. The ratio of M : F was 1.27:1.

Table 4 Place of birth

Place of birth	Frequency	Percent
Selected Referral Hospital	140	63.1
District Hospital	60	25.7
Home	5	2.3
Clinic	10	4.5
Health Center	7	3.2
Total	222	100.0

Overall, the Table 4 indicates that 97.7% of the neonates were born in health facilities. However, most of participants (63.1%) were born at the selected referral hospital. Findings from this study indicate that 25.7% were born at the district hospital, while 2.3% of the babies were born at home.

Table 5 Birth weight (in grams)

Birth weight	Frequency	Percent
500-1000g	29	11.74
1000-1500g	29	11.74
1500-2500 g	97	39.4
2500-3500g	68	27.6
3500-4500g	24	9.3
Total	247	100.0

Regarding the above table:

Extremely Low birth weight (ELBW) <1000g: 29(11.7%)

Very low birth weight (VLBW) 1000-1500 g:29 (11.7%)

Low Birth Weight (LBW) 1500-2500g: 97 (39.4%)

Observation; The highest number was a newborn with LBW

2. PATTERNS OF NEONATAL RESPIRATORY DISTRESS

Table 6. Proportion of respiratory distress in newborns

NRD	Frequency	Percent
yes	148	59.9
no	99	40.1
Total	247	100.0

Of the neonatal admissions into the NICU in 2016 148 (60%).of the newborns had one or more signs of respiratory distress, and 99(40%).had no sign of respiratory distress. The results showed that the majority of neonates admitted into the NICU presented with NRD.

The first objective regarding the prevalence of respiratory distress among all the newborns admitted in neonatology in 2016 we found 60% of newborn admitted had NRD,

Different signs of Neonatal respiratory distress.

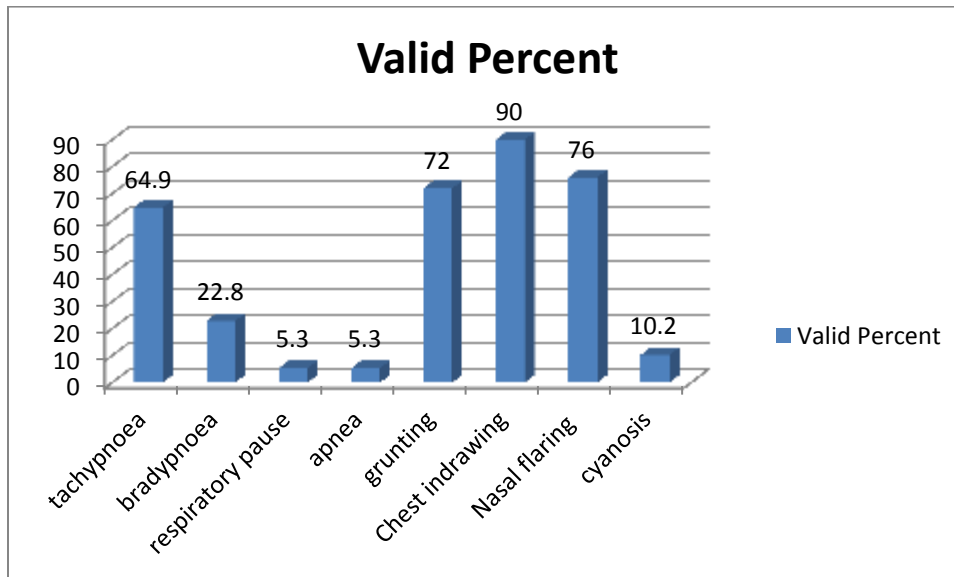


Figure1. Most of them presented Chest indrawing(90%) and nasal flaring (76%).

3. POSSIBLE RISK FACTORS OF NEONATAL RESPIRATORY DISTRESS

Section B – Maternal obstetrical status

Multiple pregnancy

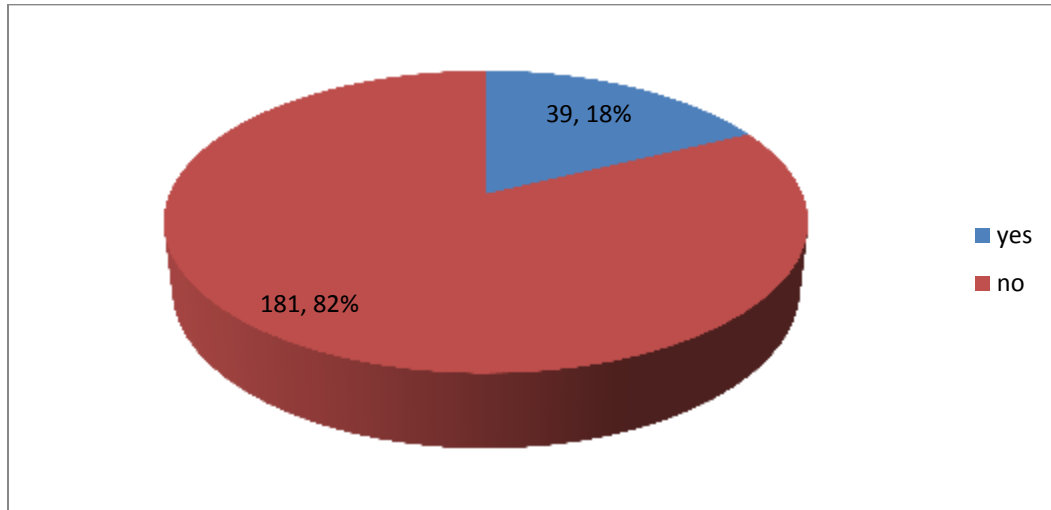


Figure 2 Multiple pregnancy

181(82%) women were non multiple pregnant and women with multiple pregnant represent 39 (18%).

Antenatal Care

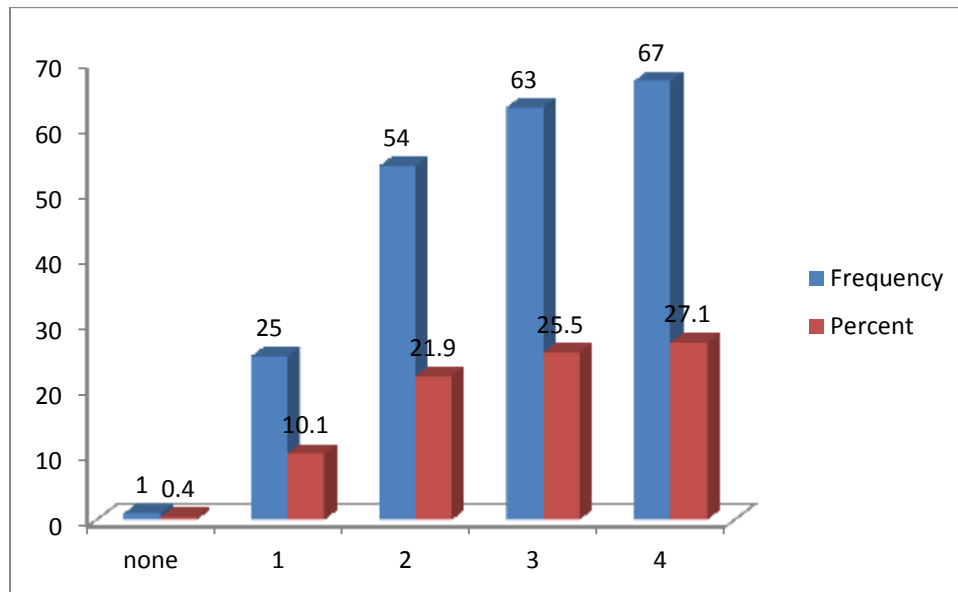


Figure 3. Antenatal care

The largest number of antenatal care visits attended was 4 which represented 67(27, 1%), the minority is none antenatal care visit; only one person 1(0.4%)

Adverse conditions during pregnancy

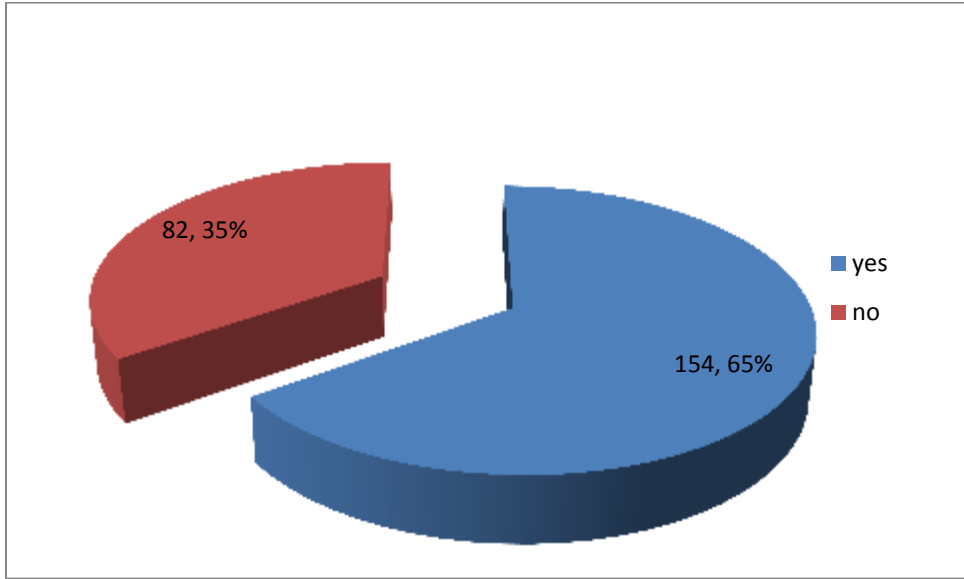


Figure 4. Adverse condition

The 154 (65%) of women had an adverse condition during pregnancy 82(35%) were those who didn't have disease during pregnant 82(35%).

As the figures below show, these adverse conditions include ante partum hemorrhage, diabetes, pregnancy induced hypertension (PIH), threatened abortion or preterm labor and other disease.

Adverse condition during pregnancy

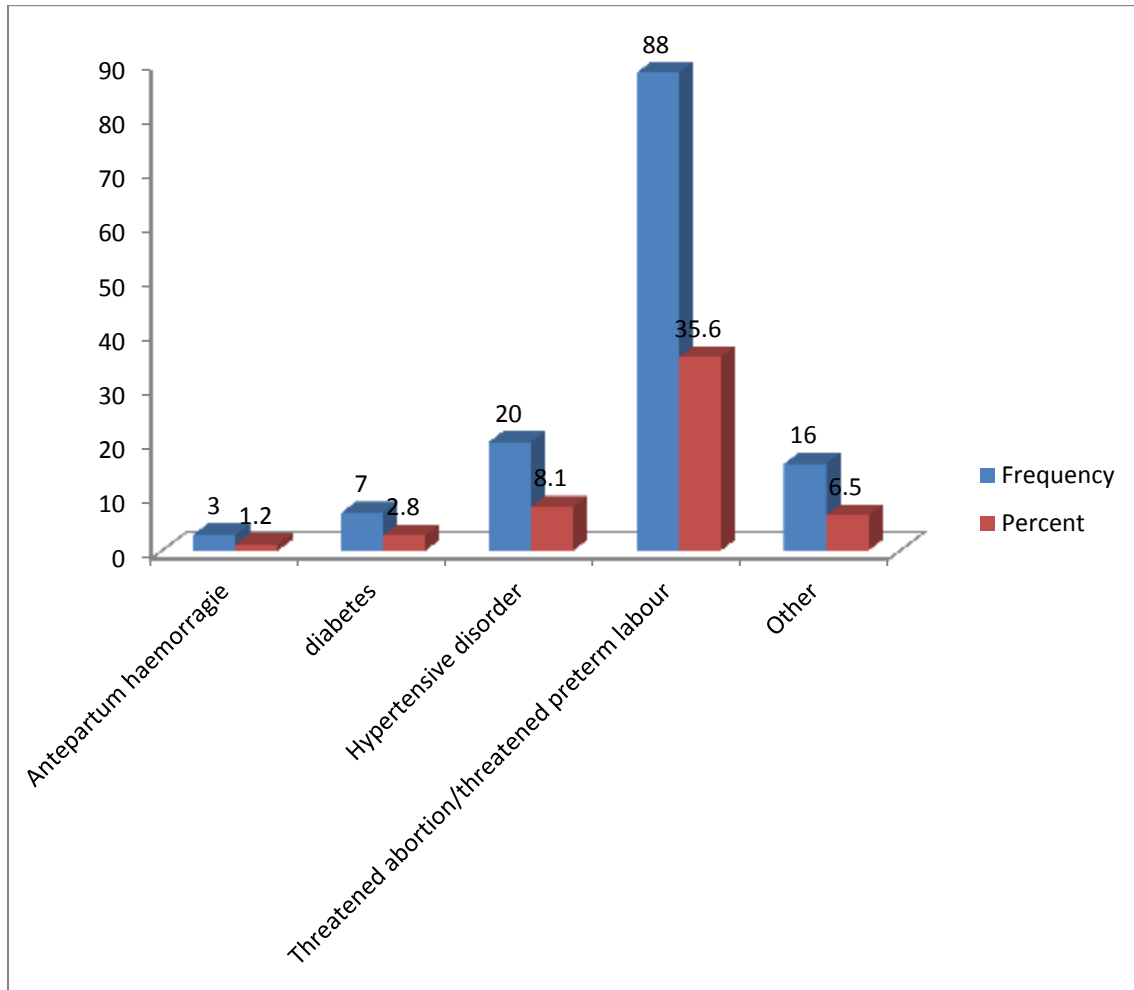


Figure 5. Adverse conditions

88(55.6%) of the mothers had a threatened abortion or preterm labor while 16 (6.5%) were other condition

Regarding the administration of steroids for preterm labor 149 (71.3%) neonates did not receive steroids for preterm labor although 60 (28.7%) of the mother's did receive steroids for preterm labor.

Table 7 Mode of delivery

Mode of delivery	Frequency	Percent
Vaginal	124	54.9
Elective cesarean	40	17.7
Emergency cesarean	60	26.5
Instrumental delivery	2	9

124 (54.9%) neonates were born by vaginal delivery while 60 (26.5%) were born by emergency cesarean section. There were 40(17.7%) born by elective cesarean birth and 2 (9%) were by an instrumental delivery (such as forceps or vacuum) 2 (9%).

Table 8. SUMMARY TABLE OF THE RISK FACTORS

Risk factors of NRD	Frequency	%
Neonatal factors		
Prematurity	154	61%
Male Gender	135	56%
APGAR 1-7 at 1min	69	36.7%
APGAR 1-7 at 5 min	39	21%
LBW	155	62.5%
Obstetrical factors		
Multiple pregnant	39	18%
Maternal diabetes	7	2.8%
Maternal fever	5	62%
PROM	29	88%
Cesarean section	100	44.2%
Nonuse of steroid	149	71.3%
Untreated UTI during the last months of pregnant	7	70%

The table 8.Indicateneonatal factors and obstetrical factors with are related to NRD.

Risks factors of neonatal respiratory distress were find to be gestational age (prematurity) 61% ,56% gender (male gender) APGAR below 7 at 5 min were 21% of newborns, multiple pregnant were 18%,maternal fever were among 62% of women, however the high percentage 88% were mothers with prolonged rupture of membrane while a little 2,8% were mothers with maternal diabetes were 2.8%,

Table 9.Possible reason of admissions which are related to NRD.

Possible reasons of admissions which are related to NRD	Frequency	Valid Percent
Neonatal infection or sepsis	56	40.3
TTN ; Transient tachypnea of the newborn	39	28
Hyaline membrane diseases	25	18.0
Meconium aspiration syndrome	6	4.3
Pneumonia	3	2.2
Hypoglycemia	3	2.2
Congenital malformation	7	5.0
Total	139	100.0

Table 9. Possible reason of admissions which are related to NRD.

Most participants 40.3% had neonatal infection/ sepsis, while 3 (2.2%) of newborns had hypoglycemia and pneumonia. Nine children did not have a documented diagnosis.

4. HOSPITALIZATION OUTCOME

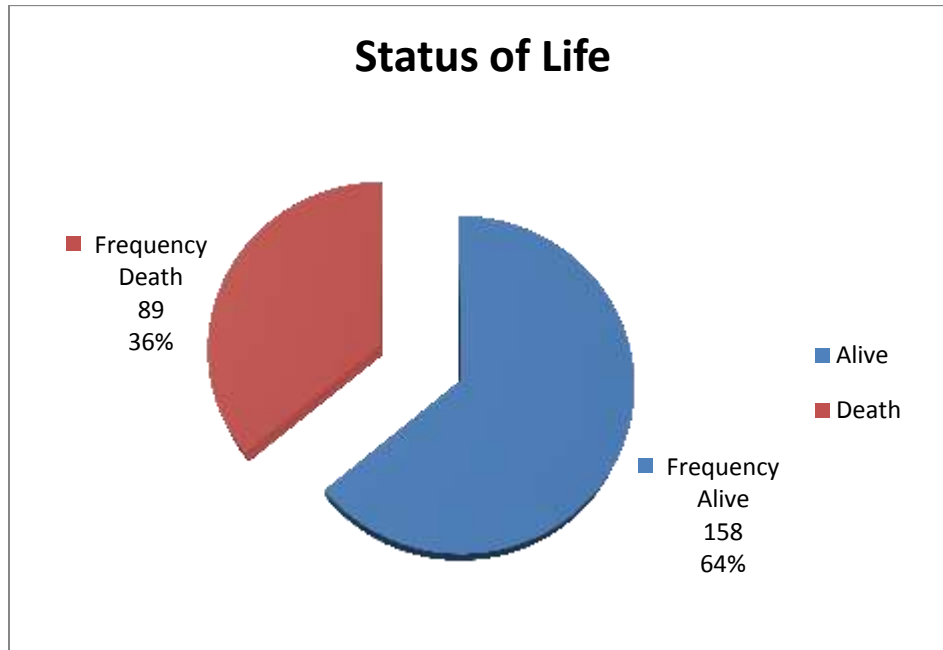


Figure 6 Life status

The 158 (64%) of the newborns were alive.

The 89 (36%) of the newborns had died.

Table 10 DURATION OF HOSPITALIZATION

Days	Frequency	Valid Percent
1-5	110	47.8
6-10	67	29.1
11-15	21	9.1
16-20	11	4.8
21-25	11	4.8
26-30	4	1.7
31-35	2	.9
36-40	3	1.3
41-50	1	.4
Total	230	100.0

The 110 (47.8%) of the newborns spent 1-5days in the hospital

The number of newborns that spent 41-50 days in the hospital 1 newborn (4%).

Table 11.DURATION OF HOSPITALIZATION OF THOSE DIED WHILE PRESENTING NEONATAL RESPIRATORY DISTRESS

Duration of hospitalization for died newborns with NRD	Frequency	Valid Percent
1-5	76	87.4
6-10	8	9.2
11-15	3	3.4
Total	87	100.0

The (87.4%) of the newborns who died while presenting NRD were hospitalized between 1-5 days. The (3.4%). of the newborns who died while presenting NRD were between days 11-15 days.

PART TWO. ASSOCIATIONS BETWEEN VARIABLES

Table 13 Hospital outcomes and neonatal respiratory distress Cross tabulation

Hospital outcomes * Neonatal respiratory distress Crosstabulation					
Count					
		Neonatal respiratory distress		Total	Chi-Square Tests
		Yes	no		P.value
Hospital outcomes	Alive	84	74	158	.004
	Death	64	25	89	
Total		148	99	247	

These associations show that neonatal respiratory distress had the impact on hospital outcome when considering the p value.

Considering the total number of death 89; The number of newborns who died while having NRD was 64 (43.2%), and 25(25.2%) of newborns died without respiratory distress.

The number of newborns with neonatal respiratory distress who lived was 84 (56.7 %), the number of newborns with no signs of neonatal respiratory distress who lived was 74 (74,7%).

The table above show morbidities associated with death, the other diagnosis (conditions) contributed to death apart from NRD and etiologies.

Table 14 Possible reasonof admission for NRD* Hospital outcomes Cross tabulation

Possible reason of admission	Hospital outcomes		Total
	Alive	Death	
Neonatal infection or sepsis	25	31	56
	44.6%	55.4%	100.0%
TTN ; Transient tachypnea of the newborn	31	8	39
	79.5%	20.5%	100.0%
Hyaline membrane diseases	14	11	25
	56.0%	44.0%	100.0%
Meconium aspiration syndrome	50.0%	50.0%	100.0%
pneumonia	2	1	3
	66.7%	33.3%	100.0%
HYPOGLYCEMIA	0	3	3
	0.0%	100.0%	100.0%
CONGENITAL MALFORMATION	2	5	7
	28.6%	71.4%	100.0%
Total	77	62	139
%	55.4%	44.6%	100.0%

The table 14 shows the percentages of etiologies (causes) related to the hospital outcome, all newborns with hypoglycemia died 3 (100%). For neonatal infections, 31(55.4%) died and 21(44.6%) alive.

Of those babies with TTN 79,5% lived, those with meconium aspiration syndrome, 50% lived, and 50% died.

In total, 55.4% with these etiologies lived and 44.6% died.

Table 15 Association of reason of admission and NRD.

Reason for admission	Neonatal respiratory distress		P. VALUE
	yes	no	
Neonatal infection or sepsis	80.4%	19.6%	.004*
TTN ; Transient tachypnea of the newborn	97.4%	2.6%	.000*
Hyaline membrane diseases	76.0%	24.0%	.059
Meconium aspiration syndrome	66.7%	33.3%	1.000
pneumonia	66.7%	33.3%	.647
HYPOGLYCEMIA	66.7%	33.3%	.543
CONGENITAL MALFORMATION	71.4%	28.6%	.377

The majority of neonate 97% admitted for TTN developed NRD than others and TTN was statistically significant with p value.000*and newborn who had neonatal infections and developed NRD were 80.4% , this was statistically significant with a p value below 0.005as it is .004*.

CHAPTER 5:DISCUSSION

5.1 Discussion about Prevalence.

The study found there was a 60% prevalence rate of NRD for 2016 at the selected referral hospital. There were a sample of 247 newborns among a total of 683 newborns admitted in neonatology 2016 at the selected referral hospital in southern Province. This hospital is a referral center for most all neonatal emergencies and transfers from the district hospitals, and private sectors which no doubt adds to this high rate of prevalence note that a big number of newborns are admitted in early neonatal period; 172 of newborns who represented 69.6% were admitted in first 24 hours, this is comparable to the study done by Eduard et al,2013 which showed that NRD is common in the early neonatal period and occurs in up to 7% of newborn infants. Our findings was similar to the findings from Fedakar (2011) who reported a prevalence of 61.5% in neonates admitted in an NICU in Istanbul, Turkey. However, Noutakdie (2016) reported a prevalence of 47.5% in the NICU in Douala, Cameroon in a study conducted in 2011-2013; he also reported prevalence rates in Pakistan (4.24%), France (18.5%), Ivory Coast (23%) and Burkina Faso (14.5%). A Sudanese study reported a rate 4.83% at a maternity in Sudan. Abdelrahman et al. (2014) also reported the incidence rates of NRD in other developing countries such as in India (0.7 to 8.3%) and Italy (2.2%).

5.2 DISCUSSION ABOUT RISK FACTORS AND RELATED ETIOLOGIES OF NEONATAL RESPIRATORY DISTRESS

Risks factors of neonatal respiratory distress were find to be gestational age (prematurity) 61%, all newborns with Low birth weight 155 (62.5%) , male gender APGAR below 7 at 5 min (21%), multiple pregnant 18%, adverse condition during pregnant especially maternal diabetes2.8%, maternal fever 62%, prolonged rupture of membrane 88% and mode of delivery, especially emergency cesarean section 26,5%, elective cesarean section 17.7% according to the table above all risk factors were not statistically significant. Comparatively to some findings of other studies, the risk of RDS increases inversely with decreasing gestational age thus the commonest at-risk group are preterm infants.(Edwards et al., 2013).

Gestational age, low birth weight, maternal age, elective and emergency caesarean section and male sex are all risk factors for RDS (Kotesha ,2013). A study done in NICU at a referral hospital at Cameroon show the following result, Preterm < 37weeks of gestational were 32.4% and APGAR at first minute < 7 were 30% of the newborns and emergency cesarean were 19.9% and elective cesarean was 14.4%. (Choukem,2016).

Neonatal risk factors of NRD were found to be an APGAR score < 7 at the 1st minute, prematurity, male gender and birth weight \geq 4000 grams.The APGAR score is usually an indicator of birth asphyxia. (Chalancon et al. in 2012)

In the present study, The main etiologies of NRD identified were neonatal infections (40,3%) with a case fatality rate (CFR) of (55.4%), TTN (28%) with a CFR (20.5%) and RDS (18%) with a CFR of (44%) and MAS (4.3%) with a CFR of (50%), pneumonia (2.2%) and CFR of

(33.3%,) hypoglycemia (2.2%) with CFR (100%) and congenital malformation (5%) with CFR (74.4%). Only neonatal infections and TTN were statistically significant.

These results are higher than in a study by Edwards, (2013) which showed the MAS mortality rate in term neonates to be as high as 40% .The incidence of MAS in developed countries is on the decline possibly due to improved obstetrical care. Edwards et al., 2013 also reported other causes of NRD which they found common in term neonates such as; TTN, RDS, pneumonia, PPH of the neonate and pneumothorax.

The result from the present study are more comparable to the Sudanese study (Abdelrahman, Hamed& Nasr, 2014) which showed that MAS occurred in only (6%) ,CFR (33.3%), sepsis (24%) with a case fatality rate of (33.3%), TTN (28%)with a (0%) CFR, and RDS (15%) with CFR of (86.7%). Another Sudanese study (Mohammed, 2013), showed that (MAS) occurred in only (0.85%) of cases with a CFR of (8.7%), which is very much lower than the present study. A Portuguese study (Espinheira et al., 2011) showed that MAS was responsible for (1.4%) of all NICU admission with a CFR of (2.8 %,) which is considerably lower compared to the present study.

Neonatal sepsis was (31%) in a referral unit of Cameroon and was the major contributor to the death rate amongst NRD patients; TTN was (25%) and (14%) in RDS, (8 %) in HIE, and (11%) for MAS (Tochie, 2016).These results are the most similar to the present study where neonatal sepsis (55.4%) and RDS (44%) were found to be among the major contributors to death.

5. 3 DISCUSSION ABOUT HOSPITAL OUTCOME ABOUT NEONATAL RESPIRATORY DISTRESS.

The results in the present study indicate that NRD is a common yet serious neonatal problem among newborns to the NICU; accounting for 60% of the total admissions. This percentage is similar to the findings of Noutakdie, 2016) the Cameroon study in which the reported a 58.5% prevalence rate of NRD (Noutakdie 2016). These causes are to some extent preventable and treatable; therefore, their morbidity and mortality can be reduced. The immediate outcome of NRD was 84 (56.7%) survival rates. Although the longer term findings showed death occurred in 64 (43.2%) of the cases. Many efforts are needed to improve the morbidity and mortality rates. The high fatality rate can be explained by inadequate antenatal care, less use of steroid in prematurity (Torchie,2016).

The neonatal fatality rate due to NRD in this study was (43.2%) while in the study by Noutakdie, 2016 it was (24.5%). This observation confirms that neonatal fatality rate due to NRD was high at the selected referral hospital in 2016. The study site was a referral hospital and more equipped than other surrounding hospitals. This high NRD specific mortality rate of (43.2%) is a significant finding. This indicates that this is a regional concern for neonates in this area. The study also found that neonatal sepsis was the major disease entity of death rate amongst those neonates with NRD. This finding correlates with the reports from WHO (2011) that in developing countries neonatal sepsis is the leading cause of neonatal mortality at 36%.

CHAPTER 6

6.1 .CONCLUSION AND RECOMMANDATION

6.1.1 CONCLUSION

NRD has been found to be a common neonatal problem with considerable neonatal morbidity and mortality. The prevalence rate was found to be 60% among the total number of admissions in the Neonatology at the selected referral hospital in the southern Province of Rwanda. This rate was high even among developing countries. The association of NRD with hospital outcome was significant with a p value of 0.004. The leading disease entities associated with NRD in the present study were neonatal sepsis at (40,3%), TTN (28%), RDS (18%), MAS (4.3%), pneumonia (2.2%), hypoglycemia (2.2%), and congenital malformation (5%).

The outcome of NRD was found as: a cure rate of 56.7%, mortality rate of 43.2%.

Neonatal respiratory distress affects a big part of newborn about 60% presented neonatal respiratory distress among all admissions to of newborns this confirm that a NRD is a major cause of neonatal admissions and has a high mortality rate.Torchie,2016

6.1.2 RECOMMENDATIONS

The following recommendations are respectfully offered by the author of this study:

Ministry of Health

MOH should set some strategies and plan together with the government of Rwanda for reduction of the prevalence, morbidity and mortality due to neonatal respiratory distress by improving facilities and prompt management of high risk pregnancies, labor and affected newborns will definitely reduce the frequency, morbidity, mortality due to NRD.

As NRD risk factors and etiologies are preventable, my results emphasize the need to equipping neonatal Units in Rwanda.

Health Care Providers

The result from this study will also provide information especially to the study hospital about the NRD in their neonatology unit and underlying contributing factors to the development of respiratory distress

All health professionals should perform adequate follow-up of pregnancy and labor for early detection of risk factors and suitable intervention may improve the outcome of neonatal respiratory distress.

The University of Rwanda

This study could contribute to nursing curriculum education and hopefully to inspire future researches

The selected Regional Referral Hospital

After obtaining informations from this study, the same hospital should come up by setting some strategies for improving this condition, in addition the selected hospital experts should design protocols and policies related to NRD. Further study is needed to search for management of neonatal respiratory distress at the same hospital.

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APPENDIX

APPENDIX

APPENDICES

Appendix 1: Data Collection Form.

SECTION A - IDENTIFICATION OF NEWBORN

1-Identification number

.....

2-Sex: Male Female 3-Place of birth: CHUB D.H

Other hospital Home

4-Gestational age (in completed weeks): ...24-28 weeks

29-31 weeks

32-37 weeks

38-42weeks

More than 42weeks

5-Birth weight (in grams)...

a) 500-1000g

b) 1000-1500g

c) 1500-2500 g

d) 2500-3500g

e) 3500-4500 g

6-Age at admission into neonatal unit in (hour):

a) 0 hr to 24 hrs...

b) 24 to 72 hrs.....

c) 3daysto 7days

d) 7 days to 14days

e) 14days to 28days...

7- Medical Diagnosis :

.....
SECTION B - PRENATAL ANTECEDENTS

8- Parity:.....

SECTION C - PREGNANCY

9-Multiple pregnancy: Yes No

10-Number of
ANCs...1.....2.....3.....4.....

11-Diseases during pregnancy: Yes No

If yes which? Antepartum haemorrhage diabetes Hypertensive

disorders Threatened abortion/threatened preterm labour
other.....

SECTION D – DELIVERY

12- Use of steroids in case of preterm labour < 34 weeks: Yes No

13-Mode of delivery: Vaginal Caesarean section (Elective Emergency

) Instrumental

Indication of Caesarean section or instrumental

delivery.....

14-Infectious anamneses: Yes No

If yes which? Untreated Urogenital tract infection during the last month of pregnancy

Maternal fever $\geq 38^\circ\text{C}$ meconial stained amniotic fluid

Prolonged rupture of membranes duration.....

15- Apgar score: 1st min:..... 5th min:.....

SECTION E - NEWBORN ASSESSMENT

1. GENERAL ASSESSMENT:

16-Temperature:..... $^\circ\text{C}$

17-Signs of respiratory distress: Yes No

A) Abnormal respiratory rhythm : tachypnoea bradypnoea
pauses apnoea

B) Signs of laboured breathing:

Expiratory grunting: none heard only on stethoscope heard with naked ear

Nasal flaring: none present
Chest indrawing: None Present

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intercostal retraction: none	<input type="checkbox"/>	present	<input type="checkbox"/>
Inercostal recession: none	<input type="checkbox"/>	present	<input type="checkbox"/>

C) Cyanosis: Yes No

18- Oxgen therapy 23- Desaturation on Oxgen therapy

19- Pallor

Others.....

4. NEUROLOGICAL EXAMINATION

Convulsion	bulging fontanel	coma	Hypotonia (axial	peripheral
Hypertonia	primitive reflexes decreased		Absent	

SECTION G:

AETIOLOGY OF RD..

Neonatal infection or sepsis Yes No

TTN ; Transient tachypnea of the newborn Yes No

Hyaline membrane diseases Yes No

Meconium aspiration syndrome Yes No

Pneumonia Yes No

Hypoglycemia Yes No

Congenital malformation Yes No

Congenital malformation Yes No

SECTION H: HOSPITAL OUTCOME

Duration of Hospitalization

(hr/days).....

Mode of Discharge: Alive Death

If Dead, morbidities associated with death

.....

If Duration of RD

(hr/days).....



MINISTERE DE LA SANTE PUBLIQUE
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REPUBLIQUE DU CAMEROUN
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Médecins plein temps
Dr BALLA Vanessa
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DR NJANJA Ariane
Endocrinologue

Médecins Vacataires
Dr EPACKA Marielle
Endocrinologue

Dr MBANGO Noel Desiré
Interniste / Endocrinologue

Coordinatrice
Mme MBENDA Augustine

Dietéticien
M. MBIATAT Hilaire

Major
Mlle EBONGO Chantale

Infirmière
Mme MALOBE Marie Madeleine

Tel : +(237) 245 246 282

Douala, le 11 December 2016

To whom it may concern

I the undersigned, authorize Jeanne Amani to use our questionnaire on
"neonatal respiratory distress in Douala General Hospital" for her
MSc study to be carried out in Rwanda.

This certificate is issued to serve its deserved purpose.

Pr Simeon Pierre CHOUKEM

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 16/01/2017
Ref: CMHS/IRB/070/2017

Amani Jeanne
School of Nursing and Midwifery, CMHS, UR

Dear Amani Jeanne


RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance for the study entitled "*Neonatal Respiratory Distress in The Neonatal Intensive Care Unit In The National Referral Hospital In The Southern Province Of Rwanda.*"

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

For Professor Kato J. NJUNWA
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR



Prof. JB Baghate
IRB Vice-Chair

Cc:
- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate studies, UR

SCHOOL OF NURSING AND MIDWIFERY

Kigali, on 30 / 01 / 2017

Ref. No:/ UR-CMHS/SonM/17

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

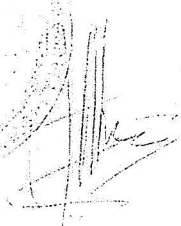
Re: Request to collect data

Referring to the above subject, I am requesting for permission for AMANI Jeanne, a final year student in the Masters of Science in Nursing at the University of Rwanda/College of Medicine and Health Science to collect data for his/her research dissertation entitled NEONATAL RESPIRATORY DISTRESS IN THE NEONATAL INTENSIVE CARE UNIT IN THE NATIONAL REFERRAL HOSPITAL IN THE SOUTHERN PROVINCE OF RWANDA.

This exercise that is going to take a period of 2 months starting from 13th February 2017 to 12th April 2017 will be done at CENTRAL HOSPITAL UNIVERSITY BUTARE.

We are looking forward for your usual cooperation.

Sincerely,


Dr. Donatilla MUKAMANA, RN, PhD
Dean, School of Nursing and Midwifery
College of Medicine and Health Sciences

AMANI JEANNE
Neonatology Services/CHUB
Tel: 0727366818
Email: jharudy@gmail.com
Masters of Neonatology Program
University of Rwanda

C.H.U.B	
Date de réception	20 MAR 2017
Classement
Suivi par
Traité par

Kigali, 17th March, 2017

The General

Butare University Teaching Hospital

Huye-Rwanda.

Dear Sir,

Re: Application for Data Collection at CHUB in Neonatal Services.

I humbly apply for data collection of my study entitled "neonatal respiratory distress in the neonatal intensive care unit at the national referral hospital in the southern province of Rwanda" as part of the required part to the fulfillment of a postgraduate program at the National University of Rwanda for which your favor has been granted so far.

In fact, As a nurse working in Neonatology services, I realized that admissions of many cases of newborn with respiratory distress problem increasingly requires oxygen then an idea inspired me to explore the factors contributing to the respiratory distress among newborns. Therefore, I would appreciate your authorization to proceed with data collection process to fulfill the requirements of a Masters degree of neonatology program and come up with a research solution at the end to cope up with the above scourge.

Attached are my proposal, ethical clearance, to whom it may concern

I look forward to hearing from you.

Sincerely Yours

CC:

Research committee

 AMANI Jeanne



**CENTRE HOSPITALIER UNIVERSITAIRE
UNIVERSITY TEACHING HOSPITAL**

**CENTRE HOSPITALIER UNIVERSITAIRE
DE BUTARE (CHUB)
OFFICE OF DIRECTOR GENERAL**

Huye, **03 APR 2017**

N° Ref: CHUB/DG/SA/03/598/2017

Jeanne Amani
Neonatology Services/CHUB
E-mail: jharudv@gmail.com
Phone: +250727366818

Dear Amani,

Re: Your request for data collection

Reference made to your letter requesting for permission to collect the data within University Teaching Hospital of Butare, for your research proposal entitled "Neonatal respiratory distress in the neonatal care unit in the national referral hospital in southern province of Rwanda", and based on approvals Ref: CMHS/ IRB/070/2017 from University of Rwanda and No RC/UTH/B/023/2017 from our research committee, we are pleased to inform you that your request was accepted. Please note that your final document will be submitted in our Research department.

Sincerely,

Dr. Augustin SENEGEZA
Director General of CHUB



Cc:

- Medical Director
- Training and Research Manager

CHUB

E-mail : info@chub.rw
Website : www.chub.rw

B.P : 254 BUTARE
Hotline:2030