

KIBOGORA POLYTECHNIC

FACULTY OF HEALTH SCIENCES

DEPARTEMENT OF GENERAL NURSING AND MIDWIFERY

ASSESSMENT OF PNEUMONIA PREVALENCE AMONG CHILDREN UNDER FIVE YEARS ATTENDING NEONATOLOGY AND PEDIATRY IN KIBOGORA DISTRICT HOSPITAL.

**Case study: Kibogora District Hospital
period (1st to 31st January, 2022)**

Undergraduate Research thesis was submitted in partial fulfillment of the requirements for bachelor's degree with honours in General Nursing with Health Sciences

PREPARED BY:

INGABIRE Jehovanis

REG. N^o: 2000872

NIYONSENGA Grace

REG. N^o: 2000855

SUPERVISOR:

TWAHIRWA Jean Claude

Kibogora, April, 2022

DECLARATION

Declaration by candidates

We INGABIRE Jehovanis and NIYONSENGA Grace declare that this is our own original work and not a duplication of any similar academic work. It has therefore not been submitted to any other institution of higher learning. All materials cited in this paper which are not our own have been duly acknowledged.

Names : INGABIRE Jehovanis

Signed.....

Date.....

Names : NIYONSENGA Grace

Signed.....

Date

Declaration by Supervisor

I declare that this work has been submitted for examination with my approval as KP Supervisor

Names: TWAHIRWA Jean Claude

Signed.....

Date.....

DEDICATION

This research thesis was dedicated to:

Our lovely parents,

Our brothers and sisters,

Our lectures,

Our friends,

May God bless them.

ABSTRACT

BACKGROUND OF THE STUDY: Globally, many researches had been conducted to identify risk factors of pneumonia. Despite the inconsistency of findings, low birth weight, malnutrition, indoor air pollution, parental smoking, being unaccented, overcrowding, lack of separate kitchen, being not on exclusive breast feeding, and maternal education were identified as factors associated with occurrence of pneumonia in under-five children (Nirmolia et al,2018).

PURPOSE OF THE STUDY: The aims of study was to determine the prevalence of pneumonia in children under five years old attending neonatology and pediatric in Kibogora District Hospital

METHODOLOGY OF THE STUDY: Quantitative research approaches was used as research approaches and cross section study was used as research design

RESULT OF THE STUDY: The children with pneumonia which has high percentage was the children who has not vaccinated, Pneumonia cases in-patient with respiratory congenital malformation in the study; the highest number was children born with respiratory congenital malformation and The climate does severity of pneumonia increases, the children born in the climate that are cold are at the risk of Pneumonia and Prevalence of pneumonia among under 5 year's children, 0-1.5 year with (7)26%, 1.5-2.5 years with(10)37% and 2.5-5years with (10)37%,The Prevalence of pneumonia in patient born with HIV/AIDS, the highest was Patient without HIV/AIDS

CONCLUSION: Pneumonia is a bad diseases that kill different children in different areas surrounding kibogora district hospital; hence the parents will be the first to understand the effect of pneumonia and then after they will protect their children under five years in order to reduce pneumonia.

ACKNOWLEDGEMENT

We firstly thank the Almighty God for His guidance and protection throughout the period of conducting our studies.

We are also grateful to the Kibogora polytechnic, staffs and all lecturer of Kibogora polytechnic for giving us possible skills and knowledge that guided us in this Research project.

It is with our great pleasure to express sincere gratitude to our supervisors “Mr. TWAHIRWA ” Who helped us by giving the valuable advices, suggestions, and points of correction for doing better our study.

Moreover, we highly appreciate our friends’ help, classmates for their collaboration, inspiration and sharing experience which motivated us in our study.

Lastly, we are thankful to our family and everyone who contributed in different ways for the achievement of our Research project.

May God bless you all.

TABLE OF CONTENTS

DECLARATION	II
DEDICATION	III
ABSTRACT	IV
ACKNOWLEDGEMENT	V
TABLE OF CONTENTS	VI
LIST OF TABLES	IX
LIST OF APPENDICES	XI
LIST OF ABBREVIATION	XII
DH: DISTRICT HOSPITAL.....	XII
CHAPTER ONE: GENERAL INTRODUCTION	1
1.0. INTRODUCTION.....	1
1.2. BACKGROUND OF THE STUDY	1
1.2. PROBLEM STATEMENT	2
1.3. RESEARCH OBJECTIVE.....	3
1.3.1. GENERAL OBJECTIVE	3
1.3.2. SPECIFIC OBJECTIVES.....	3
1.4. RESEARCH QUESTIONS.....	3
1.5. SIGNIFICANCE OF THE STUDY	3
1.5.1. SOCIAL INTEREST/COMMUNITY INTEREST.....	4
1.5.2. SCIENTIFIC INTEREST.....	4
1.7.SCOPE OF THE STUDY	4
1.7.1. GEOGRAPHICAL SCOPE.....	4
1.9.2. CONTENT SCOPE.....	4

1.9.3. TIME SCOPE	5
CHAPTER TWO: LITERATURE REVIEW	6
2.0. INTRODUCTION.....	6
2.1. DEFINITION OF KEY CONCEPTS/TERMS	6
2.1.0. PREVALENCE:IS THE PROPORTION OF A POPULATION WHO HAVE A SPECIFIC CHARACTERISTIC IN A GIVEN TIME PERIOD (ROOM 6200, MSC 9663BETHESDA)	6
2.1.1. PNEUMONIA: IS AN INFLAMMATORY CONDITION OF THE LUNG PRIMARILY AFFECTING THE SMALL AIR SACS KNOWN AS ALVEOLI.....	6
2.1.2. CHILDREN:MEANS EVERY HUMAN BEING BELOW THE AGE OF 18 YEARS (CHILD 1990) OR CHILD MEANS EVERY HUMAN BEING BELOW THE AGE OF EIGHTEEN YEARS UNLESS UNDER THE LAW APPLICABLE TO THE CHILD, MAJORITY IS ATTAINED EARLIER (CHILD 1989).....	6
2.2. THE PREVALENCE OF PNEUMONIA AMONG UNDER 5 YEAR’S CHILDREN ATTENDING NEONATOLOGY AND PEDIATRIC.....	6
2.3 SYMPTOMS	10
2.4.DIAGNOSIS	11
2.5. CONCEPTUAL FRAME WORK	11
2.6. RESEARCH GAPS.....	12
3.0. INTRODUCTION.....	13
3.1. RESEARCH APPROACH/DESIGN	13
3.1.1. RESEARCH DESIGN	13
3.2. TARGET POPULATION	13
3.3. SAMPLING PROCEDURES	13
3.3.1. STRATA SAMPLING TECHNIQUE	13
3.4. SAMPLE SIZE.....	14
3.5 RESEARCH INSTRUMENTS FOR DATA COLLECTION	14

3.6 DATA COLLECTION PROCEDURES.....	15
3.7 ETHICAL ISSUES	15
3.8 DATA ANALYSIS	15
3.9 RELIABILITY AND VALIDITY MEASURES	16
CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, INTERPRENTATION AND SUMMARY	17
4.0. INTRODUCTION.....	17
4.1. DATA PRESENTATION	17
4.1.0. SOCIAL DEMOGRAPHIC OF RESPONDENTS	17
4.1.1. RALATED TO PREVALENCE OF PNEUMONIA UNDER FIVE YEARS	19
4.1.2. RELATED TO VULNERABLE GROUP UNDER FIVE YEARS ON PNEUMONIA	21
4.2. DISCUSSION OF FINDINGS.....	23
4.2.1. THE PREVALENCE OF PNEUMONIA AMONG UNDER 5 YEAR’S CHILDREN	23
4.2.2. THE MOST VULNERABLE GROUP UNDER FIVE YEARS ON PNEUMONIA.	23
4.3. SUMMARY OF FINDINGS	23
CHAPTER FIVE CONCLUSION AND RECOMMENDATION.....	25
5.0. INTRODUCTION.....	25
5.2. CONCLUSION	25
5.3. RECOMMENDATIONS	25
5.3.1. TO THE PARENT.....	25
5.3.2. TO HOSPITAL.....	25
5.4. SUGGESTIONS FOR FUTHER STUDIES.....	25
REFERENCES.....	27
APPENDICES.....	a

LIST OF TABLES

Table 1: Distribution of information on sex of respondents in checklist.....	17
Table 2: Distribution of information on age group from checklist.....	17
Table 3: Distribution of information on Habitation site from checklist	18
Table 4: Distribution of information on education level of parents from checklist.....	18
Table 5: Distribution of information of activities working by parents from checklist	18
Table 6: Distribution of information related child with pneumonia had been vaccinated.....	19
Table 7: Distribution of information on Pneumonia cases in-patient with respiratory congenital malformation from checklist.....	20
Table 8: Distribution of information according to the climate does severity of pneumonia increases.....	20
Table 9: Distribution of information according vulnerable group in Prevalence of pneumonia among under 5 year's children.....	21
Table 10: Distribution of information according to Patient have severe pneumonia are in which category of ubudehe.....	21
Table 11: Distribution of information according to the Prevalence of pneumonia in patient born with HIV/AIDS	22
Table 12: distribution of information related to the location do we find high prevalence of pneumonia.....	22

LIST OF FIGURES

Figure 1: Figure show the conceptual framework	12
Figure 2: Distribution of information according to marital status of parents from checklist	19
Figure 3: Distribution of information according to the Number of pneumonia cases in January at Kibogora District Hospital.....	21

LIST OF APPENDICES

APPENDICES A: INTRODUCTORY LETTER..... b

APPENDICES B: QUESTIONNAIRE AND CHECKLIST USED FOR INFORMATION ON
PNEUMONIA AMONG UNDER FIVE YEARS OLD IN KIBOGORA DISTRICT HOSPITAL
..... d

LIST OF ABBREVIATION

ARI: Acute Respiratory Infection

CAP: Community Acquired Pneumonia

CBC: complete blood count

DH: District Hospital

GAVI:Global Alliance for Vaccines and Immunizations

HIV/AIDS:Human Immunodeficiency Virus Acquired Immuno Deficiency Syndrome

KDH: Kibogora District Hospital

LBW: low birth weight

NISR: National Institute of Statistics of Rwanda

PC V: pneumococcal conjugate vaccines

UNICEF:United Nations International Children's Emergency Fund

WHO: World Health Organization

CHAPTER ONE: GENERAL INTRODUCTION

1.0. INTRODUCTION

This chapter includes the definitions of key terms and concepts, the background to the study, the research problem statement, objectives of the study, research questions, and significance of the research, limitations of the study and the scope of the study.

1.2. BACKGROUND OF THE STUDY

According to a global health report in 2000 it estimates, approximately 156 million cases of pneumonia occurred in under-five children, of which 151 million episodes were in the developing countries and about 1.2 million of them were end up in death (Carvalho, C. M,2020) . South-east Asia and Africa were the two continents with high magnitude of childhood pneumonia, having an estimated of 61 million and 35 million annual cases of pneumonia in under-five children respectively (Rudan et al, 2008). The magnitude of under-five pneumonia was decreased to 120 million (with 0.88 million deaths) in 2010 and to 102 million (with 0.7 million deaths) in 2015 globally. These decrement was due to decrease of its risk factors, increasing socioeconomic development and preventive interventions, improved access to care and quality of care in hospitals (Rudan et al, 2008).

Globally, many researches had been conducted to identify risk factors of pneumonia. Despite the inconsistency of findings, low birth weight, malnutrition, indoor air pollution, parental smoking, being unvaccinated, overcrowding, lack of separate kitchen, being not on exclusive breast feeding, and maternal education were identified as factors associated with occurrence of pneumonia in under-five children (Nirmolia et al,2018).

In the areas of sub-Saharan Africa where Rwanda is included are especially vulnerable to pneumonia due to widespread malnutrition. However, uptake of improved breastfeeding practices and increased early childhood nutrition education has led to a substantial decrease in childhood pneumonia incidence, reducing neonatal, infant, and under-five mortality rates throughout Rwanda (Walker et al., 2013)

Besides, in East African countries different researchers had tried to investigate the magnitude of pneumonia in under-five children and have reported a prevalence ranges from 5.5% (Shibre

G,2015) up to 89.8% (Ásbjörnsdóttir KH et al , 2013). They had also identified risk factors for pneumonia among under-five children.

The prevalence of pneumonia among under-five children in Eastern Africa remains high due to indoor air pollution cooking food in living room, caring of a child on mother during cooking, being unvaccinated, lack of exclusive breast feeding, child history of acute respiratory tract infection, low birth weight, and malnutrition. In Rwanda 154,000 children mainly in rural areas continue to die each year before their fifth birthday mostly from preventable causes (DHS, 2007). In Rwanda, pneumonia has become the major cause of death in children under five followed by neonatal complications and diarrhea. Only 28% of children under five with pneumonia symptoms were taken to an appropriate health provider on time (DHS, 2007). Our research focus on the prevalence of pneumonia among children under five years attending KIBOGORA DH in order to determine the data intensity of pneumonia in cold environment.

1.2. PROBLEM STATEMENT

Pneumonia is a serious problem which affects people with vulnerable health status. However, infants younger than age 5 and people over age 65 have the highest odds. Streptococcus pneumoniae leads to 826,000 deaths of children in the world each year and many health facility visits. To reduce the burden of pneumococcal disease, many nations have added pneumococcal conjugate vaccines to their national immunization schedules. Nicaragua was the first country eligible for GAVI Alliance funding to introduce the 13-valent pneumococcal conjugate vaccine (PCV13) in 2010, provided to infants at 2, 4, and 6 months of age. In 2018, pneumonia was among the six leading causes of child mortality in the world, responsible for an estimated 921,000 deaths of children under-five years. According to WHO report Pneumonia disease in world pneumonia day, 12 November 2018 shows that pneumonia disease is the sixth leading cause of death in children under five years old. It is both preventable and treatable (J Glob Health ,2018). Despite improvements in child survival in recent decades, children in low and middle-income countries still suffer from illnesses virtually nonexistent in the industrial world; pneumonia is the deadliest of these responsible for the death of more than any other infectious disease (WHO, 2019)

In Kibogora District hospital pneumonia is the continue to kill different peoples like younger people in daily life hence this will inspire to investigate the assessment of pneumonia prevalence among children under five years attending neonatology and pediatry in Kibogora District Hospital.

1.3. RESEARCH OBJECTIVE

In this study the research objectives were divided into two categories which are General Objectives and Specific objectives

1.3.1. GENERAL OBJECTIVE

The aims of study was to determine the prevalence of pneumonia in children under five years old attending neonatology and pediatric in Kibogora District Hospital.

1.3.2. SPECIFIC OBJECTIVES

1. To evaluate the prevalence of pneumonia among under 5 year's children attending neonatology and pediatric in the Kibogora District hospital.
2. To determine the most vulnerable group attacked by pneumonia under five years who attend neonatology and pediatric in Kibogora District Hospital.

1.4. RESEARCH QUESTIONS

1. What is the prevalence of pneumonia among under five children who attending neonatology and pediatry in Kibogora District Hospital?
2. What are the most vulnerable group attacked by pneumonia under five years who attend neonatology and pediatry in Kibogora District Hospital?

1.5. SIGNIFICANCE OF THE STUDY

1.5.0 Personal interest

This research will help to increase knowledge for the researcher to match theory to practice. And the findings of this study was been beneficial to the researchers himself, due to their understanding on how the assessment of pneumonia of prevalence in children under five years old attending neonatology and pediatric in Kibogora District Hospital. And also this researcher

will be accredited, the researcher was awarded a Bachelor's degree in General Sciences with Health sciences.

1.5.1. Social interest/Community Interest

The Findings of this study facilitates, the clinical staff with administration of Kibogora District Hospital will recognize the prevalence of pneumonia and set strategies to improve the health status of population in concerned catchment area, for being able to respond on their needs appropriately.

1.5.2. Scientific interest

The results of the study will serve the reference to other researchers who want to conduct the study in the related field and This research will help scientifically to the useful to future researchers from Kiborora polytechnic as well as from other different high Learning institutions as a reference and It Will upgrade the Kiborora Polytechnics in the KP Library

1.6. LIMITATIONS OF THE STUDY

This research will limited due to some of the respondents who believe that they will given money as the wage in this study related to the assessment of pneumonia prevalence among children under five years attending neonatology and peditry of kibogora district hospital. Therefore some might not be willing to offer good collaboration within the respondents, But in order to solve this issue and find required data, the researcher had consent with them and researcher will tried to explain them the importance of the results of the research.

1.7.SCOPE OF THE STUDY

1.7.1. Geographical Scope

This research thesis was limited to Kibogora district hospital Located in Western province Nyamasheke District Kanjongo cell in karama village.

1.9.2. Content Scope

This study was focused on assessment of pneumonia prevalence among children under five years attending neonatology and peditry in Kibogora district hospital.

1.9.3. Time Scope

This study were conducted from 1st to 31stjanuary2022

CHAPTER TWO: LITERATURE REVIEW

2.0. INTRODUCTION

This chapter broadly reviews the existing literature to appear the introduction, definition of key concept, related literature review on the specific objectives, Conceptual-frame work and research Gaps.

2.1. DEFINITION OF KEY CONCEPTS/TERMS

2.1.0. Prevalence:is the proportion of a population who have a specific characteristic in a given time period (Room 6200, MSC 9663Bethesda)

2.1.1. Pneumonia: is an inflammatory condition of the lung primarily affecting the small air sacs known as alveoli.

2.1.2. Children:means every human being below the age of 18 years (child 1990) or child means every human being below the age of eighteen years unless under the law applicable to the child, majority is attained earlier (child 1989)

2.2. THE PREVALENCE OF PNEUMONIA AMONG UNDER 5 YEAR'S CHILDREN ATTENDING NEONATOLOGY AND PEDIATRIC

Pneumonia is an infection of lungs that is usually caused by bacteria, viruses, fungi, or parasites. There are many Types of pneumonia including Bacterial pneumonia; it is commonly caused by bacteria strains such as Streptococcus pneumonia. Viral pneumonia; this disease is triggered by viruses such as influenza, chickenpox. Mycoplasma pneumonia; this pneumonia is caused by Mycoplasma pneumonia. (Alexander Kallen, 2015)

Pneumonia is a lung infection that with different form acute and severe which same times require hospital consultation even hospitalization this happens when an infection causes alveoli to fill up with fluid or pus and make hard to breathe in enough oxygen and reach the bloodstream. In infants younger than age 2 and people over age 65 have the highest odds due to their immune systems which not strong enough. Some cases of pneumonia are associated with fluid collections mostly caused by Staphylococcus aureus, which can destruct lung tissue.

The children under 5 years of age may present differently according to age, symptoms and signs of pneumonia may be subtle, particularly in infants and young children. Fever and cough together may suggest pneumonia with other respiratory findings like tachypnea, increased work of breathing (chest retractions, flaring of the nostrils, grunting). Neonates and young infants may present with difficulty feeding, restlessness, or fussiness rather than with cough and/or abnormal breath sounds (Kaplan & Mallory, 2021).

The causes of community acquired pneumonia in children under 5 years of age vary according to age of the child. In neonates, Group B streptococcus and Escherichia coli are major causative agent. In infants, streptococcus pneumonia, Haemophilus influenza type b and respiratory syncytial virus are the major causative agents. In infants infected with HIV, pneumocystis jiroveci in one of the most common cause of pneumonia. Children <5 years old, in developed countries most common cause of pneumonia are viruses that account up to 50% of cases in young children such as respiratory syncytial virus, influenza A and B viruses., In developing countries, streptococcus pneumonia, Haemophilus influenza type b and respiratory syncytial virus are most common aetiology of community acquired pneumonia. The immunization against pneumococcal pneumonia and haemophilus influenzae vaccines reduce mortality and incidence of pneumonia in those countries but multiple studies have shown that the infections of pneumococcal persist with serotypes not covered by the vaccine(UTDOL, 2013; Waterer, 2021). In developing countries, a number of factors are associated with increased risk of developing pneumonia such malnutrition, low birth weight (LBW), HIV infection exposure, lack of exclusive breastfeeding for the first six months of a child's life, indoor air pollution and airway inflammation. The mother who have under 5 age and smoke this predisposing factor for pneumonia due to irritation of airway cilia (Waterer, 2021).

The diagnosis of pneumonia in low setting facilities in clinical. History and examination gave us more information and lead us to good diagnosis, children with possible community acquired pneumonia knowing his/her age, fluid and nutrition intake, duration of symptoms, immunization status, associated symptoms (like headache) help to orient your diagnosis. Lung examination may provide clues to the diagnosis, auscultation findings like wheezing, crackles, decreased breath sounds may be found in children with Pneumonia. Severity of disease evaluated by assessing clinical features of severe pneumonia like temperature $>38.5^{\circ}\text{C}$, severe respiratory

distress, altered mental status, hypoxemia, not feeding (infants) or signs of dehydration (in older children), capillary refill > 2 sec (Kaplan & Mallory, 2021; Nascimento-Carvalho, 2020).

Laboratory and radiological evaluation may be used; complete blood count (CBC) usually is not necessary for children with mild disease, CBC findings help to differentiate viral from bacterial pneumonia (White Blood Cell count <15,000/microL suggests a nonbacterial cause, >15,000/microL suggests pyogenic bacterial disease), test like C-Reactive protein can be done but is not specific to pneumonia, serum electrolytes may be helpful in assessing children dehydration (hyponatremia often accompanies CAP). Radiological evaluation especially chest X-ray require in hospitalized children whom disease is severe or recurrent pneumonia (Kaplan & Mallory, 2021).

In Rwanda, the management of community-acquired pneumonia is done by assessing the severity of disease. There are three different stages of pneumonia, very severe pneumonia, severe pneumonia and non-severe pneumonia. The management according to the stage is discussed below.

2.3. THE MOST VULNERABLE GROUP ATTACKED BY PNEUMONIA UNDER FIVE YEARS WHO ATTENDING NEONATOLOGY AND PEDIATRIC

Childhood pneumonia has been identified as the major “forgotten killer of children “ by UNICEF and WHO .multiple modified risk factors for severe pneumonia have been identified in this study. Pediatricians and other health care workers, including the grassroots health workers, should be aware of this risk factor of severe pneumonia when managing the patient with pneumonia. The management of the modifiable risk factor may reduce mortality due to severe pneumonia (Kasundriya et al., 2020).

Pneumonia kills more children than any other infectious disease, claiming the lives of over 800,000 children under five every year, or around 2,200 every day. This includes over 153,000 newborns. Almost all these deaths are preventable. Globally, there are over 1,400 cases of pneumonia per 100,000 children, or 1 case per 71 children every year, with the greatest incidence occurring in South Asia (2,500 cases per 100,000 children) and West and Central Africa (1,620 cases per 100,000 children). (UNICEF, 2013)

The southwest Asia has high regional burden with 61 million new cases yearly and 43 million cases are in India with high mortality rate of under-five compared to China (322 per 100000 in

India and 86 per 100000 in China). The risk factors include poverty, poor immunization status, indoor air pollution, malnutrition, and overcrowding.

In Egypt, children under 5 years account for nearly 13.4% of total population, and pneumonia affect 19% of under 5-age mortality. They estimated 0.11-0.20 pneumonia episodes per child in year. Only 68% of under five children with suspect of pneumonia consult health care provider. This figure implies that large number with severe pneumonia remains untreated.(Fadl et al., 2020)

In East Africa, as the region consist with countries with low socio-economic status, the prevalence is high too, and mortality is high. The preventive measures done through previous years decrease prevalence; those measures include mandatory vaccinations to all children and mass education guided by WHO. Prevalence of pneumonia under-five children was ranging between 23.8-44.21%; those numbers are from different countries such Ethiopia, Eritrea, Kenya, Sudan, Tanzania, and Uganda. Use of wood as fuel source, cooking food in living room, caring of a child on mother during cooking, being unvaccinated, on exclusive breast feeding, child history of Acute Respiratory Tract Infections, and parental smoking were independent potential predictors of under-five pneumonia in Eastern Africa (Abate et al., 2020).

Even if the prevalence is declined in Rwanda due to immunization program against pneumococcal bacteria, pneumonia is still on unfinished agenda. The DHS 2019 shows decline in prevalence of acute respiratory tract infections from 6% in DHS 2014 to 2% in DHS 2019. Rwanda, under-5 mortality rate was 45 deaths per 1,000 live births mostly from preventable causes (DHS 2019). Pneumonia has become the major cause of death in children under five followed by neonatal complications and diarrhea. Only 73% of children under five with pneumonia symptoms were taken to an appropriate health provider on time (National Institute of Statistics of Rwanda (NISR) [Rwanda] et al., 2021; National Institute of Statistics of Rwanda (NISR) [Rwanda] & International, 2016).

The prevalence of acute respiratory infection (ARI) including pneumonia is 5% in western province as in NYAMASHEKE District in children under 5 and fever prevalence is 17% in western province and 14% in NYAMASHEKE District. (NISR, 2016)

According to demographic health survey of 2019, the western province has low under-5 mortality ratio 44 deaths per 1000 live births(National Institute of Statistics of Rwanda (NISR)

[Rwanda] et al., 2021). Nutrition status of children under 5 show 40% of children are stunted, 11% of children under 5 are underweight and 2% are wasted. The exclusive breastfeeding time is 5.1 months and 4 months in NYAMASHEKE District, the prevalence of HIV is 3.2% in female and 1.3% in male. Those are the risk factors of the pneumonia in children under 5 (NISR, 2016).

Pneumonia is an infection of one or both lungs that is usually caused by bacteria, viruses, fungi, or parasites. Sometimes pneumonia affects a portion of one lung, and in other cases, the infection is diffuse throughout both lungs. There are Types of pneumonia, Bacterial pneumonia; It is commonly caused by bacteria strains such as *Streptococcus pneumoniae*. Viral pneumonia; this disease is triggered by viruses such as influenza, chickenpox. *Mycoplasma pneumoniae*; this pneumonia is caused by *Mycoplasma pneumoniae*. Alexander Kallen, (2015). Childhood pneumonia has been identified as the major “forgotten killer of children “ by UNICEF and WHO .multiple modified risk factors for severe pneumonia have been identified in this study .pediatricians and other health care workers, including the grassroots health workers, should be aware of these risk factor of severe pneumonia when managing the patient with pneumonia. The management of the modifiable risk factor may reduce mortality due to severe pneumonia .int.j.environ.res.public health2020. The prevalence of pneumonia among under five children in east Africa remains high .use of wood as fuel source, cooking food in living room, caring of a child on mother during cooking, being unvaccinated, on exclusive breast feeding history of ARV and parental smoking were independent potential predictors of under-five pneumonia. Hence appropriate intervention on potential determinates such as health education on exclusive breastfeeding, place of food cooking, increase of vaccinated coverage and early control of respiratory tract infection was recommended to prevent those risk factor Beletew et al.BMC pediatrics 2020

2.3 symptoms

Pneumonia is a lung infection that can be caused by different types of microorganisms, including bacteria, viruses, fungi of pneumonia may include, cough with sputum production, fever, sharp chest pain on inspiration (breathing in), and Shortness, Extreme tiredness, Dry, hacking symptoms tend to ease up in 2 to 5 days, but you might have a mild cough or sore throat for 2 weeks. With pneumonia you might have all the symptoms of flu, but also: High fever up to 40.55 C⁰. Coughing out greenish, yellow, or bloody mucus, Chills that make you shake, Feeling like you can't catch your breath,

especially when you move around a lot, Feeling very tired, Low appetite, Sharp or stubby chest pain (you might feel it more when you cough or take a deep breath), Sweating a lot, Fast breathing and heartbeat, Lips and fingernails turning blue, Confusion (in older people), When kids have bacterial pneumonia their symptoms might be more subtle. They may have: Labored and rapid breathing (more than 45 breaths a minute) (Ivan Kuhajda, 2015).

2.4. Diagnosis

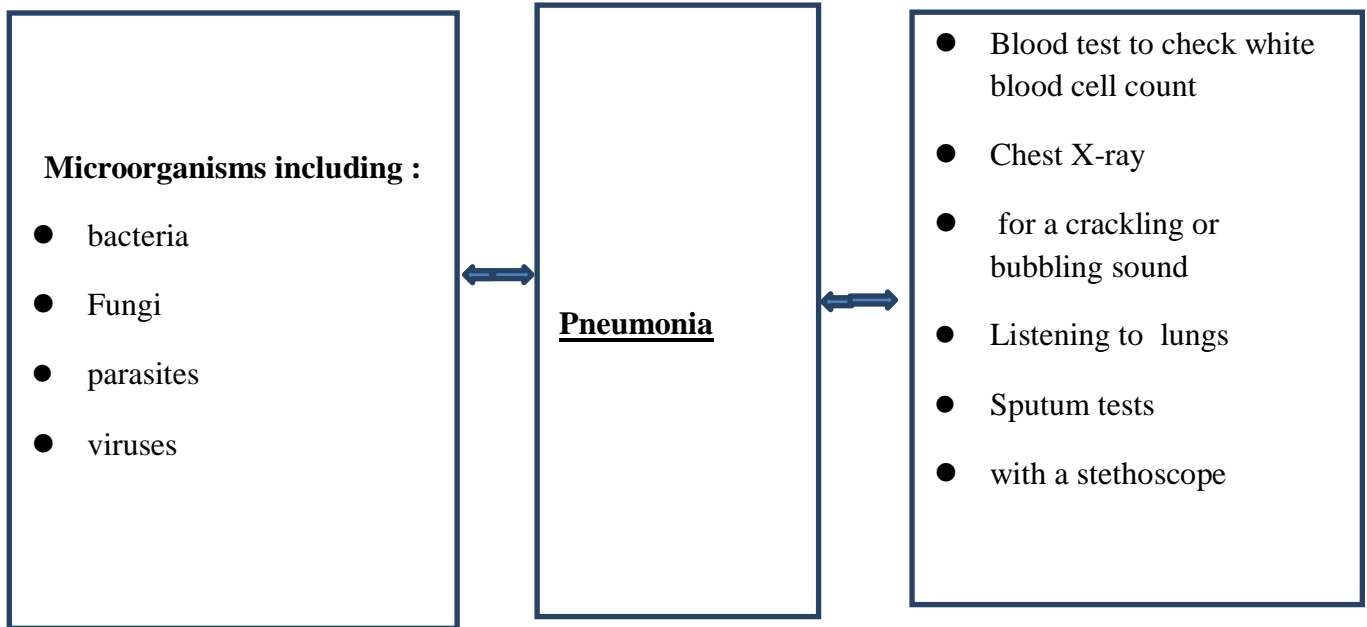
When you visit your doctor to see if you have pneumonia, he will ask about your symptoms. Then he may run a number of tests to get an idea of what is going on including: Listening to your lungs, with a stethoscope, for a crackling or bubbling sound, Chest X-ray, Blood test to check white blood cell count, Sputum tests (using a microscope to look at the gunk you cough up), A pulse oximetry test, which measures the oxygen in your blood, If an X-ray shows there is fluid around your lungs, your doctor may do a pleural fluid culture. In this test, he sticks a needle into your chest wall and takes a sample of the fluid. It is sent to a lab and checked for signs of infection, In severe cases, your doctor might also do a bronchoscopy. He will use an instrument called a bronchoscope to look at your lung's airways (Jardine A, Menzies RI, McIntyre PB. 2010)

2.5. CONCEPTUAL FRAME WORK

A conceptual framework is a written or visual representation of an expected relationship between variables. Variables are simply the characteristics or properties that you want to study. The conceptual framework is generally developed based on a literature review of existing studies and theories about the topic.

Figure 1: Figure show the conceptual framework

INTERVENING FACTORS INDEPENDENT VARIABLE DEPENDENT VARIABLE



The Figure above show the explain the conceptual frame work of different variables like independent variable is Pneumonia ,dependent variable which include Listening to lungs, with a stethoscope, for a crackling or bubbling sound, Chest X-ray, Blood test to check white blood cell count and Sputum tests and intervening factors which including bacteria,viruses, Fungi and parasites.

2.6. Research Gaps

Previous studies have been conducted on assessment of the of knowledge of pneumonia on children under five years Attending Neonatology and Pediatric,Other studies have undertaken Assessment the most vulnerable group under five years on pneumonia as well as difference between the effects of pneumonia on children under five years Attending Neonatology and Pediatric but few studies have been assessment of pneumonia prevalence among children under five years which really inspired present researchers to conduct research entitled “ assessment of pneumonia prevalence among children under five years”

CHAPTER THREE: RESEARCH METHODOLOGY

3.0. INTRODUCTION

This chapter describes the research methodology, which includes the study area, study design, study population, study sample, sampling strategy, selection criteria, data collection methods and procedures, data analysis, problems and limitation for the study and ethical consideration.

3.1. RESEARCH APPROACH/DESIGN

Quantitative research methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through surveys, or by manipulating pre-existing statistical data using computational techniques.

Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon. (Creswell, J. W. (2013).

3.1.1. RESEARCH DESIGN

In this research was been used cross sectional study as research design

3.2. TARGET POPULATION

This study was been carried out on the under 5 year's children with pneumonia who was attending KIBOGORA District Hospital during a period of research the total population was 38 .

3.3. SAMPLING PROCEDURES

3.3.1. Strata sampling technique

A strata is a randomly selected subset of a population in this sampling method, each member of the population has an exactly equal chance of being selected. This method was the most straightforward of all the probability sampling methods since it only involves a single strata selection and requires little advance knowledge about the population. According to defined strata sampling is a part of the sampling technique in which each sample has an equal probability of being chosen and each item in the entire population to have an equal chance of being included in the sample. It enables a researcher to select the sample at strata from the sampling frame using random number, in this study 27 checklist and Questionnaire.

3.4. SAMPLE SIZE

Pneumonia cases for children of age 0-5 chosen from 01- 31 January 2022 found in a pediatric and neonatology at Kibogora District Hospital is 27 cases from 38 under five children as the sample size.

In order to get the sample size of this study, we was used the Yamane's Formula .

Using Granular Formula (Israel, 1992) of sample size calculation in this study reads as follows:

$$\text{Sample size} = \frac{N}{1+N(e)^2}$$

Where n =Sample population

N=Total population

e=the standard margin of error at 90% confidence interval which is equal to 10% or 0.1

$$\text{Sample size} = \frac{N}{1+N(e)^2}$$

$$n = \frac{38}{1+38(0.1)^2}$$

$$n = \frac{38}{1+38(0.01)^2}$$

$$n = \frac{38}{1+0.38}$$

$$n = \frac{38}{1.38}$$

$$27.536 \approx 27$$

the sample size was been **27 cases**.

3.5 RESEARCH INSTRUMENTS FOR DATA COLLECTION

The data was been collected by using checklist and questionnaire. In this research, patient files was been used and checklist was been composed in English. Checklist of this study was been composed of 2 parts, first was been composed of socio demographic data and it is composed of 7 questions and second is composed of prevalence and venerable group related questions and it is

composed of 10 questions. Collected data by checklist was been used in the study of Pneumonia prevalence among children under 5 years attending Kibogora DH

3.6 DATA COLLECTION PROCEDURES

Before conducting this study, researcher asks permission to ethical committee of KIBOGORA POLYTECHNIC. After receiving the permission from ethical committee, researcher asks permission to the Ethics committee at Kibogora DH to collect data and sign consent by participant. After getting permission to conduct research at Kibogora Hospital, the researcher will start the process of data collection but before the researcher was provide more information to the participants regarding the study Purpose of the study, instructions to consider during data collection period and tool to use. Following explanation of the aims and content of the study to the participants, each participant was signed consent. Participation is voluntarily, there are no names on questionnaires to keep given information confidential them.

3.7 ETHICAL ISSUES

After getting ethical clearance from KP (KIBOGORA POLYTHECINC) to collect data and permission from the administration of KIBOGORA District Hospital, we was been allowed to collect data from the unity manager and pediatric matron about the pneumonia cases in KIBOGORA District Hospital since from August to September 2021 in pediatric and neonatology service. Informed consent was signed by everyone before participating in the research and there are no names of participants on questionnaires and not sharing information to any other person known by participants without the participant permission to assure participant's confidentiality for all information that they have provided (Ismail., 2013), the participant right (privacy, confidentiality, respect, dignity, patient safety and information) have to be respected. Participants are allowed to refuse or withdraw at any stage of the study.

3.8 DATA ANALYSIS

In analysis of the data of our study we was used Microsoft excel in demonstrating the percentage interpreting the results that help in making decision

3.9 RELIABILITY AND VALIDITY MEASURES

Validity is the extent to which an instrument measures what it is supposed to measure and performs as it was designed to perform whereas reliability refers to the extent to which the same answers can be obtained using the same instruments more than one time (Polit, 2017).

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, INTERPRENTATION AND SUMMARY

4.0. Introduction

This chapter was shown as the research on assessment of pneumonia prevalence among children under five years attending kibogora district hospital . The data collected in this research was collected in the form of Checklist with the points views of respondents in tables and Figures in data presentation.

4.1. DATA PRESENTATION

Data was discussed from social demographics, prevalence of pneumonia, vulnelable group of pneumonia among children under five years attending kibogora district hospital.

4.1.0. SOCIAL DEMOGRAPHIC OF RESPONDENTS

This was conducted in sex,age group, Habitation site, education of parents, occupations and marital status of respondents on checklist.

Table 1: Distribution of information on sex of respondents in the study

SEX	Frequency	Percentages
Male	12	44%
Female	15	56%
TOTAL	27	100%

The Largest number is female with 12(56%) and the smallest number was male with 15(44%)

Table 2: Distribution of information on age group from study

Age group	Frequency	Percentages
Age under 1 years	7	26%
11 mouth-5years	20	74%
Total	27	100%

The children under five years in the age under 1 years with (7)26% and 11 month and 5years 7(26%) the children in this age group was affected by Pneumonia.

Table 3: Distribution of information on Habitation site from study

Habitation site	Frequency	Percentages
Urban areas	10	37%
Rural areas	13	48%
Camp	4	15%
Total	27	100%

The habitations site of the family like Urban areas with 10(37%), rural areas with 13(48%) and camp areas with (4)15% hence children born in the rural areas have the risk of pneumonia

Table 4: Distribution of information on education level of parents from study

Education level of parents	Frequency	Percentages
Primary level	10	37%
Secondary level	10	37%
University level	5	19%
None	2	7%
TOTAL	27%	100%

The education level of parents in Primary level with (10)37%, Secondary level with (10) 37%, University level with (5)19% and none with (2)7%.

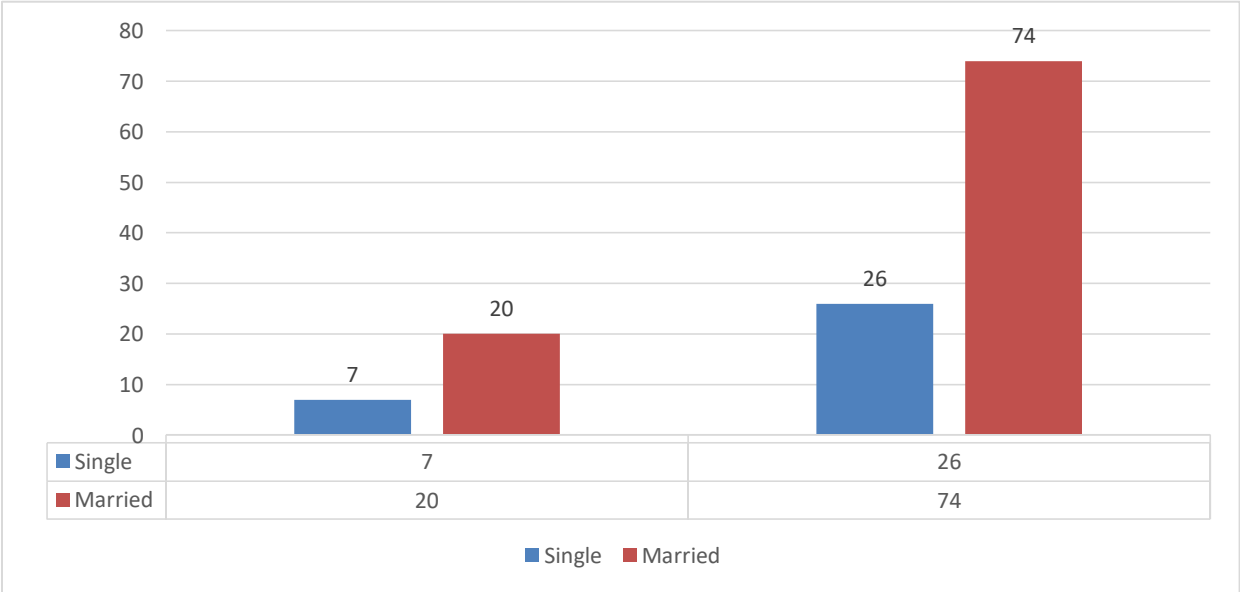
Table 5: distribution of information of occupation of parents from checklist

Occupation of parents	Frequency	Percentages
Individual worker	6	22%
Worker of others	9	34%

Public worker	2	7%
Farmer	10	37%
TOTAL	27	100%

The Occupation of parents from study, individual worker with 6(22%), Worker of worker with 9(34%), public worker with(2)7% and farmer worker with 10 (37%) hence children of farmer we have the high risk of Pneumonia

Figure 2: distribution of information according to marital status of parents from study



The Figure above show marital status of parents from study, Single which have the Frequency of 7 and percentages of 26% and married which have the Frequency of 20 and percentages of 74%.

4.1.1. RALATED TO PREVALENCE OF PNEUMONIA UNDER FIVE YEARS

Table 6: distribution of information related to children with pneumonia who were vaccinated

The children with pneumonia who were vaccinated	Frequency	Percentages

vaccinated	10	37%
Not vaccinated	17	63%
Total	27	100%

Table above show the children with pneumonia who were vaccinated with the frequency of 10 and percentages of 37% and not vaccinated which have the frequency of 17 and percentages of 63%.

Table 7: Distribution of information on Pneumonia cases in-patient with respiratory congenital malformation from study

Respiratory congenital malformation	Frequency	Percentages
Children born with respiratory congenital malformation	19	70%
Children born without respiratory congenital malformation	8	30%
Total	27	100%

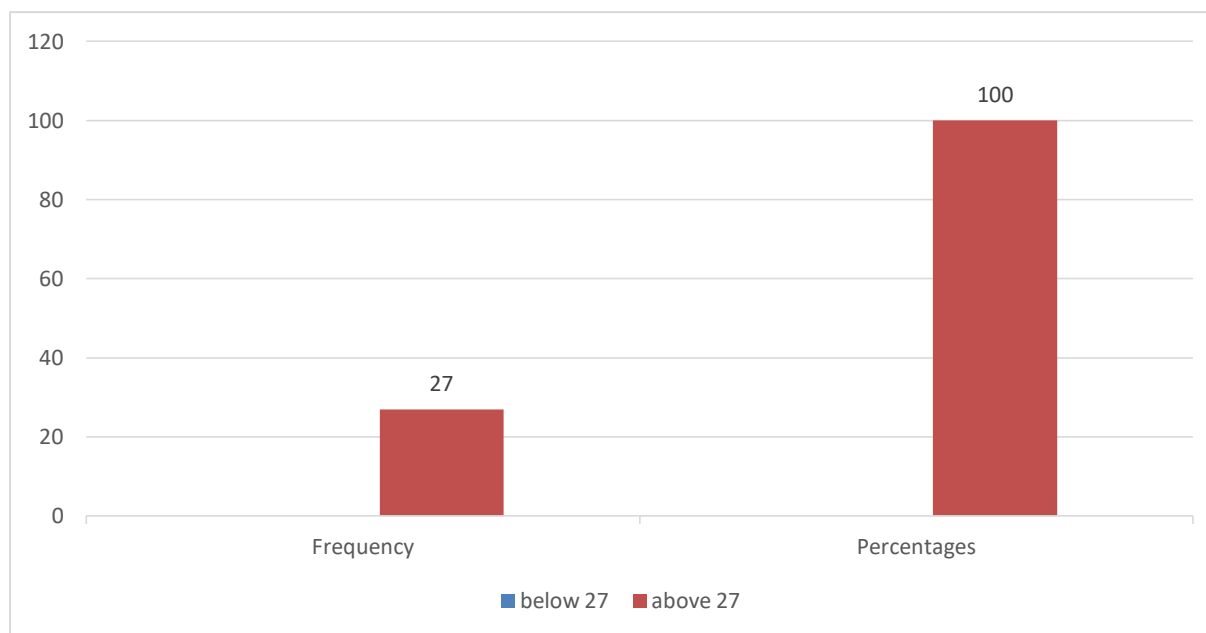
The table above show Pneumonia cases in-patient with respiratory congenital malformation in study, Pneumonia with respiratory with (19)70% and Pneumonia without respiratory with (8)30%. the highest number was children born with respiratory congenital malformation.

Table 8: Distribution of information according to the climate does severity of pneumonia increases.

climate does severity of pneumonia increases	Frequency	Percentages
Hot	4	15%
Cold	23	85%
TOTAL	27	100%

The climate does severity of pneumonia increases, Hot with 4(15%) and Cold with(23)85%, the children born with climate that are cold we have the risk of Pneumonia.

Figure 3: Distribution of information according to the Number of pneumonia cases in January at Kibogora District Hospital



The Figure above shows that all cases with pneumonia in January at Kibogora district hospital, were 27 with the frequency of 27 and percentages of 100%.

4.1.2. RELATED TO VULNERABLE GROUP UNDER FIVE YEARS ON PNEUMONIA

Table 9: Distribution of information according vulnerable group in Prevalence of pneumonia among under 5 year’s children.

Age group	Frequency	Percentages
0-1.5 year	7	26
1.5.-2.5 years	10	37%
2.5-5years	10	37%
Total	27	100%

In the table above show the information on Prevalence of pneumonia among under 5 year’s children, 0-1.5 year with (7)26%, 1.5-2.5 years with(10)37% and 2.5-5years with (10)37%

Table 10: Distribution of information according to Patient have severe pneumonia are in which category of ubudehe.

Categories	Frequency	Percentages
Categ I	16	59%
Categ II	7	26%
CategIII	4	15%
Categ IV	0	0%
TOTAL	27	100%

Table above show Patient have severe pneumonia are in which category of Ubudehe, Categ I with 16(59%), Categ II with (7)26%, Categ III with(4)15% and Categ IV with (0) 0%.

Table 11: Distribution of information according to the Prevalence of pneumonia in patient born with HIV/AIDS.

Illness of HIV/AIDS	Frequency	Percentages
Patient with HIV/AIDS	6	22%
Patient without HIV/AIDS	21	78%
Total	27	100%

The Prevalence of pneumonia in patient born with HIV/AIDS, Patient with HIV/AIDS with 6(22%) and Patient without HIV/AIDS with (21)78%, the highest was Patient without HIV/AIDS.

Table 12: distribution of information related to the location where we found high prevalence of pneumonia

The location where we found high prevalence of pneumonia	Frequency	Percentages
Near lake Kivu	12	44%
Near forest	10	37%
High mountain	5	19%
TOTAL	27	100%

The distribution of information related to the location where we found high prevalence of pneumonia, Near lake kivu with 12 (44%), Near forest Near lake kivu with (10)37% and High

mountain with 5(19%) hence the Children near lake kivu we have the risk of affected by Pneumonia.

4.2. DISCUSSION OF FINDINGS

4.2.1. THE PREVALENCE OF PNEUMONIA AMONG UNDER 5 YEAR'S CHILDREN

According to South-east Asia and Africa were the two continents with high magnitude of childhood pneumonia, having an estimated of 61 million and 35 million annual cases of pneumonia in under-five children respectively (Rudan et al, 2008). our finding show the children with pneumonia the high was not vaccinated,Pneumonia cases in-patient with respiratory congenital malformation in study the highest number was children born with respiratory congenital malformation and The climate does severity of pneumonia increases, the children born with climate that are cold we have the risk of Pneumonia.

4.2.2. THE MOST VULNERABLE GROUP UNDER FIVE YEARS ON PNEUMONIA

According Rwanda is included are especially vulnerable to pneumonia due to widespread malnutrition. However, uptake of improved breastfeeding practices and increased early childhood nutrition education has led to a substantial decrease in childhood pneumonia incidence, reducing neonatal, infant, and under-five mortality rates throughout Rwanda (Walker et al., 2013) our findings show the information on Prevalence of pneumonia among under 5 year's children, 0-1.5 year with (7)26%, 1.5-2.5 years with(10)37% and 2.5-5years with (10)37%,Patient have severe pneumonia are in which category of Ubudehe, Categ I with 16(59%) this categories affected by pneumonia,The Prevalence of pneumonia in patient born with HIV/AIDS, the highest was Patient without HIV/AIDS and The distribution of information related to the location where we found high prevalence of pneumonia hence the Children near lake kivu we have the risk of affected by Pneumonia.

4.3. SUMMARY OF FINDINGS

This study was covered by two specific objectives the first objectives was evaluate the prevalence of pneumonia among under 5 year's children in the Kibogora District hospital.it was seen children with pneumonia the high was not vaccinated,Pneumonia cases in-patient with respiratory congenital malformation in study the highest number was children born with

respiratory congenital malformation and The climate does severity of pneumonia increases, the children born with climate that are cold we have the risk of Pneumonia.the second objectives was determine the most vulnerable group under five years on pneumonia who attend Kibogora District Hospital it was seen that the information on Prevalence of pneumonia among under 5 year's,Patient have severe pneumonia are in which category of Ubudehe, Categ I with 16(59%) this categories affected by pneumonia,The Prevalence of pneumonia in patient born with HIV/AIDS, the highest was Patient without HIV/AIDS and The distribution of information related to the location where we found high prevalence of pneumonia hence the Children near lake kivu we have the risk of affected by Pneumonia.

CHAPTER FIVE CONCLUSION AND RECOMMENDATION

5.0. Introduction

This chapter consists of conclusion of the research thesis on assessment of pneumonia prevalence among children under five years attending kibogora district hospital, recommendation and suggestion for further research.

5.2. CONCLUSION

As conclusion pneumonia is a bad diseases that killing different children in different areas surrounding kibogora district hospital hence all parents will the first to understanding the effect of pneumonia after protecting in your life and protect their children under five for reducing pneumonia. .

5.3. RECOMMENDATIONS

According to the findings of the study related on assessment of pneumonia prevalence among children under five years attending kibogora district hospital, the following recommendation supporting the research to run well.

5.3.1. To the parent

parents should educated on signs of pneumonia and prevention mechanisms of pneumonia so that they can protect their children from pneumonia and Understanding effects and problems of pneumonia as diseases of children under five years.

5.3.2. To Hospital

To continue stabilization about pneumonia diseases by mostly group affected pneumonia them against their children under five years

5.4. SUGGESTIONS FOR FUTHER STUDIES

The finding of the study was big realities which require to be expanded more. we recommend other researcher to work on, the following areas are suggested for further study.

1. Assessment of effects of pneumonia diseases among children under five years.
2. Contribution of nurses in the reduction of pneumonia diseases among children under five years.

REFERENCES

- Abate, B. B., Kasie, A. M., Reta, M. A., & Kassaw, M. W. (2020). Neonatal sepsis and its associated factors in East Africa: a systematic review and meta-analysis. *International Journal of Public Health*.
- Ásbjörnsdóttir, K. H., Slyker, J. A., Weiss, N. S., Mbori-ngacha, D., Maleche-obimbo, E., Wamalwa, D., & John-, G. (2014). *NIH Public Access*.
- Becker-Dreps, S., Blette, B., Briceño, R., Alemán, J., Hudgens, M. G., Moreno, G., Ordoñez, A., Rocha, J., Weber, D. J., & Amaya, E. (2017). Changes in the incidence of pneumonia, bacterial meningitis, and infant mortality 5 years following introduction of the 13-valent pneumococcal conjugate vaccine in a “3+0” schedule. *PLoS ONE*.
- Fadl, N., Ashour, A., & Muhammed, Y. (2020). Medical management of pneumonia in children aged under 5 years in Alexandria, Egypt: Mothers’ perspective. *Eastern Mediterranean Health Journal*.
- Fischer Walker, C. L., Rudan, I., Liu, L., Nair, H., Theodoratou, E., Bhutta, Z. A., O’Brien, K. L., Campbell, H., & Black, R. E. (2013). *Global burden of childhood pneumonia and diarrhoea*. The Lancet.
- Guidelines, C. T. (2012). *Clinical Treatment Guidelines Rwanda, September*.
- Kaplan, S., & Mallory, G. (2021). *Community-acquired pneumonia in children: Clinical features and diagnosis - UpToDate*.
- Kasundriya, S. K., Dhaneria, M., Mathur, A., & Pathak, A. (2020). *Incidence and risk factors for severe pneumonia in children hospitalized with Pneumonia in Ujjain, India*. *International Journal of Environmental Research and Public Health*.
- Mackenzie, G. (2016). The definition and classification of pneumonia. *Pneumonia*.
- McAllister, D. A., Liu, L., Shi, T., Chu, Y., Reed, C., Burrows, J., Adeloje, D., Rudan, I., Black, R. E., Campbell, H., & Nair, H. (2019). *Global, regional, and national estimates of*

*pneumonia morbidity and mortality in children younger than 5 years between 2000 and 2015: a systematic analysis.*The Lancet Global Health

Nascimento-Carvalho, C. M. (2020). *Community-acquired pneumonia among children: the latest evidence for an updated management.*Jornal de Pediatria.

National Institute of Statistics of Rwanda (NISR) [Rwanda], M. of H. (MOH) [Rwanda], & International, I. (2016). *Rwanda Demographic and health survey report*

National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], & ICF. (2021). *Rwanda Demographic and Health Survey 2019-20 Final Report.*

Nirmolia, N., Mahanta, T. G., Boruah, M., Rasaily, R., Kotoky, R. P., & Bora, R. (2018). Prevalence and risk factors of pneumonia in under five children living in slums of Dibrugarh town. *Clinical Epidemiology and Global Health.*

NISR. (2016). Demographic and Health Survey 2014-15: Western Province. In *National Institute of Statistics of Rwanda.*

Rudan, I., Boschi-Pinto, C., Biloglav, Z., Mulholland, K., & Campbell, H. (2008). *Epidemiology and etiology of childhood pneumonia.*Bulletin of the World Health Organization.

Rudan, I., O'Brien, K. L., Nair, H., Liu, L., Theodoratou, E., Qazi, S., Lukšić, I., Walker, C. L. F., Black, R. E., & Campbell, H. (2013). *Epidemiology and etiology of childhood pneumonia in 2010: Estimates of incidence, severe morbidity, mortality, underlying risk factors and causative pathogens for 192 countries.* Journal of Global Health.

Shibre, G., Zegeye, B., Ahinkorah, B. O., Keetile, M., & Yaya, S. (2020). *Magnitude and trends in socio-economic and geographic inequality in access to birth by cesarean section in Tanzania: evidence from five rounds of Tanzania demographic and health surveys (1996-2015)*. Archives of Public Health

UNICEF. (2013). *The Integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD)*.

UTDOL. (2013). *UTDOL - Pneumonia in children: Epidemiology, pathogenesis, and etiology*

Waterer, G. (2021). What is pneumonia? Breathe

APPENDICES

Appendix A- Individual Informed Consent Form

Our names are NIYONSENGA Grace and INGABIRE Jehovanis students in bachelors of nursing Science in Kibogora polytechnic,. My bachelor’s research dissertation is assessment of pneumonia prevalence among children under five years attending neonatology and peditry in Kibogora District Hospital.

“As partial fulfillment of my studies. This study will help to increase the knowledge and enhance support through identification of assessment of pneumonia prevalence among children under five years attending neonatology and peditry in Kibogora District Hospital.

The study seeks to inform about the pneumonia prevalence among children under five years attending neonatology and peditry. With your permission, I kindly request you to give as much information as possible seek by responding to the questions in the questionnaire and checklist will be addressed to you. There are no anticipated risks associated with this study. Your decision whether or not to participate in this study will not affect you at all. The participation in this study is voluntary, and there is no penalty for early withdrawal.

The information you provide will be confidential. Your identity will not be disclosed in any published and written material resulting from the study and will be shared only with the research team.

I agree to participate in this study.

Signature_____

Date and Signature of Participant __/__/_____

Witness_____

Appendix B- Consent Form

Introduction

The study seeks to inform about assessment of pneumonia prevalence among children under five years attending neonatology and pediatry in Kibogora District Hospital.

Purpose of the Study

The purpose of this study is the assessment of pneumonia prevalence among children under five years attending neonatology and pediatry in Kibogora District Hospital.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. All the services you receive in this context of care will continue, and nothing will change. If you choose not to participate in this research project, you may withdraw at any time without risk of penalty. May change your mind later and stop participating even if you agreed earlier.

Confidentiality

The information that we collect from this research project will be kept confidential. Information about you that will be collected during the research will be put away, and no-one but the researchers will be able to see it. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except who will have access to the information

The knowledge that we get from doing this research will be shared with you through in job training/workshops and morning staff in your services. Confidential information will not be shared. There will be small meetings in your setting, and these will be announced.

If you have any questions, you may ask them now or later, even after the study has started. If you wish to ask questions later, you may contact any time on: 0785001474&0785478283 I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it, and any questions that I have asked to, have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research.

Name of Participant _____

Signature of Participant _____

Date _____ Witness _____

APPENDICES C: QUESTIONNAIRE AND CHECKLIST USED FOR INFORMATION ON PNEUMONIA AMONG UNDER FIVE YEARS OLD IN KIBOGORA DISTRICT HOSPITAL

SECTION A: SOCIO- DEMOGRAPHIC

3. Sex? Male female
2. Age Under 1 years 1.1 month-5 years
4. Habitation site ? Urban rural camp
5. Education level of parents? Primary level. Secondary level University level
None
6. Occupation: ;
7. Marital Status: Single Married

SECTION B: QUESTIONS ABOUT PREVALENCE ON PNEUMONIA

1. Prevalence of pneumonia among under 5 year's children?
- A.0-1.5 year
- B.1.5-2.5 years
- C.2.6-5 years
2. Number of pneumonia cases in January at Kibogora DH?
- A.Below 27
- B.Above 27
3. Do child with pneumonia had been vaccinated?

A. Vaccinated

B. Not vaccinated

4. Patient have severe pneumonia are in which category of UBUDEHE?

A. Categ I

B. Categ II

C. Categ III

D. Categ IV

7. Pneumonia cases in-patient with respiratory congenital malformation.

A. Pneumonia with respiratory

B. Pneumonia without respiratory

8. Prevalence of pneumonia in patient born with HIV/AIDS?

A. Patient with HIV/AIDS

B. Patient without HIV/AIDS

9. In which climate does severity of pneumonia increases?

A. Hot

B. Cold

10. In which location do we find high prevalence of pneumonia?

A. Near Lake Kivu

B. Near forest

C. High mountain