ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE

MAGNITUDE, TREATMENT OUTCOME AND ASSOCIATED FACTORS WITHSEVERE COMMUNITY ACQUIRED PNEUMONIA IN CHILDREN AGED 2 TO 59 MONTHS ADMITTED TO PEDIATRIC DEPARTMENTS OF TWO SELECTED GOVERNMENTAL HOSPITALSIN ADDIS ABABA, ADDIS ABABA, ETHIOPIA, 2017/18

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A THESIS SUBMITTED TO THE DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE, COLLEGE OF HEALTH SCIENCE, ADDIS ABABA UNIVERSITY, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN EMERGENCY MEDICINE AND CRITICAL CARE NURSING.

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ACRONYMS AND ABBREVIATIONS

AAU……..Addis Ababa University

AIDS…….....Acquired Immune disease syndrome

ALRI…….....Acute Lower Respiratory Infections

AOR.....Advanced Odds Ratio

ARI…….....Acute Respiratory Infections

CAP……....Community-acquired pneumonia

CNS.....Central Nervous System

DHS.....Demographic and Health Survey

EBF.....Exclusively Breast Feeding

EPI.....Expanded Programmes of Immunization

GC.....Gregorian calendar

HIV.....Human Immunodeficiency Virus

IMCI…….....Integrated Managements of Children Illness

LBW…….....Low Birth Weight

LIC…….....Low Income Countries

LMIC.....Low and Middle Income Countries

MM.....Millimetres

MUAC.....Middle Upper Arm Circumference

NGO.....Non-Governmental Organization

SCAP…….Severe community Acquired Pneumonia

SNNPR.....Southern Nations, Nationalities and Peoples Region

UNICEF…….....United Nations Children's Emergency Fund

WHO…….World Health Organization

ABSTRACT

BACKGROUND: Pneumonia is one of the leading causes of morbidity and mortality in under-fives throughout the world, particularly in developing countries. About 20% of all deaths in children under five years of age has been reported to be happen due to acute lower respiratory infection (ALRI). About 90% of ALRI associated deaths takes place due to severe pneumonia. Death attributed to pneumonia has decreased since 2000 G.C., but it remains a major public health problem. Additionally, there are no enough data to describe pneumonia outcomes in low-income countries even in the era after vaccines have been introduced. Therefore, this study is crucial in identifying major determinants of severe pneumonia outcomes.

OBJECTIVE: To assess Magnitude, Treatment Outcome and Associated Factors with Severe Community Acquired Pneumonia in Children Aged 2 to 59 Months Admitted to Pediatric departments of two Selected Governmental Hospitals in Addis Ababa, Addis Ababa, Ethiopia, 2017/18.

METHODS: An institutional based retrospective chart review study was conducted to assess the magnitude, treatment outcome and associated factors with severe community acquired pneumonia in pediatric departments of Yekatit 12 Hospital and St.Paul's Hospital Millennium Medical College in the last one year from January 1, 2017 to December 31, 2017. Data were collected by using a structured questionnaire from medical records of patient fulfilling inclusion criteria.For sample size determination all cases fulfilling inclusion criteria admitted from January 1, 2017 to December 31, 2017 were included and the collected data were analysed using SPSS version 23.

Result:A total of 1043 children aged 2 to 59months were admitted to Yekatit 12 hospital and St. Paul Hospital Millennium medical college paediatric departments during the study period. Among these 168 were Children with diagnosis of severe community acquired pneumonia (SCAP) fulfilling the inclusion criteria with full documentation.Out of 168 children (mean age 14 months) admitted with severe community acquired pneumonia, 33(19.6%) had severe acute malnutrition (SAM), 2 (1.2%) had a positive HIV antibody test, and 10(6.0%) died in hospital.

Conclusion: Child's nutritional status, immunization status and oxygen saturation at time of admission had significant effect on the patient treatment outcome of children admitted with diagnosis of severe community acquired pneumonia.

Keywords: children aged 2 to 59 months, SCAP, outcomes

1. INTRODUCTION

1.1. Background

Pneumonia is one of the serious illnesses, which involves lung infection specifically alveoli and is a single most leading cause of morbidity and mortality in under-five age groups throughout the world, particularly in developing countries like sub-Saharan Africa and south Asia.Pneumonia can be classified according to the type of agent causing the infection, distribution of the infection and setting in which it occurs. It can be classified as community-acquired and hospital-acquired (nosocomial) pneumonia based on setting in which it occurs. Community-acquired pneumonia is an infection that begins outside the hospital or is diagnosed within 48 hours after admission to the hospital in a person who has not resided in a long-term care facility for 14 days or more before admission. About 20% of all deaths in children under five years of age has been reported to happen due to acute lower respiratory infection (ALRI) which includes: pneumonia, bronchiolitis, and bronchitis. About 90% of these ALRI associated deaths are secondary to severe pneumonia. Pneumonia kills more under five children than AIDS, malaria, and measles combined, but more attention in recent years has been on these three diseases. The causative agents of pneumonia in an individual patient are often difficult to determine because direct culture of lung tissue is invasive and rarely performed. Cultures performed on specimens obtained from the upper respiratory tract or "sputum" often does not accurately reflect the cause of lower respiratory tract infection as well as enough sputummight not beobtained in under five children.(1, 2)

The World Health Organization (WHO)-Acute Respiratory Infection (ARI) case management algorithm recommends that all children with a diagnosis of pneumonia should be treated with antibiotics. This recommendation is based on the findings from studies conducted in the 1980s in Low and Middle Income Countries (LMICs) where streptococcus pneumoniae and hemophilus influenza together accounted for more than 50% of the organisms isolated in lung puncture aspirate specimens of children with severe pneumonia.(3)

When we see the aetiologies of pneumonia based on age categories, Streptococcus pneumonia (pneumococcus) is the most common bacterial pathogen in children 3 weeks to 4 years of age, whereas Mycoplasma pneumonia and Chlamydophilapneumoniae are the most frequent pathogens in children 5 years and older age. The clinical manifestations of childhood pneumonia differ basedupon the responsible pathogenic causes, the particular host, and the severity of the disease. Viral and bacterial pneumonias are often preceded by many days' symptoms of an upper respiratory tract infection. Tachypnea is the best single predictor of pneumonia in children of all ages. Increased work of breathing accompanied by intercostal, sub costal, and suprasternal retractions, nasal flaring, and use of accessory muscles are also common. Severe pneumonia may be manifested by cyanosis and respiratory fatigue, especially in infants. By Auscultation of the chest there may be crackles and wheezing, but it is often difficult to localize the source of these added sounds in very young children because of hyper resonant chests.(1)

It is estimated that 6.3 million children under five die every year world widely, from which 99% of these deaths occur in developing countries. Pneumonia is the leading cause and accounts for almost one million of these deaths.(4)
World Health Organization (WHO) estimates causes of death in children younger than five years attribute 19% deaths to pneumonia, 13% to diarrhoea, 9% malaria, 5% to measles, 3% Acquired Immune disease syndrome (AIDS), 42% to neonatal causes & 9% to miscellaneous, other causes including non-communicable diseases and injuries. Overall, among all under five children, possible serious infections (31%) and Acute Respiratory Infections (ARI) (21%) were responsible for most of the deaths. One in five children under five reported to have symptom of respiratory illness. According to a United Nations Children's Emergency Fund (UNICEF)-World Health Organization (WHO) report from 2006, over 2 million children die from pneumonia each year, accounting for almost one in five under-five deaths worldwide. Out of these deaths, two thirds occur during infancy. It is estimated that more than 150 million episodes of pneumonia occur every year among children under five in developing countries, accounting for more than 95 percent of all new cases world widely.Between11 and 20 million children with pneumonia will require hospitalization, and more than 2 million will die from the disease. It is also important to note that incidence of pneumonia among children decreases with age.(5)

Globally, there were 120 million episodes of pneumonia in children younger than 5 years, and 14 million pneumonia cases progressed to severe pneumonia requiring urgent hospital care in 2010 and, about 1.3 million estimated pneumonia cases led to death in 2011. In addition to this, pneumonia accounted for 16% of the estimated 5.9 million deaths among children aged <5 years in 2015 world widely.(6)

In Europe and North America, it was found that the prevalence of pneumonia for children under 5 years of age is 34 to 40 cases per 1000 live births. Therefore, it is not a surprise that pneumonia is one of the most critical illnesses for children under 12 years old in many parts of the world. (7)

Pneumonia in under- five years children remains a leading killer of children in developing countries where it accounts for up to 21% of deaths. The mortality rates of children under the age of five years in most developing countries ranges from 60 to 100 per 1000 live births. An estimated 1.9 million children die from pneumonia yearly. Half the world's deaths due to pneumonia in children under the age of five years occur in Africa. In sub-Saharan Africa, the estimated proportion of death in children aged below 5 years attributed to pneumonia is 17-26% .(8)

In Ethiopia, pneumonia is a leading disease killing under five children. It is estimated that 3,370,000 children encounter pneumonia annually which contributes to 20% of all causes of deaths killing over 40,000 under-five children every year. These deaths are easily preventable and treatable through simple and cost effective measures. Out of fifteen countries that have the highest death rate from clinical pneumonia in under five-year-old children, Ethiopia ranks as number four in the world.(9, 10)
Regardless of this fact, efforts to identify determinants of community acquired pneumonia treatment outcomes have been limited in Ethiopia.

1.2. Statement of the problem

Pneumonia is the leading cause of child mortality from infectious diseases, accounting for an estimated 1 million deaths annually, andmainly affecting children in developing countries. Death attributed to pneumonia has decreased since 2000 G.C., but remains a major public health issue. The number of children that die in the age of less than five years has decreased from an estimated 9.9 million in 2000 to 6.3 million in 2013.Furthermore, mortality rates of children under age of five have dropped 53%, from 91 deaths per 1,000 live births in 1990 to 43 deaths per 1,000 in 2015.Despite substantial progress reducing child deaths, global childhood mortality rates remain high and still about 16,000 children under five years of age die every day and the WHO African region is more than 15 times the average mortality of developed regions.(4, 11, 12)

Pneumonia accounts for 15% of the mostly preventable deaths concentrated in the world's poorest regions of sub-Saharan Africa and south Asia. In the developing world, currently existing interventions to reduce pneumonia-related morbidity and mortality include the implementation of anti-pneumonia vaccines through the Expanded Programme on Immunization (EPI) during infancy and also the adequate diagnosis and prompt treatment of clinical cases with antibiotics, according to the Integrated Management of Childhood Illnesses (IMCI) algorithms, under the assumption that in such settings the majority of severe pneumonia cases are of bacterial origin. Although there is increasing availability of vaccines, morbidity amongst those children who do become infected remains high, this is may be due to many challenges faced in the diagnosis and management in low- income countries(LICs) like Ethiopia. The early identification of risk factors for a poor outcome among pneumonia patients could help prioritize the management of those patients with an uncertain prognosis and perhaps increase their likelihood of surviving. Immediate recognition of the manifestations and urgent management as well as giving priority for patients with risk factors might prevent death due to severe Pneumonia.(4, 13)

Even though pneumonia has the lion position for deaths of children under five, there is no enough data to describe pneumonia outcomes in low-income countries even in the era after vaccines have been introduced. Data on outcomes for common causes of mortality and morbidity like pneumonia in LICs may be useful for understanding the performance of health systems. Appropriate hospital management of childhood pneumonia with high risk of death in developing countries is guided by WHO case management guidelines. These recommendations are, provision of inpatient supportive care including oxygen supplementation and close monitoring of vital signs in addition to antibiotic treatment. If utilized properly they may help to improve the quality of care and the consistency of outcomes. Assessing of outcomes such as mortality may therefore help to indicate which inpatient settings require careful and specific attention. (14)

The majority of studies on pneumonia take place in developed nation, with only negligible volume of surveys being conducted in developing countries, including Ethiopia. Some variables that are found to be predictor forpoor outcome for pneumonia treatment case in one study may not necessarily be a risk factor for poor outcome of pneumonia treatment in another study supp. It may, therefore, be difficult to generalize the result to the other regions outside of the study area.

Generally, even though Ethiopia is one of several countries which suffer the largest burden of childhood mortality from pneumonia(15)and the disease is at the forefront among the health problems of the country, there are no enough researches done on magnitude of severe pneumonia and associated factors with its outcomes, specifically in the study area.

Therefore, this study concentrated on associated factors with outcome of severe pneumonic cases.

1.3. Significance of the study

This study is useful to greatly improve health care professionals work to facilitate improved treatment.

Better data on understanding of pneumonia outcomeis alsoimportant to improve models that help direct current and future resource use in health as well as means to understand health system performance and direct efforts to areas where performance is not good.

Furthermore, since there were limited studies related to the topic in the country, particularly in the study area, this study will be used as a baseline data for the future studies associated with severe pneumonia.

This study also helps the government to device policies that will improve health care services for the ill children so as the mortality from severe pneumonia decreases.

The results can also assist the government and concerned bodies to take major precautions measures efficiently to the full extent like for future training and improve early referral of the patient.

2. LITERETURE REVIEW

According to study done in Bangladesh on risk factors determining the outcome of 2-12 months age group infants hospitalized with severe pneumonia, Out of 192children with severe pneumonia enrolled in the study, older sibs were suffered from ARI in 27.1 % of the cases. Children who were lived in slum area were 75.5%of the cases. Malnutrition was present in 80.72 % of cases and Non-immunized or incompletely immunized was 37%. Infants that were on only breast feeding for the first six months were 59.9%of the cases. Cigarette smoking in bedroom and indoor smoke was 66.7% and 75.5%of cases respectively. Congenital heart disease was present in 2.1% of cases. On multivariate analysis, malnutrition, indoor smoke resulting from burning wood and manure used as fuel, immunization, poor housing, Cigarette smoking in bed room, were found significant risk factors for pneumonia. Additionally, significant risk factors for mortality in severe pneumonia are associated with severe malnutrition, and congenital abnormality of heart with Down's syndrome.(3)

In review of studies from developing countries on breastfeeding for reducing the risk of pneumonia morbidity and mortality in children under two age: a systemic literature review and meta-analysis infants who were not breastfed were at an increased risk of acquiring pneumonia, needing hospitalization and death compared to those who were exclusively breastfed.(16)

The study done in Sudan, on risk factors of mortality among children admitted with severe pneumonia at a Referral Hospital in Khartoum, reveals that out of 195 children analysed, there were 33 deaths accounting for a case fatality rate of 16.9% among children admitted with severe pneumonia. The remaining (n=162) children were alive on in-hospital treatment completing the 5 days period of the study. Children who died of severe pneumonia during hospitalization were younger (age < 18 months) compared to survivals ($p<0.001$). However, there was no significant difference in sex distribution ($p=0.566$). According to this studymalnutrition, dehydration and chest in-drawing were significantly frequent among those who died compared to those who survived from severe pneumonia. On the other hand, prior antibiotic treatment, intercostal recession, history of asthma and fast breathing were frequently seen among survivals compared to those who died. There was no significant difference between the died and survived in the frequency distribution of fever, cough, runny nose, grunting, inability to drink, cyanosis, central nervous system (CNS) manifestations and tachycardia.(17)

A study done in Malaysia on an analysis of the prevalence of pneumonia for children under 12 years old in Tawau general hospital, out of 102 patients aged less than 12 years, children aged 2-3 years old are mostly infected by pneumonia compared to other age categories. Based on the sample of the patients, the number of percentage parents who smoked was 37.25 percent and parents who did not smoke were 62.75 percent. Most of the patients were admitted for 3 to 4 days. There was a case where a patient was admitted for 14 days in case probably it involves a serious case of pneumonia. The parent infected by pneumonia since childhood is 15.69 percent. Therefore, the children might have inherited the illness from their parents. Most of the patientswerefrom the rural area which contribute 86.27 percent compared to urban area patients with a 13.73% contribution. (7)

According to the study done in Kilifi County Hospital in a rural area on the Kenyan coast, on mortality after inpatient treatment for severe pneumonia in children in 2017, overall 4184 children (1–59 months) were admitted with severe pneumonia in the study period, comprising 32% of all admissions within the study age range. Out of the enrolled cases, 578 (14%) were hypoxic at admission, 1041 (25%) were severely malnourished, and 267 (6.4%) had a positive HIV antibody test. Three hundred and sixty-four (8.7%) children with severe pneumonia died in hospital which accounts 55% of inpatient deaths within this age range compared with 296/8908 (3.3%) amongst all children admitted without severe pneumonia. (18)

A prospective studydoneinEste town and the surrounding rural kebeles, Northwest Ethiopia, on prevalence of pneumonia among under- five children, out of 286 children included in the study, 59 (20.6%) had cough at the time of interview or within the last two weeks. This figure represents the two week prevalence of ARI among under-five children in the study area. Among these children, 41 (14.33%) had only history of fast breathing, 3 had both general danger sign and fast breathing and only one child had convulsion with no fast breathing which is one of the general danger signs. Therefore, the prevalence of pneumonia among under-five children at the time of survey or within the last two weeks was 16.1 %. (19)

A study done to assess, factors associated with outcomes of severe pneumonia in children aged 2months to 59 months at Jimma university specialized hospital, southwest Ethiopia, revealed that out of the total 107children, admitted with severe pneumonia, 94(87.9%) were discharged improved, 5(4.7%) died and 4(3.7%) children were self-discharged against medical advice. Discharge information was unknown for the rest of 4(3.7%). Majority of children stayed less than 5 days before hospital visit at home and duration of hospital stay was less than 4 days for the majority. There was significant association between Nutritional status of the child and Status of discharge. Two of the five deaths occurred in two severely malnourished children and another death occurred in a moderately malnourished child. Status of discharge also tends to be affected by previous history of pneumonia and 3 of the 5 dead children had previous history of pneumonia as well as 3 of the 12 children with recurrent pneumonia died. Status of discharge was also significantly associated with duration of hospital stay and threeofthe children who died stayed in the hospital for greater than 10 days. A Smoker in the house had significant association with status of discharge. There was significant association between nutritional status and duration of hospital stay and 6 of the 10 children who stayed greater than 10 days were severely

malnourished and other 2 had mild malnutrition. In addition to this, 13children had stayed more than 3 days in association with some form of malnutrition. HIV status had also shown a significant association with duration of hospital stay than status of discharge. Three of the 10 hospital stays greater than 10 days were associated with sero positive HIV status. A Smoker in the house had significant association both between status of discharge and duration of hospital stay. Duration of hospital stay was prolonged greater than 10 days for 4 children with previous history of pneumonia.(1)

Study done in TASH,onanalysis of admissions to the pediatric emergency ward of Tikur Anbessa Hospital in Addis Ababa, Ethiopia in 2007, severe pneumonia accounted for 38.3% of the total admissions and 41.9% of the total deaths.(20)

3. OBJECTIVES

3.1. General Objective

To assess magnitude, treatment outcome and associated factors with severe community acquired pneumonia in children aged 2 months to 59 months admitted to pediatric departments of two selected governmental hospitals in Addis Ababa, Addis Ababa, Ethiopia, 2017/18.

3.2. Specific Objectives

- To determine the magnitude of severe community acquired pneumonia among patients visiting paediatric departments of Yekatit 12 and St. Paul's Hospital Millennium Medical College.
- To determine treatment outcomes of children treated for severe community acquired pneumonia.
- To identifyfactors affectingpatients' treatment outcome and their association.

4. METHODS AND MATERIALS

4.1 STUDY AREA

This study was conducted in paediatricdepartmentsof Yekatit 12 Hospital and St.Paul's Hospital Millennium Medical College, the two governmental Hospitals, Addis Ababa, Ethiopia. Addis Ababa is the capital city of Ethiopia, with an estimated population more than 4.6 million with annual growth rate of 2.7 % (DHS, 2013). Its area is estimated to be 530 Km^2 with altitudes ranging from 2200 to 3000m above sea level, average temperature of 22.8°C and average rainfall of 1,180.4 mm. Addis Ababa has 41 hospitals (13 public and 28 NGO and private), 29 health centers, 122 health stations, 37 health posts and 382 modern private clinics. Among the governmental Hospitals, Yekatit 12 hospital is one of the hospitals under Addis Ababa city administration health bureau that has been giving routine health services for Addis Ababa and other referral cases from different regional states of Ethiopia. The hospital provides services for a population of approximately 4 million people and has 265 beds. It has 9 departments and 6 units.

The other hospital in which the study took place is St.Paul's Hospital Millennium Medical College. It is the other largest teaching and referral governmental hospital holding more than 2800 clinical, academic and supportive staffs that provide medical speciality services to patients who are referred from all over the country. While the inpatient capacity is more than 700 beds, the college sees an average of 1200 emergency and outpatient client's daily.St.Paul's Hospital Millennium Medical College provides healthcare and training through its different biomedical and clinical departments including Pediatrics and child health department.

4.2. STUDY PERIOD

This study was conducted from October 2017 to June 2018 G.C.to assess the magnitude, treatment outcome and associated factors withsevere community acquired pneumonia in children aged 2 to 59 months admitted to pediatric departments of two selected governmental hospitals, Addis Ababa, Ethiopia, 2017/18.

4.3. STUDY DESIGN

A Hospital based retrospective chart review study design was employed to assess magnitude, treatment outcome and associated factors of SCAP, in pediatric departments of Yekatit 12 hospital and St. Paul hospital millennium medical college.

4.4. SOURCE POPULATION

All paediatric patients aged 2 to 59 months admitted to paediatric wards of Yekatit 12 Hospital and St.Paul's Hospital Millennium Medical College from January to December 2017,.

4.5. STUDY POPULATION

All paediatric patients aged 2 to 59 months admitted with diagnosis of severe community acquired pneumonia to paediatric departments of Yekatit 12 Hospital and St.Paul's Hospital Millennium Medical College from January to December 2017,, Addis Ababa, Ethiopia.

4.6. INCLUSION AND EXCLUSION CRITERIA

4.6.1 Inclusion Criteria

Children Aged 2 months to 59 months with diagnosis of SCAP admitted to paediatric departments of Yekatit12 Hospital and St.Paul's Hospital Millennium Medical College from January to December 2017 were included in the study.

4.6.2. Exclusion Criteria

Incomplete cards were excluded from the study.

4.7. SAMPLE SIZE DETERMINATION AND SAMPLING PROCEDURE

All children aged 2 months to 59 months with the diagnosis of severe community acquired pneumonia admitted to pediatric departments of Yekatit 12 Hospital and St.Paul's Hospital Millennium Medical College during the study period were included in the study so that the sampling technique is convenient sampling. The two hospitals were purposely selected by assuming as they had relatively good pediatric patient flow.

4.8. STUDY VARIABLES

4.8.1. Dependent variable

- Outcome of Severe Pneumonia

4.8.2. Independent variables

- ✓ Age,
- ✓ sex,
- ✓ Address
- ✓ housing condition,
- ✓ Childs' nutritional status,
- ✓ Immunization status,
- ✓ HIV sero status,
- ✓ History of parental smoking in the house,
- ✓ History of URTI in older family member,
- ✓ breast feeding status,
- ✓ duration of illness before admission,
- ✓ duration of hospital stay
- ✓ history of other co morbidities
- ✓ Oxygen saturation at admission

4.9. DATA COLLECTION PROCEDURE

Data were collected by using structured questionnaires which were adopted from different literatures. Ten health professionals were involved in the data collection from medical records of patients retrospectively. The Principal Investigator was continuously supervising the data collectors and 10% of the collected data were cross checked against hospital medical records.

4.10. DATA QUALITY CONTROL

Before the actual data collection process, pre-test was done on 5% of total sample size in Zewditu Memorial Hospital, the other similar referral governmental Hospital and amendment of the questionnaires was done where required. Data collectors were trained for one day about how to fill the information and on how to mention standards or definitions. During data collection process the collected data were cross checked with ongoingSupervision by checking filled formats forcompleteness, consistency and clarity.

4.11. DATA ANALYSIS

The Collected data were cleaned, coded, edited and entered into Statistical Packages for Social Sciences (SPSS) version 23 for analysis. The Adjusted odds ratio (AOR) with a 95% confidence interval (CI) was reported, and all independent variables that were found significant at a *P*-value, 0.05 were considered risk factors for severe community acquired pneumonia treatment outcome. A multinomial logistic regression was done to see the existence and degree of associations between dependent and independent variables. Finally, the analysed data were presented by texts, tables, figures, and charts.

4.12. ETHICAL CONSIDERATION

Ethical clearance letter were obtained from departmental research and ethical review committee of emergency medicine department, Addis Ababa administrative city health bureau and Institutional review board (IRB) of St. Paul's Hospital millennium medical college (SPHMMC).Consent was also secured from the administrative body of Yekatit 12 Hospital and St.Paul's Hospital Millennium Medical College.

All the collected data were kept confidential and all papers as well as computer records of the study were kept in a secured place under lock and the name of the patient will not be notified in any report.

4.13. DISSEMINATION OF STUDY RESULT

The finding of the study will be presented to the department of Emergency Medicine and Critical care. It will also be disseminated to Addis Ababa City Administration Health Bureau and respective hospitals where the study was conducted. Additionally, it will be disseminated through presentations in different professional association meetings and annual conferences. The paper will also be submitted to national or international peer reviewed scientific journals for possible publication.

4.14. OPERATIONAL DEFINITIONS

Pneumonia

Children presenting with cough and difficulty in respiration having age-specific fast breathing

Fast breathing

- ✓ ≥50 breaths/minute for 2 to <12 months of age
- ✓ ≥40 breaths/minute for 12–59 months of age

Severe pneumonia

Children having cough or difficult breathing plus at least either central cyanosis/oxygen saturation <90%, severe respiratory distress and signs of pneumonia with a general danger sign.

Upper respiratory tract infection in the House

Any older family member or person living in the same house with the child in question who has symptoms of Upper airway disease: cough, sneezing, rhinorhea and/or difficulty swallowing

Severe Acute Malnutrition

A child with one of the following

- Weight for height (W/H) < 70%
- Middle Upper Arm Circumference (MUAC) < 11 cm (for 6Months -5 yrs.)
- Bilateral pitting oedema
- Visible severe wasting

Moderate Malnutrition

- W/H between 70 and 80 percentile
- MUAC between 11 and 12.5cm (for 6Months -5 yrs.)

Mild Malnutrition

- ✓ W/H between 80 and 85 percentile
- ✓ MUAC between 12.5 and 13.5 cm (for 6Months -5 yrs.)

Well Nourished

- o W/H above 85 percentile
- o MUAC above 13.5cm (for 6Months -5 yrs.)

Immunization Status

- **Fully Immunized** – The child has received vaccination 4 times, excluding the time of birth, as per written on the history.
- **Partially Immunized** – The child has received vaccination but not all recommended vaccination to his/her age as per written on the history.
- **Not Immunized** – The child has not received vaccination.

Exclusively Breast Feeding (EBF)

- ✓ Feeding the child only breast milk for the first 6 months

Previous History of Pneumonia

- ✓ Severe Pneumonia within the preceding 6 months as documented on the child's Chart

Outcome

- ✓ The final remark written on the discharge Summary or on the registration book.

Self-Discharged

- ✓ Discharge made by the patient or guardian against medical advice without the approval of the physician.

Duration of Illness

- ✓ Start of first symptom of illness to date of hospital visit but not including date of admission.

Duration of Hospital Stay

- ✓ From day of admission to the date of discharge including the date of discharge.

5. RESULT

5.1. SOCIO-DEMOGRAPHIC DISTRIBUTION

A total of 168 cases were studied of which 106 (63.1%) patients were males and 62 (36.9%) were females with male to female ratio of 1.7:1. The mean age of the children was 14.75months. Out of 168 patients 94 (56.0 %) lived in Addis Ababa, 71 (42.3%) came from Oromia, 2(1.2%) came from SNNP and 1(0.6%) from Amhara.

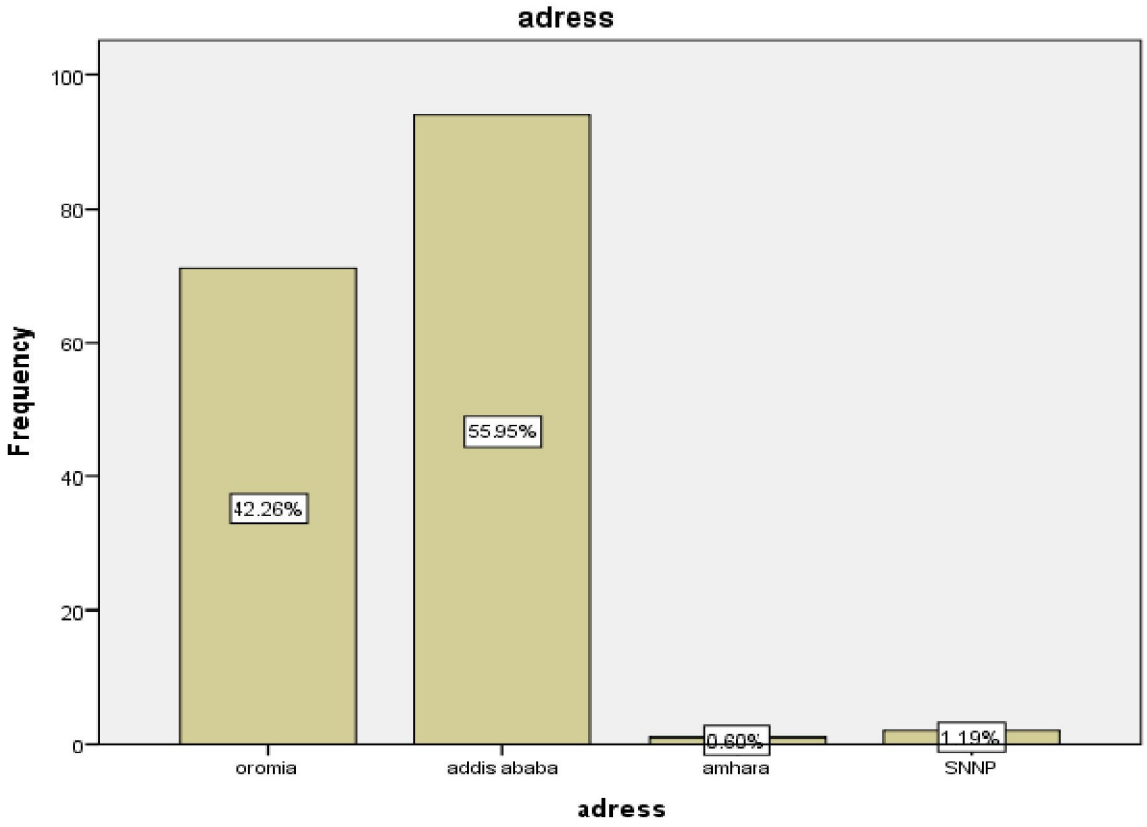

Figure 1: Address of children with diagnosis of severe community acquired pneumonia aged 2 months to 59months admitted to pediatric departments of Yekatit 12 hospital and St.paul hospital millennium medical college, 2017/18.(N=168)

5.2. MAGNITUDE OF SEVERE COMMUNITY ACQUIRED PNEUMONIA

In the study period 1043 patients aged 2 to 59 months had admitted to paediatric departments of Yekatit 12 hospital and St.Paul's hospital millennium medical college; from which 174 were with diagnosis of severe community acquired pneumonia during the study period. Among 174 children with diagnosis of severe community acquired pneumonia (SCAP), 168 samples fulfilled the inclusion criteria with full documentation. Severe community acquired pneumonia accounted for 16.10% of children aged 2 to 59 months who had admitted to the paediatric departments of Yekatit 12 hospital and St. Paul hospital millennium medical college during the study period. The total children aged 2 to 59 months admitted to Yekatit 12 were 411 where as those admitted to SPHMMC were 632 cases. When we see the magnitude of SCAP separately for the two hospitals, 73 and 101 cases were admitted to Yekatit 12 hospital and St.Paul's Hospital Millennium Medical College (SPHMMC) respectively. The cases fulfilling the inclusion criteria with full documents were 71 (17.27%) for Yekati 12 Hospital and 97 (15.34%) for SPHMMC.

5.3. IMMUNIZATION, BREASTFEEDING, NUTRITIONAL AND SERO HIV STATUS

Among 168 children, 84(50.0%) were fully vaccinated as per WHO guidelines, 71(42.3%) were partially vaccinated and 13(7.7%) were not vaccinated at all.

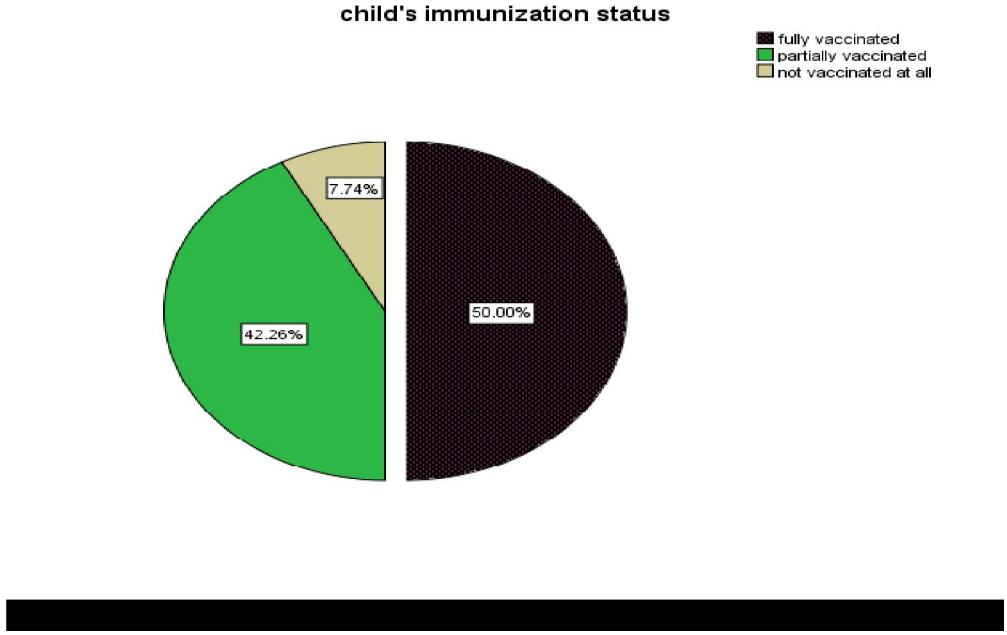

Figure 2: Immunization status of children with diagnosis of severe community acquired pneumonia aged 2 months to 59months admitted to pediatric departments of Yekatit 12 hospital and St.paul hospital millennium medical college, 2017/18

Regarding the breast feeding status of children included in the study, 92(54.8%) were received Exclusive breast feeding, 76(45.2) were non-exclusively breastfed. It was also observed that 2(1.2%) subjects were sero-positive for HIV, 85(50.0%) sero negative and 81(48.2%) were unknown for sero HIV status.

Out of the study subjects, majorityofthemwerewell nourished with 110(65.5%), 1 child had mild malnutrition, 24(14.3%) were children with moderate malnutrition and 33(19.6%) children were with severe malnutrition.

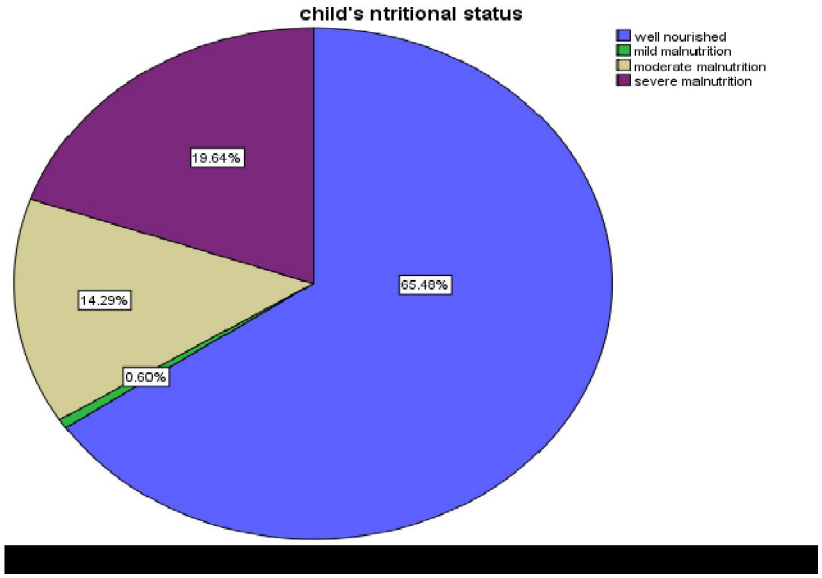

Figure 3: Nutritional status of childrenwith diagnosis of severe community acquired pneumoniaaged 2 months to 59months admitted to pediatric departments of Yekatit 12 hospital and St.paul hospital millennium medical college, 2017/18

5.4. HISTORY OF CONTACT AND HOUSING CONDITION OF THE PARTICIPANTS

Of the total 168 children, 19(11.3%) of the children had history of contact with older family members with URTI. Only 33 (19.6 %) of children had previous history of pneumonia within the last six months of their admission where the majorities had no previous history of pneumonia .Seventy four (44%) of children lived in houses that does not have a separate kitchen or in houses with indoor smoke.

5.5. OXYGEN SATURATION AND COMORBIDITIES

Among thechildren admitted with SCAP during the study period, 21(12.5%) of children had congenital heart disease, 19(11.3%) were diagnosed with Asthma and 12(7.1%) had rickets as well as 12(7.1%) were with other co morbidities like anemia, malaria.
Half of the children 84(50 %) were hypoxic with less than or equal to 89 % oxygen saturation at time of admission with atmospheric oxygen.

5.6. TOTAL DURATION OF ILLNESS BEFORE ADMISSION, HOSPITAL LENGTH OF STAY AND PATIENT'S TREATMENT OUTCOMES

Among the study participants, 143(85%) were discharged in improved conditions, 10(6.0%) died in hospitals and 15(8.9%) study subjects leaved thehospitals against medical advice or referred. This study also revealed that the severe community acquired pneumonia case fatality rate is 5.9%.Majority of children hadstayed less than or equal to 5days beforehospital Visit with average length of 1.38 days. Duration of hospital stay was less than five days for the majority with average mean length of1.88 days.

Table: 1- duration of illness before admission and total duration of hospital stay of childrenwith diagnosis of severe community acquired pneumonia aged 2 months to 59months admitted to pediatric wards of Yekatit 12 hospital and St.paul hospital millennium medical college, 2017/18

Variables	category	Number of subjects	percentage
Total duration of illness before admission	<5 days	116	69.1%
	5-10 days	41	24.4%
	>10 days	11	6.5%
Total duration of hospital stay	<= 5	63	37.5%
	6 - 8	62	36.9%
	9+	43	25.6%

5.7. SIGNIFICANT FACTORS ASSOCIATED WITH TREATMENT OUTCOME

The multivariate analysis of factors associated with the treatment outcome showed that Child's nutritional status, child's immunization status, and oxygen saturation at time of admission.

There were significant associations between nutritional status of the child and treatment outcome. Seven of the ten deaths occurred in thirty three severely malnourished children. Again seven of the total deaths were occurred in cases with oxygen saturation of less than or equal to 89% which indicate there was a significant association between status of discharge or patient treatment outcome and oxygen saturation at admission. Additionally, half of the deaths were occurred in partially immunized children and the other 1(0.6%) deaths occurred in non-immunized children so that there is association patient's status of discharge.

Table 2: status of patient discharge and its comparison with child's nutritional status, immunization status and his/her oxygen saturation at time admission

		patients' treatment outcome at discharge			Total	p-value
		improved	self-dischargedagainstmedical advice	died		
child's nutritional status	well nourished	107	1	2	110	X^2=60.995
	mild and moderate malnutrition	22	2	1	25	P <0.05
	severe malnutrition	14	12	7	33	
	Total	143	15	10	168	
child's immunization status	fully vaccinated	73	7	4	84	X^2=2.245
	partially vaccinated	58	8	5	71	P<0.05
	not vaccinated at all	12	0	1	13	
	Total	143	15	10	168	
oxygen saturation at admission (Binned)	<= 89	67	10	7	84	X^2=3.833
	90+	76	5	3	84	P<0.05
	Total	143	15	10	168	

Based on multivariable complex logistic regression analysis, Well-nourished children aged 2-59 months admitted with SCAP were 118.45 times more likely to be improved than those with severe malnutrition relative to self-discharged against medical advice (AOR 118.45 ; 95% CI 11.21- 1251.43).Additionally, Children with mild and moderate malnutrition were 10.53 times more likely to be improved than those with severe malnutrition relative to self-discharged against medical advice (AOR 10.53; 95% CI 1.53- 72.38).

This study also reveals that well-nourished children were 96.9% less likely to be died than children with severe malnutrition relative to self-discharged against medical advice (AOR 0.031; 95% CI 0.004- 0.212).and children with mild or moderate malnutrition were 95.7% less likely to be died than children with severe malnutrition relative to self-discharged against medical advice (AOR 0.043; 95% CI 0.003- 0.607).

Regarding oxygen saturation this study also showed that children with oxygen saturation of ≤89% at admission were 80.8 % less likely to be improved than those with oxygen saturation of ≥90 % at admission relative to self-discharged against medical advice children(AOR 0.192; 95% CI 0.038- 0.966). Again, children with oxygen saturation of ≤89% with off oxygen at admission were 4.024 more likely to die than children with oxygen saturation of ≥90 % at admission relative to self-discharged against medical advice or referred children(AOR4.024; 95% CI 2.75- 21.56).

Children who were fully vaccinated were 2.262 times more likely to be improved than those who were not vaccinated at all relative to self-discharged children (AOR 2.262; 95% CI 1.679- 6.66). Children who were partially vaccinated were 2.712 more likely to be improved than those who were not vaccinated at all relative to self-dischargedchildren (AOR 2.712; 95% CI 1.21- 6.07).

Table 3: Factors associated with patient treatment outcome of children with diagnosis of severe community acquired pneumonia aged 2 to 59months admitted to pediatric departments of Yekatit 12 hospital and St.paul hospital millennium medical college on multinomial logistic regression, 2017/18

Variables	patients' treatment outcome **(n**=168**)**		**P. value**	**COR (95% CI)**	p-value	AOR**(95% CI)**
	Improved (%)	**Self-discharge (%)**ref				
child's immunization						
fully vaccinated	73(43.5)	7(4.2)	.000	3.945(3.398- 4.58)	0.000	2.262(1.679- 6.66)
partially vaccinated	58(34.5)	8(4.8)	.000	2.74(2.43- 2.934)	0.000	2.712(1.21- 6.07)
not vaccinated at all	12(7.1)	0(0.00)	1:00	1.00		1:00
child's nutritional status						
well-nourished	107(63.7)	1(0.6)	0.000	91.71(11.067- 760.03)	0.000	118.45(11.21- 1251.43)
mild/moderate malnutrition	22(13.1)	2(1.2)	0.007	9.43(1.83- 48.61)	0.017	10.53(1.53- 72.38)
severe malnutrition	14(8.3)	7(4.3)	1:00			1:00
oxygen saturation at admission						
oxygen<= 89	67(39.9)	10(6.0)	0.005	0.155(0.43- 0.56)	0.045	0.192(0.038- 0.966)
oxygen>=90+	76(45.2)	5(3.0)	1:00		1:00	

Variables	patients' treatment outcome **(n**=168**)**		**P. value**	**COR (95% CI)**		AOR**(95% CI)**
	Died (%)	**self-discharge (%) ref**				
child's nutritional status						
well-nourished	2(1.2)	1(0.6)	0.000	0.013(0.016- 0.312)	0.000	0.031(0.004- 0.212)
mild/moderate malnutrition	1(0.6)	2(1.2)	0.020	0.034(0.023- 0.409)	0.020	0.043(0.003- 0.607)
severe malnutrition	7(4.2)	7(4.3)	1:00		1:00	
oxygen saturation at admission						
oxygen<= 89	7 (4.2)	10(6.0)	0.043	1.167(1.43- 6.55)	0.014	4.024(2.75- 21.56)
oxygen>=90+	3(1.8)	5(3.0)	1:00			

6. DISCUSSION

In this study, a total of 168 of children aged 2 to 59months admitted to pediatric departments with diagnosis of severe community acquired pneumonia in Yekatit 12 and St.Paul's Hospital millennium medical college were included. This study revealed that the male to female ratio is 1.7:1.This indicates males are more affected by severe community acquired pneumonia than females. The finding is in agreement with the study conducted in Jimma University specialized hospital (JUSH).(1)

According to the current study, severe community acquired pneumonia accounted for 16.10% of children aged 2 to 59 months who had admitted to paediatric departments of Yekatit 12 hospital and St. Paul hospital millennium medical college during the study period.This study is in contrast to the study done in Kenya which indicates children who were admitted with severe pneumonia in the study period, comprising 32% of all admissions within the study age range.(18) This might be due to the difference in age range of the included study participants in which they included 1-59 months of children in their study. The finding in the current study is also lower than the study done in Tikur Anbessa Specialized Hospital (TASH), on analysis of admissions to the paediatric emergency ward of Tikur Anbessa Hospital in Addis Ababa, Ethiopia in 2007, in which severe pneumonia accounted 38.3 %.(20) The possible reason might be the study which is done in TASH, included both community acquired and hospital acquired severe pneumonia. Additionally, the age range included in the current study is different from that of the study done in TASH. Furthermore, it might be due progressive decrement of pneumonia magnitude after introduction of vaccine.

The finding of this study regarding HIV sero status is 2(1.2%) subjects for sero-positive.The figure in the current study is less than the figure from study done in JUSH (1). The possible reason might be the awareness on prevention of HIV disease of Addis Ababa residences is better than Jimma area residences.

The current study also revealed that, among the participant children, half of them were fully vaccinated as per WHO guidelines, 71(42.3%) were partially vaccinated and 13(7.7%) were not vaccinated at all. It also showed child's immunization status has significant effect on his/her treatment outcome. Accordingly, Children who were fully vaccinated were 2.262 times more likely to be improved than those who were not vaccinated at allwhereself-discharged/referred children were reference. This is with regards to high immunity of those fully vaccinated.Even though the strength of association was not revealed in the study done in Bangladesh, it is indicated as risk factor for pneumoniaand as it also affects the status of discharge. This indicates being not vaccinated at all was significant risk factor for mortality in severe pneumonia.(3)The finding of this paper is also in agreement with the study done in Jimma University Specialized Hospital (JUSH).(1)

In the current study, it was also observed that treatment outcomes are heavily influenced by nutritional status of the patients, which is evident from the findings that, seven of ten deaths were children with severe malnutrition. For instance, when we see the strength of association, well-nourished children were 96.9% less likely to die than children with severe malnutrition relative to self-discharged against medical advice or referred children.This is in agreement with the study done in Bangladesh which indicates malnutrition was present in 80.72% of children hospitalized with severe pneumonia and severe malnutrition is significant risk factor for mortality in severe pneumonia. But when we see the magnitude of malnutrition, the figure is higher in Bangladesh among the children admitted with severe pneumonia than the current study result.(3)This might be due to the high prevalence of malnutrition in Bangladesh. The reason also might be the knowledge difference of history takers on definition of malnutrition. The result of this paper is also in agreement with the findings of study done in Sudan, study done to determine risk factors of mortality among children admitted with severe pneumonia at referral hospital in Khartoum by which malnutrition was significantly frequent among those who died compared to those who survived from severe pneumonia. In other words, malnutrition had effect on the final treatment outcome of children admitted with diagnosis of severe pneumonia. [17]. But in the study done in Sudan the strength of association between the two variables was also not revealed. Additionally, the result of the current study is also in agreement with the study done in JUSH which showed that there was significant association between Nutritional status of the child and Status of discharge evidenced by two cases out of five deaths occurred in two severely malnourished children.(1)

The other significant risk factor affecting the study participants' final treatment outcome in the current study finding was oxygen saturation at the time of admission. Accordingly, the children with oxygen saturation of ≤89% at time of admission were 80.8 % less likely to be improved than those with oxygen saturation of ≥90 % relative to self-discharged against medical advice or referredchildren.In contrast to this study, there was no significant difference between the died and survived patients in the frequency distribution of oxygen saturation in the study done in Sudan.[17] This mightbe due to proper administration of oxygen for patients with low oxygen saturation in Sudan as compared to the current study area.

Even though, the child‘s breast feeding status had no significant effect on the treatment outcome according to the current study, the result showed that children who were not exclusively breastfed were still high with 45.2% needing additional attention of giving awareness for mothers on the importance of breastfeeding.

Additionally, this study also revealed that 48.1% of the children had unknown HIV sero status alarming the health facilities to provide adequate materials to do PICT and provide training for their staffs. The staffs should also give attention in providing PICT for all patients.

8. LIMITATION

A retrospective chart review study design was employed to conduct this study due to budget and time constraint. Therefore it is limited by the use of handwritten medical records because, it is impossible to get clear and consistent data of patients as all of the information might not be recorded on the cards. It might be good to use a prospective study design which may help to overcome the above mentioned problem.

7. CONCLUSION

Reducing under-five mortality and morbidity involves studying the major causes of mortality, and identifying the most important factors associated with its treatment outcome, thus applying the findings to child health policy with the goal of reducing child morbidity and mortality.

Severe community acquired pneumonia accounted for 16.10% of children aged 2 to 59months who had admitted to the paediatric department of Yekatit 12 hospital and St. Paul hospital millennium medical college during the study period.

The main significant risk factors for poor outcome in childhood pneumonia's final treatment outcome include nutritional status, immunization status and oxygen saturation status at time of admission

8. RECOMMENDATION

Based on the findings of this study, the following recommendations were provided:

The health professionals in hospitals should give attention to children with co morbidities like malnutrition.

Health professional should also concentrate on provision of inpatient supportive care including oxygen supplementation and close monitoring of vital signs in addition to antibiotic treatment.

The Hospitals and other stake holders should facilitate on how to give awareness to the parents and community at large regarding the benefit of vaccination and balanced diet for the child by preparing schedule on health education session.

The Federal ministry of health should give training for health professionals on how to treat severely diseased children with other co morbiditiesandshould also have to develop a strategy to reduce the magnitude of malnutrition.

The hospitals and Federal ministry of health should give continuous on job training for health professionals on how to administer oxygen appropriately.

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APPENDIXES

Annex -1:-English version of information sheet

Name of the investigator: Bayisa Hatewu (Bsc, Msc candidate)
Research title:

To assess magnitude, treatment outcome and associated factors with severe community acquired pneumonia in children aged 2 months to 59 months admitted to pediatric department of two selected governmental hospitals, Addis Ababa, Ethiopia, 2017/18.

Research objective:
The aim of this study is to assess magnitude, treatment outcome and associated factors with severe community acquired Pneumonia in children 2 months to 59 months old admitted to the paediatric departments of Yekatit 12 Hospital and St.Paul's Hospital Millennium Medical College, 2017/18.
Study procedure:
To achieve the planned objective of this study, patients fulfilling the inclusion criteria will be identified from the registration book, and history of associated factors with the diseasewill be collected from patients' medical record.

Confidentiality:
The collected information will be kept confidential and used only for research purpose. No one except the members of the research team will have access to the information collected. The name of patients will not be notified in any report. All paper and computer records of the study will be kept in a secured place under lock when not in use.

Person to contact:
If the data collectors or other hospital administrative staffs have any question regarding the study, they are free to contact me in person or by the following addresses

BayisaHatewu, Cell phone: 09 10171957
Email: bayisahatewu1@gmail.com

Annex -2:- English Version of Hospital consent form

This is a study that will be conducted in Pediatric departments of Yekatit 12 Hospital and St.Paul's Hospital Millennium Medical Collegein Ethiopia. The main objective of this study is to assess magnitude, treatment outcome and associated factors with SCAP in children 2 months to 59 months old admitted to the paediatric departments of Yekatit 12 and St.Paul's Hospital Millennium Medical College. Such assessment is needed for preventive and therapeutic approaches in the area of childhood severe pneumonia as well as in giving training for health professionals working on the area. Therefore the hospital's participation and collaboration is very much helpful in collecting the required information and will be very much appreciated. In this study, data will be collected from the patients' medical records retrospectively. Information regarding any specific personal identifiers like the name of the clients will not be collected and information generated will be disclosed. In addition, confidentiality of any personal information will be maintained throughout the study process and no unauthorized access to the information is allowed. Finally, the hospital has all the right to refuse to participate in this study at any time. If you have any questions or need further information regarding the planned study you are free to get clarification from the principal investigator or from the institution through the following address.

Bayisa Hatewu , Phone number: 0910171957 (the principal investigator).

Therefore, if you would like to participate in this study, would you please confirm it by signing on the space provided?

On behalf of Participant Hospital---------- principal investigator----------

Thank you very much.

Annex 3:- Questionnaire

Serial Number: _____Card number_____ Name of Hospital_____

Part one: questions on socio demographic characteristics. Circle the answer of choice or writeon the space provided.

S.No.	Questions	Answer to questions
01	Age in months	_____
02	Sex	a) Male b) Female
03	Address	a)Oromia b)Addis Ababa c)Amhara d) South Nation Nationalities and Peoples e)Other_____
04	Relation of the care taker to the child	a. Parents b. grandparents c. guardian d. others (specify)_____
05	Total Number of Family members	_____
06	Previous history of pneumonia	a)yes b) no c) unknown
07	History of smoker in the House	a)yes b)no c) unknown

Part Two: Questions onHousing condition and Immunization Status of children 2 months to 59 months with severe community acquired pneumonia

S.No.	Question(s)	Answer to question(s)
08	Housing condition	a) thatched roof house/slum area b) corrugated iron roofed houses c) homeless d) unknown
09	Number of room(s)	_____
10	Number of window(s)	_____
11	Cattle (if there)	a)Separate b)In living Room c) unknown
12	Kitchen	a)Separate b)In living Room/indoor smoke c) unknown
13	Immunization status	a)Fully vaccinated b)Partially Vaccinated c)Not vaccinated at all d) unknown

Part three: Breast feeding, HIV and Nutritional status of children 2 months to 59 months with severe community acquired pneumonia

S.No.	Questions	Answers to questions
14	Breast Feeding status	a) non exclusively breast feed b) Exclusively Breast feed c) unknown
15	HIV status	a) Sero Positive b) Sero Negative c) Unknown
16	Nutritional Status	a) Well Nourished b) Mild Malnutrition c) Moderate Malnutrition d) Severe Malnutrition e) unknown

Part Four: Oxygen saturation at admissionandotherco-morbidities (other than malnutrition and HIV/AIDS)of children 2 months to 59 months with severe community acquired pneumonia

S.No		
17.	Other Co morbidities	a.CHD b.Asthma c.Rickets d. Anaemia e. Other(specify)_____
18.	Oxygen saturation at admission	_____

Part Four: Treatment outcomes of severe community acquired pneumonia in children 2 months to 59 months

S.No.	Questions	Answer to Questions
19.	Patient condition at discharge	a)Improved b)Self discharged against medical advice and referred c)Died
20.	Total Duration of illness before admission	_____
21.	Duration of Hospital Stay	_____

(These questionnaires were adopted from the study done in Jimma University Specialized Hospital onFactors associated with outcomes of severe pneumonia in children aged two months to 59 months at jimma university specialized hospital,southwest Ethiopia,2017)

Annex-4:-Amharic version of information sheet

ጥናቱን የሚያካደው ሰው፤ባይሣ ሐተው (የመጀመሪያ ድግሪ ምሩቅና የሁለተኛ ድግሪ ተማሪ)

የጥናቱ ርዕስ

በየካትት 12 ሆስፒታልና ቅዱስጳዉሎስ ሆስፒታል ሚሊኒየም ሕክምና ኮለጅ በ2017/2018እ.ኤ.አ የህፃናት ሣምባ ምች መጠን፤ህፃናቱም ከታከሙ በኂላ የመጨረሻ ውጤታቸውና የህክምና ውጤታቸውን የሚጎዱ ምክንያቶች ላይ ይሆናል፡፡

የጥናቱ አላማ

ሳምባምችን በተመለከተ ህፃናት ላይ በሚታየው የህክምና ውጤት አቅጣጫን ለመጠቆም፤በዘርፉ ለሚሰሩ የህክምና ባለሙያዎች እስፈላጊውን ሙያ ስልጠና ለመስጠት እንዲሁም ችግሩ አስፈላጊውን ትኩረት እንዲያገኝ ማድረግ ነው፡፡

የጥናቱ ቅደም ተከትል

ከላይ የተጠቀሰውን የጥናቱን ዓላማ ለማሳካት ናሙናከታማሚዎች ካርድ የሚሰበሰብ ይሆናል፡፡

ሚስጥር አጠባባቅ

በዚህ ጥናት ላይ የሚሰበስበው መረጃ በሙሉ ሚስጥራዊ በሆነ መንገድ የሚቀመጥ ሲሆን የተገኙት መረጃዎች በሙሉ ለጥናቱ አላማ ብቻ የሚዉሉ ይሆናሉ፡፡የበሽተኞች ስም በማንኛውም ሪፖርት ላይ አይጠቀስም፡፡ከጥናቱ ተመራማሪዎች ውጪ ማንም ሰው የበሽተኞችን የህክምና ታሪክ በማንኛውም መንገድ በቀጥታ ልያገኝ አይችልም፡፡ለጥናቱ ተብለው በወረቀት ወይም በኮምፒውተር የሚሰፍሩ መረጃዎች በማንጠቀምባቸው ጊዜ ተቆልፈው ይቀመጣሉ፡፡

ግኑኝነት

መረጃ ሰብሳቢዎች እንድሁም የተላያዩ የሆስፒታሉ አስተዳደር ስራተኞች ተጨማሪ መረጃ ማግኘት ከፈለጉና ጥያቄ ካላቸው የሚከተለዉን ሰዉ በኣካልም ሆነ በስሌክ ማግኘት ይችላሉ፡፡

ስም፤ባይሣ ሓተዉ .....ስሌክቁጥር፤ 0910171957
Email: bayisahatewu1@gmail.com

Annex -5:- Amharic Version of Hospital consent Form

የሆስፒታል ስምምነት ቅጽ

ይህ ጥናት የሚካሄደው በየካቲት 12 ሆስፒታልናቅዱስ ጳዉሎስ ሆስፒታል ሚሊኒየም ሕክምና ኮለጅ ሲሆን የጥናቱ ዋና አላማም የህፃናት ሣምባ ምች መጠን፤ህፃናቱም ከታከሙ በኋላ የመጨረሻ ውጤታቸውንናየህክምና ውጤታቸውን የሚጎዱ ምክንያቶችን መዳሰስ ነው፡፡

ይህ ዓይነቱ ዳሰሳ ምክንያቶችን ከለየ በኋላ ህብረተሰቡን ለማስተማር እንዲሁም በዘርፉ ለሚሰሩ የጤና ባለሙያዎችም ስልጠና ለመስጠትም ጭምር ይረዳል፡፡

ስለ ሆነም ሆስፒታሉ ለዚህ ጥናት የሚያስፈልጉ መረጃዎችን ከታማሚዎች ካርደ እዲሰበሰብ መፍቀዱ ለጥናቱ መከናወን ከፍተኛ የሆነ አስተዋጽኦ ስላለው እንዲፈቀድልኝ በአክብሮት እጠይቃለሁ፡፡

ለጥናቱ የሚያስፈልገው ናሙና ውስጥ የበሽተኛው ስም አይጠቀስም፡፡በተጨማሪም ለጥናቱ ተብሎ የተሰበሰበው መረጃ በሚስጢር የሚጠበቅናከጥናቱ ተመራማሪዎች ውጪ ማንም ሰው ሊያግኘው አይችልም፡፡

ይህ ጥናት በፈቃደኝነት ላይ የተመሰረተ እንደመሆኑ መጠን ሆስፒታሉ በማንኛውም ወቅት ከጥናቱ መውጣት ይችላል፡፡ከጥናቱ ጋር በተያያዘ ጥያቄ ወይም ተጨማሪ መረጃ ካስፈለገ በሚከተለው አድራሻ ጥያቄዎን ማቅረብና ማብራሪማግኘት ይችላሉ፡፡

ባይሣ ሐተው(ዋናተመራማሪ) ስልክ: +251910171957

በዚህ ጥናት ለመሳተፍ ሆስፒታሉ ፈቃደኛ ከሆነ እባክዎ በፊርማ ያረጋግጡልን፡፡

ተሳታፊ ሆስፒታል_____ ዋና ተመራማሪ_____

እናመሰግናለን፡፡

Annex -6:-Assurance Form

I, the undersigned, assert that this research thesis is my original work, has not been presented for a degree in any other university and that all sources of materials used for the study have been acknowledged accordingly.

MSc candidate: Bayisa Hatewu**(**BSc**)** Signature: _____ Date_____

Advisors:
Dr Muluwork Tefera (MD, paediatrician, assistant professor of paediatrics)
Signature: _____ Date_____

Achamyelesh Tadele(BSc,MSc) Signature: _____ Date_____