

Pneumonia Among Children in Bulak Banteng, North Surabaya

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Abstract

Pneumonia is a major cause of illness and death among children over the world, including Indonesia. The study aimed to identify pneumonia case in Bulak Banteng, Surabaya. The data were collected from department of health in West Java 2016, descriptive data were collected from interview with staffs of primary health center at Bulak Banteng and literature review. The result of this study showed that the pneumonia case in children at Bulak Banteng was high, up to 480 from 2.430 children (16,5 %). Risk of high pneumonia case was influenced by parent's level of knowledge and behavior, including the way of feeding, exclusive breastfeeding, state of nutrition, socioeconomic status, and hygiene of environment. From interview with staff of primary health care, concluded that parent's level of education 55% is low, 30% is medium and 15%, 54 children with nutritional status who is below the red line, 2 children with malnutrition, number of children 0-23 months who have weight below the red line are 23, number of babies who get exclusive breastfeeding are 262 (63%). Socioeconomic status of people in Bulak Banteng is low, hygiene of environment is also careless. Low parent's level of education, low nutrition, low socioeconomic status and careless environment can influence high case of Pneumonia.

Keywords: *Pneumonia, Nutritional status, Children.*

I. INTRODUCTION

A. Background

According to United Nations International Children's Emergency Fund (UNICEF) 2011, a number of death due to pneumonia were 1.3 million cases, meaning that 14% from all cases of death on children under 5 years. The prediction of new case and incidence of pneumonia in children occurred in 15 countries, including 115,3 million cases (74%) from 156 million cases over the world. Mostly, the cases occurred at 6 countries like India with 43 million cases, China 21 with million cases, Pakistan with 10 million cases, Bangladesh, Indonesia and Nigeria each of them with 6 million cases per year (Rudan et al, 2008).

Basic Health Research (Riskesdas) said that in year 2007, 15,5% cases of pneumonia death, or we could say that 83 children died everyday due to pneumonia. Pneumonia is second major cause of all death among children in Indonesia. Indonesian Basic health survey (SKDI) said that there was increasing number of pneumonia in children since 2002-2007, that was 7,6% to 11,2 % (Indonesian Ministry of Health, 2010).

Pneumonia in Children in Indonesia is still high because the risk factors of pneumonia in Indonesia are still high too. The Department of Health said the risk factors of pneumonia were: age, sex, parent's level of education, parent's level of socioeconomic, state of nutrition, baby's birth weight, breastfeeding, history of immunization, vitamin A deficiency, environment (Department of Health, 2004).

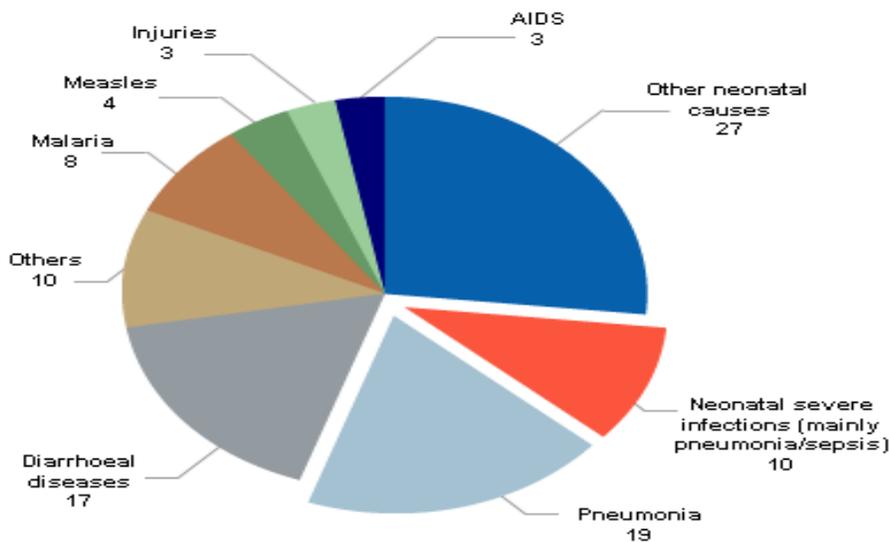
B. Literature Review

According to CDC (Central for Disease Control and Prevention), pneumonia is a disease caused by Pneumococcus, Staphylococcus, Streptococcus, and viruses. Symptoms of pneumonia are shivering, fever, headache, cough, sputum, and shortness of breath. Pneumonia-prone populations are children younger than 2 years of age, older than 65 and people with health problems (malnutrition, immunological disorders).

According to UNICEF and WHO (2006), pneumonia is a major "forgotten killer in children". Pneumonia is a higher cause of death when compared to the total deaths of AIDS, malaria and measles. Every year, it is more than 2 million children died from pneumonia, meaning that 1 in 5 children under five die in the world. Pneumonia is the most common cause of death, especially in countries with high mortality.

Pneumonia is the leading killer of children

Global distribution of cause-specific mortality among children under five, 2000-2003 (Percentage)



Source: Child Health Epidemiology Resources Group (CHERG), with additional data from UNICEF. Note that undernutrition may be implicated in more than one-third of all under-five deaths worldwide.

Figure 1. Causes of Underfive children's Death According to UNICEF data

WHO estimated the incidence of pneumonia in children at developing countries was 0.29 episodes per child-year or 151.8 million cases of pneumonia/year, 8.7% (13.1 million) among of the cases were severe pneumonia and in-hospital treatment. In developed countries, there are 4 million of 156 million pneumonia cases in childre each year.

Pneumonia in children is one indicator of the success of the disease control program and environmental sanitation as in the strategic plan of the Ministry of Health year 2010-2014. And targeted percentage of discovery and management of pneumonia infants in 2014 is 100%.

According to basic health research (Riskesdas) 2007, pneumonia is leading cause of death in children after diarrhea. This shows us that pneumonia is a major problem of health and contributes to morbidity and mortality of children.

In 2007 and 2008, comparison of pneumonia cases in children with age ≥ 5 years was 7: 3. This meant that if there were 7 cases of penumonia in children or there will be 3 cases of pneumonia at age ≥ 5 years. In 2009, there was a change to 6: 4. but pneumonia in children remains the largest proportion. In addition, the proportion of pneumonia in children was $> 20\%$ of all cases of pneumonia, as shown in Figure 2.

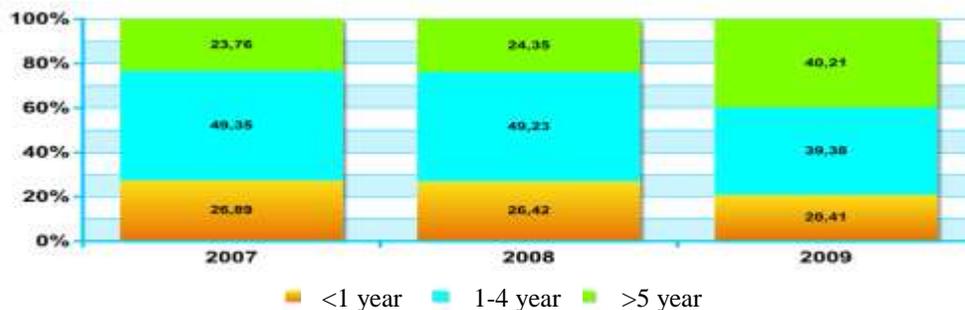


Figure 2. Proportion of pneumonia cases by age

The fundamental factors of morbidity and mortality of pneumonia among children in developing country are as follows (Mulholland K, 1999):

1. Widespread poverty, widespread poverty will effect on lowering health status and bad socio-ecological status.
2. low health status: because of low health status, the infectious disease increase. Other comorbid like malaria, measles, malnutrition, vitamin A deficiency, baby with low weight, non breastfeeding, inadequate immunization history can lead to low health degree.
3. bad socio-ecological status are such as bad and crowded environment, high air pollution, low level of parent's education, and also local myth.
4. low health financing, in developing country health finance is low. 13% of health finance used for 84% people in developing country. The inadequate health finance leads to inadequate health diagnostic and teurapeutic, small number of human resources, and low access to health facilities.
5. Proportion of childhood is high, in developing country proportion of childhood is 37%. If the proportion of childhood is high, it will increase the control of pneumonia especially in financial aspect.

These fundamental factors were not the ones, but they influenced each other as risk factors of pneumonia in children.

Rudan, et al 2008 reported that 3 groups of risk factors influence pneumonia in children. These factors are, definite risk factors, likely risk factors, and possible risk factors. Definite risk factors are malnutrition, low weight of birth, non breastfeeding, air pollution, and crowded housing. These factors should be handled to decrease incidence of pneumonia and also result in decreasing children mortality.

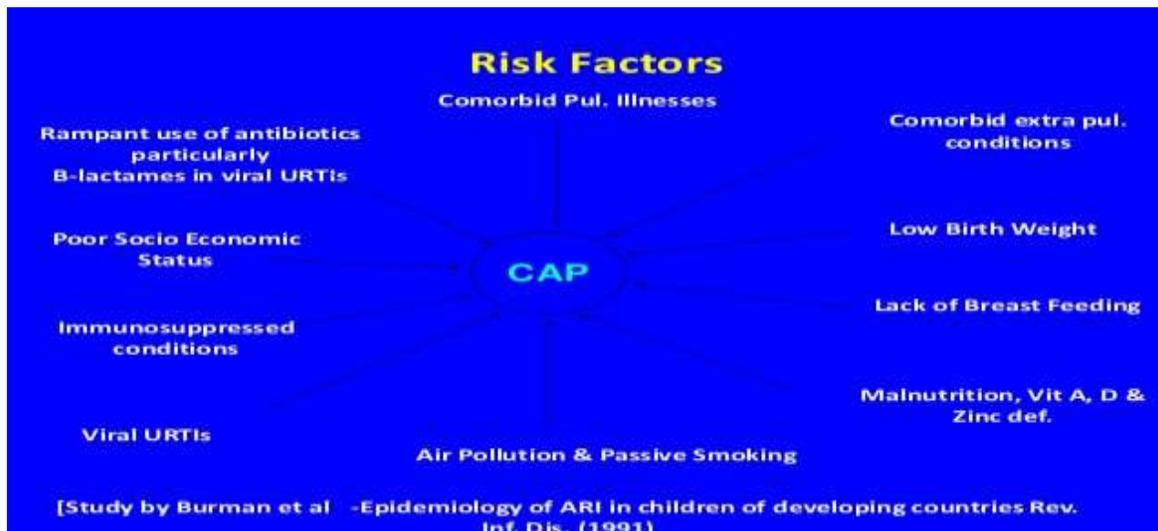


Figure 3. Factors of Pneumonia in Children

From microbiologic study, it is founded that the main cause of bacteriological pneumonia in children are *Streptococcus pneumoniae/pneumococcus* (30-50 % cases), hemophilusinfluenzae type b (10-30% cases), followed by staphylococcus aureus and Klebsiela pneumoniae in worse cases. Other bacteriae like mycoplasma pneumonia, Clamydia spp, Pseudomonas spp, Escherichia coli also can cause pneumonia. Most of pneumonia in neonates are caused by negative gram like Klebsiellaspp, E coli and positive gram like S pneumoniae, group b strepcococcus and S aureus. (Rudan et al, 2008)

Major cause from genom virus is Respiratory Syncytial Virus (RSV) 15-40% cases, then influenza A, B, parainfluenza, human metapneumovirus and adenovirus. Nair, et al 2010 estimates that global incidence of pneumonia RSV in children are 33,8 million episodes over the world and 3,4 million of that are worse cases. There were 66.000-199.000 deaths due to pneumonia RSV, 99% of that occurred in developing countries in year 2005. In the latest decade, epidemiology of Human Immunodeficiency Virus (HIV) contributes to increase incidence of dead due to pneumonia. The major causes of dead due to pneumonia in children with HIV are *pneumocystis jirovici* and *M.tuberculosis*.

Most clinical features of pneumonia in children range from mild to moderate or having inpatient treatment. Only a small proportion of serious illnesses threatens life and need to be hospitalized. In general, Clinical features of pneumonia are classified into 2 groups. First, "common symptoms" such as fever, headache, malaise, poor appetite, gastrointestinal symptoms such as nausea, vomiting and diarrhea. Second, "respiratory symptoms" such as cough, rapid breathing (tachypnoe / fast breathing), shortness of breath (chest indrawing), nasal inner breath, air hunger and cyanosis. Hypoxia is a clinical sign of severe pneumonia. pneumonia in Children with hypoxemia is 5 times more likely to die than pneumonia without hypoxemia. Pneumonia is not a single isolated disease but a disease syndrome caused by various etiologies. Many respiratory diseases have a clinical picture resembling pneumonia. Therefore, It is not easy to formulate accurate clinical pneumonia criteria without weakness especially for health workers at the community level.

The antibiotics for children infected with pneumonia can prevent death. UNICEF and WHO have developed guidelines for the diagnosis and treatment of pneumonia in communities for developing countries that have been proven to be well received and targeted. The recommended antibiotics given for the treatment of pneumonia in developing countries are cotrimoxazole and amoxicillin. Several studies have shown that administration of cotrimoxazole (Kartasmita et al, 2010) and amoxicillin for 3 days in children with severe pneumonia is not the same as the end result with 5 days of administration.

II. METHODS

This study used compilation of theoretical socioecological model of health behavior and the epidemiology of ARI (Acute Respiratory Infection) in Children at the developing countries. The setting of this study was the healthcare community at Bulak Banteng from 27-28 May 2017. The data were collected using interview. Interviews were conducted with the responsibility of the Pneumonia, Nutrition, and Sanitation Programs of the Pneumonia problem that occurred in Bulak Banteng.

III. RESULTS

Level of Education of Family Head in Bulak banten was 55% graduated from elementary school, 30% graduated from junior high school / junior high school, and 15% graduated from high school / senior high school. In 2015, there were 54 children with nutritional status who was below the red line. While 2 children with malnutrition who get health service at Primary health care service.

The numbers of birth baby were 659 and baby mortality were 2, the number of baby with low birth weight was 8. The number of neonatal mortality was 8 babies, and 8 children. The total number of all toddlers were 2910 children. Number of children 0-23 months who have weight below the red line were 23. Number of babies who get exclusive breastfeeding were 262 (63%). Exclusive breastfeeding target was 80%, in this case exclusive breastfeeding program has not reached the target.

In the interview with one of the people named *Muslih* who works as construction laborers, whose average income was 1,400,000 IDR, each month while Sahid as ragglers earns 1,500,000 IDR per month. Other residents had their own businesses like rental house, selling daily necessities, laundry, cafe, factory worker, etc. The quality of rental house depends on family income. While, the condition of the house really influences health that can be seen from air vents and humidity, as well as the density of home contents. The houses were 3 x 2.5 m² in width with the number of members 4-5 people. House were built relatively tight.

IV. DISCUSSION

The Bulak Banteng is 276 hectares in width with population density of 19,528 / km². Bulak the population are 25, 691 people. Average house area are 3 x 2.5 m² with number of family members of 4-5 people. From this data we know that people and houses there are very crowded.

From data that only 15% parent's level education is high, it also influences their economic level. Thus, the head of the family can not afford to finance family members for their higher level of education due to their low economic levels. While education and economy is a factor that can improve the health status and prosperity of the community.

Their basic occupations are as factory workers, construction laborers, pedicab drivers, and ragglers. According to interviews with heads of primary health care on 27 May 2017, states that 80% of population are from the outside village, mostly from Madura. Their capital to live in the new place is not supported by ability and legality of competent

documents such as Family card, ID card, birth certificate. The people from Madura who live in Bulak Banten do not have permanent jobs so that the health programs that have been run less than the maximum. In addition, the people from Madura have a lack of awareness about health and habits that are difficult to be changed with the health program. People in Bulak Banteng are people who believe that health, life and death belong to God and that is a destiny that cannot be changed so there is no effort in healing illness.

The results of interviews with sanitation officials at Primary health care on pneumonia cases shows that the number of people like to burn garbage and rag carelessly even near PAUD (early childhood school) and is done almost every day. The sanitation officer said he had given counseling and advice and even called the police to secure, but the habit was hard to change.

The results of interviews with nutrition officers of Primary health care at Bulak Banteng said that the Nutritional Status of children under five in Bulak Banteng Public Health Center tend to be good. However, the nutrients provided by parents to their children are considered less balanced. Nutrition socialization program conducted in the form of counseling about balanced nutrition and cooking together done about 2-3 times a year adjusting budget. exclusive breastfeeding is said to have not met the target 80%. Primary health care program related to exclusive breastfeeding that has been run is by counseling about exclusive breastfeeding.

The society of Bulak Banteng are very heterogeneous. Mostly, they run their business like rental house and daily shop for basic necessities, laundry, junk, coffee shop, internet cafe and copy shop to fulfill the daily needs. The densely packed houses between the walls of one house and the other houses do not make their social contacts closer than the village, because they come from a different backgrounds, different cultures and different interests. Most of them are really commercial without knowing the fraternal system as it should be in the village

Health can be regarded as one of the aspects that play a role in improving the quality of society's life. The higher public awareness on individual and environmental health people have, the better degree of public health they get. The lower Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR) and Community Malnutrition Status, the higher the health status of the community they achieve. In the last 5-10 years, there was no baby / child died in Bulak Banteng.

The existing health facilities in Bulak Banteng Village located in the middle of Bulak Banteng community settlement is good for people. Primary health care service in Bulak Banteng was initially located at the village office. However, a few years later primary health care service moved to Bulak Banteng Tengah Patriot 8. The location is right in the middle of the community settlement. In addition, there is also a mobile health post located on Bulak Banteng RT 03 RW 08 that moves once in a month, especially on Thursday. It means there is good access of health facilities for people there.

V. CONCLUSION

The result of this study shows that the case of pneumonia in children at Bulak Banteng, North Surabaya is high, up to 480 from 2.430 children (16,5 %). Low parent's level of education, low nutrition, low socioeconomic status, low number of exclusive breastfeeding, and careless environment in Bulak Banteng that all can lead to high case of pneumonia in Children.

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