

## Conference Paper

# Surveillance of Pneumonia Disease Prevalence in Kendari City, Southeast Sulawesi, Indonesia

Andre Haseng<sup>1</sup>, Ramadhan Tosepu<sup>2\*</sup>, Devi Savitri Effendy<sup>2</sup><sup>1</sup>Student of Postgraduate Program of Public Health, University of Halu Oleo, Indonesia.<sup>2</sup>Faculty of Public Health University of Halu Oleo, Southeast Sulawesi province, Indonesia.**Abstract.**

Indonesia health profile shows that pneumonia causes 15% of under-five children's deaths, which is around 922,000 children in 2015. From 2015-2018, confirmed cases of pneumonia in children under 5 years old increased by about 500,000 per year, reaching 505,331 patients with 425 patients dying. Pneumonia is an infection that causes inflammation of the lobes in one or both lungs. In people with pneumonia, a collection of small air space at the end of the respiratory tract in the lungs (alveoli) will become inflamed and filled with fluid or pus. This study uses various data from the Indonesian government. Pneumonia case data was obtained from the Kendari City Health Office from 2017-2020. The conclusion is that pneumonia cases in toddlers were male with an age range of 4-5 years. The prevalence of pneumonia in the last two years has decreased. The largest distribution area is in the Nambo and Puuwatu sub-districts in 2019.

**Keywords:** Pneumonia, Southeast Sulawesi, Indonesia

Corresponding Author:

Ramadhan Tosepu; email:  
ramadhan.tosepu@uho.ac.id**Published:** 13 September 2022Publishing services provided by  
Knowledge E

© Andre Haseng et al. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the ICASI Conference Committee.

## 1. INTRODUCTION

Pneumonia is an infection that causes inflammation of the lobes in one or both lungs. In people with pneumonia, a collection of small lobes at the end of the respiratory tract in the lungs (alveoli) will become inflamed and filled with fluid or pus. As a result, the patient experiences shortness of breath, coughing up phlegm, fever, or chills. The population that is susceptible to pneumonia are children aged less than 5 years, the elderly over 65 years and people who have health problems. Pneumonia is one of the infectious diseases that causes death at most in children under five years (toddlers). It is caused by bacteria and virus. Pneumonia can also be caused by fungi although it is rare. The incidence of pneumonia is more common in developing countries. Pneumonia affects about 450 million people every year. Based on RISKESDAS data in 2018, the prevalence of pneumonia based on the diagnosis of health workers was around 2%, while in 2013

**OPEN ACCESS**

it was 1.8%. Based on the Ministry of Health data of 2014, the number of pneumonia sufferers in Indonesia in 2013 ranged from 23%-27% and deaths from pneumonia were 1.19%. In 2010 in Indonesia, pneumonia was included in the top 10 hospitalized diseases with a crude fatality rate (CFR) or the mortality rate for certain diseases in a certain period of time divided by the number of cases was 7.6%. According to the Indonesian Health Profile, pneumonia causes 15% of under-five aged deaths, which is around 922,000 children under five in 2015. From 2015-2018 confirmed cases of pneumonia in children under 5 years old increased by about 500,000 per year, reaching 505,331 patients with 425 deaths.

Pneumonia is the cause of death in 320 children under five in Kendari City. Many factors contribute to the incidence of pneumonia and there is no single intervention that can effectively prevent, treat, and control. There are three simple but effective interventions if implemented properly and can reduce the burden of disease First, protecting through exclusive breastfeeding for six months and continue with the provision of nutritious solid supplementary food until the age of two years, therefore, they will not experience malnutrition. Second, preventing through whooping cough/pertussis and measles vaccination, and Sanitary and Healthy Lifestyle (PHBS). Treating through early detection and adequate treatment.

Pneumonia case in Kendari City, Southeast Sulawesi Province is fluctuating, where in 2017 it was decreased to 3.99%, it increased by 10.23%, in 2018, it raised up to 12.34% cases in 2019, and it significantly decreased in 2020 by 2.58%. Most cases of pneumonia were found in men about 67% and 33% in women. This study aims to obtain an overview of the prevalence of pneumonia and the distribution of pneumonia cases in children under five in Kendari City based on secondary data. Discovering new cases may lead to the appropriate early prevention efforts.

## 2. Method

Kendari City is the capital city of Southeast Sulawesi Province. It's geographically located in the southeastern part of Sulawesi Island. It surrounded Kendari Bay and consists of 11 sub-districts, 65 urban villages, and 15 health centers. This study uses various data in Indonesia. The series data of 2017-2020 on pneumonia cases obtained from Kendari City Health Office.

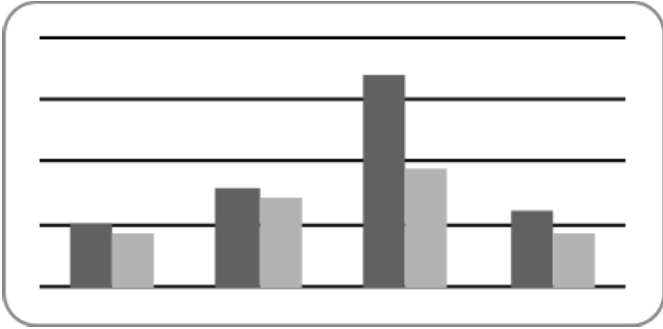


Figure 1: Pneumonia Prevalence by gender in 2017-2020.

### 3. Result

The result of the study shows that prevalence of pneumonia by gender were mostly male increased every year from 2017-2018. Itsignificantly increased in 2019 and then decreased in 2020.

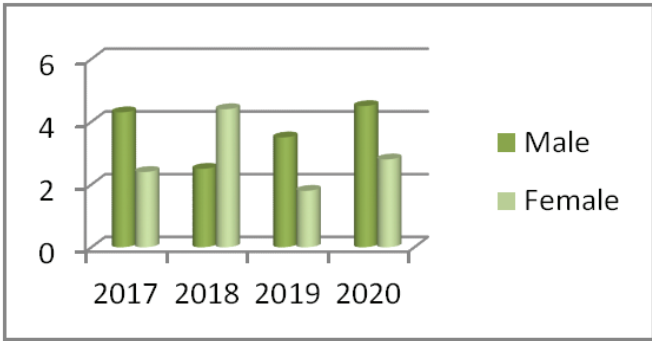


Figure 2: Data on finding cases of severe pneumonia by gender in 2017-2020.

The prevalence of finding severe pneumonia, based on gender, is mostly male that is up to 67% and 33% in female. This prevalence has increased only in 2018, while the following years was gradually decreased until 2020.

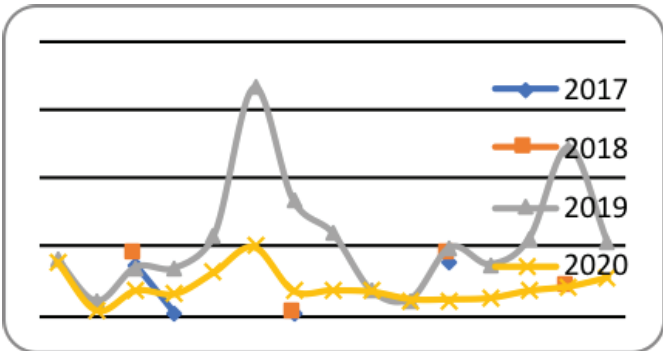
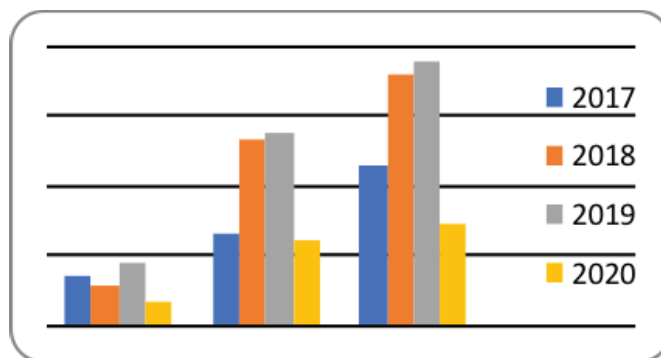


Figure 3: Pneumonia coverage data according to the number of visits by toddlers with severe cough at the Community Health Service Center.

Pneumonia coverage data based on visits by toddlers to the Community Health Service Center in 2017 and 2018 demonstrated the increased number of visits happened to three Community Health Service Center has increased, namely Mokau, Lepo-Lepo and Benu-Benua. In 2019 the number of visits increased in Puuwatu, Lepo-Lepo and Nambo. While in 2020, the highest visits were in Abeli, Nambo, and Puuwatu Community Health Service Centers.



**Figure 4:** Pneumonia data by age under five from 2017-2020.

Figure 4 shows that the age of 4-5 years is a prone age range and the most exposed to pneumonia in 2019. From 2017-2019 the prevalence continues to increase and it decreased in 2020.

## 4. Discussion

Previous studies showed the prevalence of pneumonia is more common in developing countries. It attacks about 450 million people every year including toddlers. Currently, Kendari City prioritizes pneumonia controlling program for toddlers. The percentage of mild pneumonia and severe pneumonia classification exhibits pneumonia in men up to 67% and 33% in women. Children under five are more likely to be infected with pneumonia. The most vulnerable age range of infection is 4-5 years old by 67%. Early prevention is expected to reduce the percentage of cases of mild pneumonia and severe pneumonia. Many factors contribute to the pneumonia prevalence and nonsingle intervention can effectively prevent, treat, and control. Social status, Sanitary and Healthy Lifestyle (PHBS), nutritional supplement is very important in disease prevention efforts. From the social, economic, and geographic point of views, Kendari City still has a number of unlivable settlements and low economic income, therefore, the pneumonia prevalence remains high and have not been solved.

## 5. Conclusion

The prevalence of pneumonia from 2017-2019 continued to increase and it decreased in 2020. The percentage of male children under five reached to 67% and female children 33%. The age range being infected with pneumonia was toddlers aged 4-5 years, the most in 2019 and it declined in 2020. The coverage of toddler visits to the Community Health Service Center was mostly in Nambo, Abeli, Puuwatu, and Lepo-lepo.

## References

- [1] E. M. A. HARTONO. Pelayanan Home Care Terhadap Lansia Yang Mengalami Pneumonia: Systematic Review. Universitas Gadjah Mada; 2021.
- [2] Zavira N, Jaelani AK, Herawati F, Yulia R. Evaluation on the use of antibiotics for pneumonia patients. *Jurnal Kesehatan Prima*. 2021;15(2):88–98.
- [3] F. Yani, "Hubungan Perilaku Hidup Bersih Dan Sehat (Phbs) Rumah Tangga Dengan Kejadian Pneumonia Pada Balita Tahun 2020: Sytematic Review," 2020.
- [4] Ginting NB, Nurhaeni N. Posisi Semi Prone Dapat Memberikan Kenyamanan pada Anak dengan Pneumonia [JOTING]. *Journal of Telenursing*. 2021;3:347–53.
- [5] Izhar MD. Determinants of pneumonia in toddlers in Jambi city. *Jurnal Berkala Epidemiologi*. 2021;9(2):157–65.
- [6] Efni Y, Machmud R, Pertiwi D. Faktor risiko yang berhubungan dengan kejadian pneumonia pada balita di Kelurahan Air Tawar Barat Padang. Volume 5. *Jurnal Kesehatan Andalas*; 2016.
- [7] Anwar A, Dharmayanti I. "Pneumonia pada anak balita di Indonesia," *Kesmas [National Public Health Journal]*. *Jurnal Kesehatan Masyarakat Nasional*. 2014;8(8):359–65.
- [8] Rasyid Z. Faktor-faktor yang berhubungan dengan kejadian pneumonia anak balita di RSUD Bangkinang Kabupaten Kampar. *Jurnal Kesehatan Komunitas*. 2013;2(3):136–40.
- [9] Kusumo GP, Heriyani F, Hidayah N. Literature Review: Hubungan Kelembaban Rumah dengan Kejadian Pneumonia pada Balita di Wilayah Pabrik. *Homeostasis*. 2021;4:127–32.
- [10] Syahniar R, Nabila AN, Kharisma DS, Akbar MA. Comparison between monotherapy and combination therapy among inpatients with community-acquired pneumonia. *Jurnal Ilmiah Farmasi*. 2021;17(1):56–63.

- [11] Tosepu R, Yusnaniningsi Y. The Epidemiology of Hospitalized Pneumonia in Bahteramas Hospital. Southeast Sulawesi Province; 2019.
- [12] Tosepu R, Mujamil M. The trend of acute respiratory infections in children under 5 years of age in the Buton Tengah District, Indonesia. **Missing place of publication: Publisher; Copyright Year.**
- [13] Tosepu, R., Yasnani, Y., Lestari, H., Saktiansyah, L. O. A., & Rialdin, R. Climate variability and incidence rate of acute respiratory infections in Kendari City 2014-2018. **Missing place of publication: Publisher; 2019.**
- [14] Sudrajat T, Hakim W, Rahman T, Shah R. "STOP Pneumonia"– A successful advocacy campaign for preventing and protecting Indonesia's children from pneumonia. Public Health of Indonesia. 2021;7(1):1–4.