

# Longitudinal Analysis of Pediatric Pneumococcal Pneumonia: Insights from a Five-Year Study

Pavel Heinige<sup>1</sup>, Slovakova Lea<sup>1</sup>, Vockova Jitka<sup>1</sup>, Leova L.<sup>1</sup>, Taskova Alice<sup>1</sup>, Kripnerova Kateřina<sup>1</sup>, Prchlık Martin<sup>1</sup>, and Karolína Dolezalova<sup>1</sup>

<sup>1</sup>Fakultni Thomayerova nemocnice

November 23, 2024

## Abstract

**Introduction :** This study aims to assess trends in the epidemiology of pneumococcal pneumonia in children aged 0-18 over a five-year period (2019-2024), including pre- and post-COVID eras. Secondary aim is to monitor a surgical approach used in the treatment. Tertiary aims include analyzing demographic factors, clinical characteristics, treatment regimens, and outcomes. The study also presents the multidisciplinary care required for complicated pneumonia. **Methods :** This retrospective single-center study was conducted at a tertiary Thomayer University Hospital in Prague, Czech Republic. A review and analysis of the medical records of children aged 0-18 diagnosed with pneumonia between 01/2019 and 09/2024 was conducted. The data pertaining to pneumonias caused by *Streptococcus pneumoniae* were subjected to statistical description in accordance with trends in incidence, clinical features, treatment outcomes, the necessity for surgical intervention and antibiotic resistance patterns. Three comprehensive figures, which illustrate the extent of pathological changes in the most complicated patients from this study, are provided herewith. **Results :** Significant trends in the incidence and management of pneumococcal pneumonia were observed over the five-year period. There were notable differences between the pre- and post-coronavirus disease (COVID-19) eras. A statistically significant increase was observed in the overall number of cases of pneumococcal pneumonia and their complicated necrotizing forms, which led to surgical management, as demonstrated in figures. **Conclusion :** A single-center five-year trend analysis of pneumonias in children offers insights into epidemiological patterns, risk factors, and treatment outcomes. Furthermore, this analysis discusses several potential explanations for the rising incidence of pneumonias caused by *Streptococcus pneumoniae*. The findings highlight the importance of a multidisciplinary approach in managing complex cases, with a particular focus on the use of minimally invasive surgical techniques.

## Hosted file

Longitudinal\_analysis\_PP.doc available at <https://authorea.com/users/597953/articles/1243964-longitudinal-analysis-of-pediatric-pneumococcal-pneumonia-insights-from-a-five-year-study>