

# The burden of Acute Respiratory Infections on Emergency Department: a study from a university hospital in Central Italy

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## Abstract

*Background* Acute Respiratory Infections (ARIs) have a relevant impact on public health in terms of prevalence and costs associated with the diseases. Since COVID-19 pandemic highlighted the need to adopt accurate surveillance systems to face new emergencies, the aim of our work is to describe the impact of ARIs on healthcare facilities. *s. Methods* A retrospective analysis was conducted on electronic medical records from Pisa University Hospital, from January 2017 to December 2021. To link ED admissions and lab test, multiple linear regression models were used to understand the phenomenon and to assess the contribution of each virus within different age groups. *Results* During the study period, 33,101 ARI admissions in ED were registered, resulting in 7,426 hospital admissions. We observed a seasonal pattern between week 42 of each year and week 17 of the following year. A reduction in ED admissions has been found in 2020, while, the average weekly rate was of 30.8% in 2020, as compared with 21.7% in 2017-2019. Analysis by age group showed a peak of accesses in the last weeks of 2021 for the <1 and 1-4 years old. *Conclusions* Data on ARI-related admissions provide valuable insights into the dynamic patterns of seasonal air-borne infections and specific age-related vulnerabilities. This could be useful in directing health policies to identify indicators of future epidemic waves. These findings contribute to the ongoing efforts to enhance preparedness and response strategies for respiratory infections, laying the groundwork for more effective public health interventions in the future.

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