

# Hospitalisation, morbidity and outcomes associated with respiratory syncytial virus compared to influenza in adults of all ages

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## Abstract

Background: Respiratory syncytial virus (RSV) is understood to be a cause of significant disease in older adults and children. Further analysis of RSV in younger adults may reveal further insight into its role as an important pathogen in all age groups. Methods: We identified, through laboratory data, adults who tested positive for either influenza or RSV between January 2017 and June 2019 at a single Australian hospital. We compared baseline demographics, testing patterns, hospitalisations and outcomes between these groups. Results: Of 1128 influenza and 193 RSV patients, the RSV cohort was older (mean age 54.7 vs. 64.9,  $p<0.001$ ) and were more comorbid as determined by the Charlson Comorbidity Index (2.4 vs. 3.2,  $p<0.001$ ). Despite this, adults under 65 with RSV were equally likely to be admitted compared with their influenza counterparts (70.3% vs. 77.3%,  $p=0.174$ ). Testing occurred later in RSV hospitalisations as measured by the proportion tested in the emergency department (80.3% vs. 69.2%,  $p<0.001$ ) and this was strongly associated with differences in presenting phenotype (the presence of fever). RSV was the biggest predictor of 6 month representation, with age and comorbidities predicting this less strongly. Conclusion: RSV is a significant contributor to morbidity and hospitalisation, sometimes outweighing that of influenza, and is not limited to elderly cohorts. Understanding key differences in the clinical syndrome and consequent testing paradigms may allow better detection and potentially treatment of RSV to reduce individual morbidity and health system burden. This growing area of research helps quantify the need for directed therapies for RSV.

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