

# Population-based hospitalization burden estimates for respiratory viruses, 2015-2019

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## Abstract

**Background:** Acute respiratory infections (ARIs) result in millions of illnesses and hundreds of thousands of hospitalizations annually in the US. The responsible viruses include influenza, parainfluenza, human metapneumovirus, coronaviruses, respiratory syncytial virus (RSV), and human rhinoviruses. This study estimated the population-based hospitalization burden of 18 respiratory viruses (RV) over 4 years, from 7/1/2015 to 6/30/2019 among adults [?]18 years of age for Allegheny County (Pittsburgh), Pennsylvania. **Methods:** We used population-based statewide hospital discharge data, health system electronic medical record (EMR) data for RV tests, census data, and a published method to calculate burden. **Results:** Among 26,211 eligible RV tests, 67.6% were negative for any virus. The viruses detected were rhinovirus/enterovirus (2,552; 30.1%), influenza A (2,299; 27.1%), RSV (1,082; 12.7%), human metapneumovirus (832; 9.8%), parainfluenza (601; 7.1%), influenza B (565; 6.7%), non-SARS-CoV-2 coronavirus (420; 4.9% 1.5 years of data available), and adenovirus (136; 1.6%). Most tests were among female (58%) and white (71%) patients with 60% of patients [?]65 years, 24% 50-64 years and 16% 18-49 years. The annual burden, ranged from 137-174/100,000 population for rhinovirus/enterovirus; 99-182/100,000 for influenza A; 56-81/100,000 for RSV. Among adults <65 years, rhinovirus/enterovirus hospitalization burden was higher than influenza A; whereas the reverse was true for adults [?]65 years. RV hospitalization burden increased with increasing age. **Conclusions:** These virus-specific ARI population-based hospital burden estimates showed significant non-influenza burden. These estimates can serve as the basis for several areas of research that are essential for setting funding priorities and guiding public health policy.

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