

Hospital-Acquired Respiratory Viral Infections

Nosocomial respiratory viral infections are an underappreciated cause of morbidity and mortality in hospitalized adult and pediatric patients. The incidence was nearly 10-fold higher in our pediatric hospital. We estimate there are approximately 18 955 pediatric and adult cases of nosocomial respiratory viral infections in US acute care hospitals each year.

Respiratory viruses are transmitted in the hospital setting from direct contact with infected visitors and family, infected healthcare workers, other infected patients, indirectly through contact with contaminated fomites, or from patient-to-patient spread due to poor hand hygiene practices among healthcare providers.

The frequency of specific respiratory viruses causing nosocomial infections reflects their activity in the community . Few studies have assessed the outcomes of nosocomial respiratory viral infections in noncritically ill, non-immunocompromised adult and pediatric patients. In one study, **1 in 5 children admitted to a pediatric intensive care unit (ICU)** due to a respiratory viral infection **had acquired the infection in the hospital**. These children had an approximately 6-fold increased likelihood of mortality compared with those who had community-acquired respiratory viral infections. In another pediatric study, 49% of nosocomial respiratory viral infections occurred in premature infants.

One study in **adult patients** noted that **24% of nonventilated hospital-acquired pneumonias were caused by viruses** .

These publications suggest that nosocomial respiratory viral infections can lead to significant morbidity and mortality. We investigated such cases in our adult and pediatric hospitals to better understand the magnitude of the problem and the outcomes of such infections.

This was a retrospective study of patients who **developed laboratory-confirmed respiratory viral infections and whose symptoms began during hospitalization** at Rhode Island Hospital and Hasbro Children's Hospital

A nosocomial respiratory viral infection was defined as a hospitalized patient who had a positive respiratory viral panel, rapid influenza test, or rapid respiratory syncytial virus of a nasopharyngeal or bronchoscopic lavage specimen..

A definite nosocomial respiratory viral infection was defined as a patient whose number of days from hospital admission to symptom onset exceeded the upper range for the incubation period of the identified virus. A possible nosocomial respiratory viral infection case was defined as a patient in whom the number of days from hospital admission to symptom onset was within the range of the incubation period for the identified virus **who were admitted without clinical signs or symptoms of a respiratory infection**.