RSV Requires Hospitalizing About 3.4 M Yearly

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FROM THE LANCET

An estimated 33.8 million new episodes of respiratory syncytial virus–associated acute lower respiratory infection occurred worldwide in children younger than 5 years of age in 2005, based on results of the first study to take a global view of this deadly infection.

The systematic review and meta-analysis used published and unpublished incidence and mortality data for respiratory syncytial virus (RSV)–associated acute lower respiratory infection (ALRI) in both industrialized and developing countries.

The researchers estimated that worldwide 3.4 million young children developed RSV-associated severe ALRI necessitating hospital admission, and an estimated 66,000-199,000 children younger than 5 years of age died of the infection. A total of 99% of these deaths occurred in developing countries, reported Dr. Harish Nair and his coauthors (Lancet 2010;375:1545-55).

The authors pointed out that "substantial uncertainty" surrounds case-fatality ratio estimates from developing countries. To that end, the researchers calculated three estimates of RSV-associated ALRI fatalities to assess the upper and lower bounds, yielding the 66,000-199,000 range.

The incidence of RSV-associated ALRI in developing nations was twice that for industrialized nations. "This estimate represents roughly 22% of all episodes of ALRI in young children," wrote Dr. Nair, who is a public health sciences doctoral student at the University of Edinburgh, and colleagues.

In an accompanying commentary, Dr. Caroline Breese Hall, professor of pediatrics and infectious diseases at the University of Rochester (N.Y.), highlighted the importance of the study.

The researchers "provide the best current estimates of the global under-5 burden of RSV-associated acute lower respiratory tract infections, and convincingly posit the virus as the foremost cause of all lower respiratory tract infections in young children worldwide," she said (Lancet 2010;375:1500-2).

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Major Finding: Mortality related to RSV infection worldwide was estimated to be 66,000-199,000 in children younger than 5 years in 2005, with a total of 99% of these deaths occurring in developing countries.

Data Source: Systematic review of 36 incidence studies, including 10 unpublished studies.

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The researchers started by performing a systematic literature review using a combination of search terms, manual searching of online journals, and scanning reference lists of identified citations. Studies were limited to those from January 1995 to June 2009. In addition, the researchers "invited the participation of researchers who had done similar studies resulting in unpublished data or supplementary data from published work."

As inclusion criteria, the researchers chose to use ALRI and severe ALRI, including bronchiolitis and pneumonia. ALRI was considered the presence of cough or difficulty breathing with indrawing of the lower chest wall with fast breathing for age. Severe ALRI was considered the presence of cough or difficulty breathing with indrawing of the lower chest wall (with or without fast breathing for age) that required hospitalization.

They identified 36 studies with suitable data: 19 published population-based studies, 7 published studies based on hospital discharge records and laboratory diagnosis reports, and 10 unpublished population-based studies. The researchers noted that few studies reported data for the full age range (0-5 years).

The researchers performed a meta-analysis of incidence data and reported pooled estimates using the random effects model. They estimated the incidence for industrial and developing countries for 2005 and summed these estimates to get a global incidence estimate. ■