

Study finds bronchiolitis severity depends on the virus, and questions the practice of rooming children together

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A 16-hospital study, led by researchers at Boston Children's Hospital and Massachusetts General Hospital, is challenging common wisdom about bronchiolitis, a respiratory illness and the leading cause of hospitalization in infants. Currently, clinicians treating babies with severe bronchiolitis generally don't test for pathogens, assuming the specific infectious cause to be irrelevant to the child's care. The new study, the largest prospective, multicenter study of U.S. children hospitalized with bronchiolitis, suggests it should be viewed as more than one disease, especially when considering treatments.

"Our data show that the infecting pathogen in bronchiolitis affects hospital length-of-stay," says Jonathan Mansbach, MD, a hospitalist physician at Boston Children's and first author of the study, published online April 2 by the Archives of Pediatrics & Adolescent Medicine. "Most research on treatments currently lumps all children with bronchiolitis together, and may miss findings that are important in a particular subgroup."

Mansbach and senior investigator Carlos A. Camargo, MD, DrPH, of Massachusetts General Hospital, tracked more than 2,200 children under age 2 who were hospitalized with bronchiolitis during the 2007 to 2010 winter seasons, as part of the Multicenter Airway Research Collaboration (MARC), a program of the Emergency Medicine Network (EMNet) (www.emnet-usa.org). PCR testing was done for multiple viruses and bacteria.

While most infants in the study had respiratory syncytial virus (RSV), a quarter were infected with the common cold virus (rhinovirus). These infants were less likely than those with RSV to have hospital stays of three days or longer (odds ratio, 0.36). Compared with infants infected with RSV alone, infants with rhinovirus alone were less likely

to have hospital stays of three days or longer (odds ratio, 0.36) after adjustment for other factors affecting disease severity. Infants with both RSV and rhinovirus were more likely to have 3-day or longer stays than infants with RSV alone (odds ratio, 1.33).

"There seems to be some interaction between RSV and rhinovirus that needs further study," Mansbach says.

The findings also call into question a common hospital practice of rooming babies with RSV bronchiolitis together. Although this practice is frequently necessary, it has the potential to expose children to new infections. In the study, at least one other virus was detected in 32 percent of the RSV-positive babies and in 23 percent of RSV-negative babies. And some of the co-infecting pathogens require different kinds of infection-control precautions in the hospital, Mansbach says.

Currently, there is much variability in how babies with bronchiolitis are treated, with nothing consistently proven to be beneficial aside from supportive measures. Under a new five-year grant, Mansbach and colleagues have begun a study to test and track children hospitalized with [bronchiolitis](#) prospectively, to see if the type of infecting virus, among many other factors, predicts long-term outcomes such as recurrent wheezing at age 3 or asthma at age 6.

Provided by Children's Hospital Boston

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