

Children's Hospital Colorado experts publish article on the 2014 enterovirus D68 outbreak

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From August to September 2014, a typically slow time for respiratory viruses, a nationwide outbreak of enterovirus D68 (EV-D68) left resources constrained for Children's Hospital Colorado (Children's Colorado) and pediatric organizations throughout the nation.

Due to the lack of a widely available test for the virus at the time, only 1,153 EV-D68 infections in 49 states were confirmed, though experts felt the true magnitude and impact of EV-D68 was much larger.

Researchers and operational experts looked at the change in [hospital](#) resources utilized during the outbreak periods and compared the data to what would have been expected during a calm respiratory season, which allowed the team to indirectly estimate the impact of the virus. Their findings were published online on January 19, 2016 and will appear in the March issue of *JAMA Pediatrics*. The methods used and data collected have created a guide for other hospitals to measure and prepare for potential outbreaks.

During the EV-D68 outbreak of 2014, Children's Colorado saw significant increases across all sectors, including respiratory patient volumes, asthma medication use, respiratory equipment use and respiratory therapist demands. Without being able to test more accurately for the virus during the actual outbreak, a cross-hospital team, led by Kevin Messacar, MD, hospital medicine and infectious diseases specialist at Children's Colorado, developed a new, quantifiable way to measure the impact of outbreaks after they occur.

"The enterovirus D68 outbreak affected every aspect of our hospital," said Messacar. "We created an EV-D68 consortium to look at how this outbreak strained resources. Through this study, we demonstrated that the number of confirmed infections grossly underestimates the true burden of this outbreak on children's hospitals."

The study suggest that EV-D68 had a much larger impact on children's hospitals in the United States in 2014 than previously estimated from confirmatory testing on a limited number of samples. The study also illustrates the importance of resource utilization monitoring in future unexpected outbreaks of emerging pathogens.

"It is important to understand the burden of an emerging respiratory virus like enterovirus D68 so that children's hospitals can be prepared if, and when, it returns," said Messacar. "We are fortunate that enterovirus D68 did not return to cause widespread disease in 2015, but if it does return to cause this extent of disease in the future, development of vaccines or therapeutics against this [virus](#) will become scientific priorities."

"The heroic efforts of the medical, nursing, and other clinical staff at Children's Hospital Colorado to provide expert care to affected children during this [outbreak](#) should be commended," said Messacar.

More information: Kevin Messacar et al. Resource Burden During the 2014 Enterovirus D68 Respiratory Disease Outbreak at Children's Hospital Colorado, *JAMA Pediatrics* (2016). [DOI: 10.1001/jamapediatrics.2015.3879](#)

Provided by Children's Hospital Colorado

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