

Children's Colorado doctors conclude EV-D68 likely cause of acute flaccid myelitis

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Children's Hospital Colorado

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system of children. Credit: Children's Hospital Colorado

A team of doctors and scientists from the U.S. and Europe led by Kevin Messacar, MD, an infectious disease specialist from Children's Hospital Colorado (Children's Colorado), has found that Enterovirus D68 (EV-D68) is a likely cause of Acute Flaccid Myelitis (AFM), a rare illness that affects the nervous system of children. The research was published late Friday, Feb. 23 in *The Lancet Infectious Diseases*. The widespread outbreak of the respiratory virus in 2014 and 2016, which was accompanied by increased cases of AFM, suggests a need for better preparation for the disease's possible return in 2018 and beyond.

"What started as a mystery illness that was causing sudden paralysis in children is now much better understood," said Dr. Messacar.

"Accumulated evidence which supports Enterovirus D68 as a likely cause of acute flaccid myelitis will advance prevention and treatment efforts."

The published study in *The Lancet Infectious Diseases* is the culmination of approximately three years of scientific research to better understand this condition. The rapid progress is in part due to a unique partnership on Colorado's Anschutz Medical Campus, in which the front-line clinicians were able to move extremely quickly from clinical observation and alerting the Centers for Disease Control and Prevention to laboratory studies to investigate the relationship between EV-D68 and AFM.

As a major referral center for the seven-state region, Children's Colorado doctors not only recognized the first cluster of this disease in 2014, but also were able to study the virus with colleagues from the University of Colorado School of Medicine, including Ken Tyler, MD, an expert in neurovirology and chair of the department of neurology.

"When cases came into the hospital, I was able to use current samples to inject the virus into lab research mice," said Dr. Tyler. "This laboratory model allowed us to quickly study how the virus infects the spinal cord and will help us test which treatments will be most beneficial for patients."

In addition to the multitude of cases of EV-D68 and associated AFM that were observed in patients from across the U.S. in 2014 and 2016, this condition now has been documented across the world in 14 countries and on six continents. As such, Dr. Messacar is working with collaborators to improve awareness, enhance surveillance and pursue investigations to guide new approaches to prevention and treatment.

"Our work has been driven and continues to be inspired by the patients and families affected by this illness. Their participation in these research efforts will no doubt help children for years to come," said Dr. Messacar.

More information: Kevin Messacar et al. Enterovirus D68 and acute flaccid myelitis—evaluating the evidence for causality, *The Lancet Infectious Diseases* (2018). [DOI: 10.1016/S1473-3099\(18\)30094-X](https://doi.org/10.1016/S1473-3099(18)30094-X)

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