ECHO
Environmental influences on Child Health Outcomes
A program supported by the NIH

# *Study Summary*

## *A Subset of Rhinovirus Types Are More Prevalent in Young Children, ECHO Study Finds*

*Authors: Jo Wilson, et al.*

### Who sponsored this study?

The Environmental influences on Child Health Outcomes (ECHO) Program, Office of the Director, National Institutes of Health supported this research.

### Why was this study needed?

Rhinoviruses (RV) are the most common cause of the common cold and the most common trigger of wheezing episodes and asthma exacerbations. Some children—especially infants, toddlers, and children with asthma—can become seriously ill and may need hospital care. There are more than 160 different types of rhinoviruses, which has made it very difficult to develop prevention or treatment strategies. A relatively small group of rhinovirus types—about 15 to 20—account for about half of all the rhinoviruses circulating in each species, RV-A, RV-B and RV-C. Given the vast number of circulating rhinoviruses and the lack of rhinovirus surveillance programs, there has not been enough information for researchers to understand the circulation patterns of these viruses and which viruses impact which age groups. For this study, ECHO researchers investigated the long-term patterns of rhinovirus infections in children to hopefully make it easier for future prevention and treatment efforts to target the viruses that impact children the most.

### What were the study results?

This study found that, unlike other viruses like the flu or COVID-19 that show dramatic changes in yearly circulation patterns, both the most common and rare rhinovirus types stayed remarkably consistent over three decades. Certain rhinovirus types were found more often in infants and young children, while a few others were common across all age groups.

### What was the study's impact?

This information can help researchers understand which rhinovirus types have a higher impact on young children and the general community, which may help them to develop more targeted prevention and treatment strategies in the future.

### Who was involved?

The study included data from nearly 12,000 nasal samples collected from children aged 0 to 18 years between 1997 and 2025. These samples came from children who were part of 20 pediatric studies in the United States, Finland, and Australia, including 10 ECHO Cohort Study Sites.

## What happened during the study?

The study analyzed rhinovirus circulation patterns over three decades using nasal samples collected when children were sick and, in some studies, when they were healthy. The researchers tested samples to identify which type of rhinovirus was present, track how often each type appeared over time, compare infections across different child age groups, and examine whether a child's genetic makeup influenced infection patterns. The researchers then used statistical methods to look for long-term trends while accounting for age and differences between studies.

Footnote: Results reported here are for a single study. Other or future studies may provide new information or different results. You should not make changes to your health without first consulting your healthcare professional.

## What happens next?

Additional studies can help researchers better understand why some rhinoviruses are so common while others are rarely encountered. This information could help guide the development of future strategies to prevent or treat rhinovirus infections.

## Where can I learn more?

Access the full journal article, titled "Stability and Age-Specific Patterns of Rhinovirus Circulation in Children Observed Over Three Decades," in *Journal of Allergy and Clinical Immunology*.