States with highest COVID-19 vaccination rates showed steepest decline in pediatric asthma prevalence: Study

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States with high rates of COVID-19 vaccination saw more pediatric asthma patients get a break from their symptoms, according to new

research published in *JAMA Network Open* by leaders from Nemours Children's Health and Endeavor Health.

"Asthma is one of the most common chronic illnesses among children in the United States, with about 4.7 million children experiencing symptoms each year," said lead author Matthew M. Davis, MD, MAPP, Executive Vice-President, Enterprise Physician-in-Chief and Chief Scientific Officer of Nemours Children's Health.

"Whether asthma is mild or severe, it affects children's quality of life. So anything we can do to help kids avoid flare-ups is beneficial."

In the early months of the COVID-19 pandemic in 2020, social distancing and school closures are thought to have resulted in fewer flares of asthma for many pediatric patients. Dr. Davis and co-author Lakshmi Halasyamani, MD, Chief Clinical Officer of Endeavor Health in Evanston, Illinois, wondered whether that benefit extended into 2021, as the first vaccines against COVID-19 were being widely administered to adults and then children.

In the study, Drs. Davis and Halasyamani compared the change in parent-reported childhood asthma symptoms between 2018-2019 and 2020-2021. They combined that data with state COVID-19 vaccination rates for people ages 5 and up in 2020–2021, as reported by the U.S. Centers for Disease Control and Prevention (CDC).

The researchers found that with each increase of 10 percentage points in COVID-19 vaccination coverage, parent-reported child asthma symptoms decreased by .36 percentage points.

States in the highest quarter of COVID-19 vaccination rates overall had a decrease in asthma symptoms of 1.7 percentage points—an almost three times more favorable impact than states in the lowest quarter of

COVID-19 vaccination rates overall, which saw an average decrease in asthma symptoms of only 0.6 percentage points in 2020–2021, compared with 2018–2019.

The co-authors explained that several factors could have contributed to the reduction in asthma symptoms. Community-level immunity, also called "herd immunity," in states with higher vaccination rates may have helped reduce children's risk of contracting COVID-19 and developing asthma complications. Another possibility is that children living in states with higher COVID-19 vaccination rates may have been more likely to get the shots soon after immunizations were approved for their age groups.

According to the co-authors, these findings also raise the possibility that COVID-19 vaccinations may effectively fight other illnesses that stem from coronaviruses, including the common cold.

"Ongoing vaccination against COVID-19 may offer direct benefits for children with a history of asthma, but this must be confirmed with further research," said Dr. Halasyamani. "It also raises the question of whether broader population-level COVID-19 vaccination among children and adults can help protect children with asthma, too."

The co-authors pointed out that one limitation of the study is that it did not measure vaccination rates specifically in children with asthma. In addition, while parent-reported data is considered a meaningful measure of patient experience, additional data such as hospital stays or emergency department visits could be used to verify these findings.

More information: Association of COVID-19 Vaccination with Parent-Reported Symptomatic Child Asthma Prevalence, *JAMA Network Open* (2024).

Provided by Nemours Children's Health System

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