Fewer serious asthma events in Philadelphia area following COVID-19 stay-at-home orders

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Philadelphia and its surrounding counties issued a series of 'stay-at-home' orders on March 17, 2020 in an effort to curb the spread of COVID-19. In the months that followed, Children's Hospital of Philadelphia (CHOP) saw a marked decrease in healthcare visits for both outpatient and hospitalized asthma patients. New research from CHOP and the Hospital of the University of Pennsylvania suggests the cause may have been fewer rhinovirus infections due to masking, social distancing, and hygiene measures.

The findings were published in the *Journal of Allergy and Clinical Immunology: In Practice*.

Researchers reviewed the 60 days leading up to March 17, 2020 and compared them to the 60 days following stay-at-home orders. They found a 60% decrease in the total daily asthma healthcare visits across CHOP's hospital and Care Network, which includes more than 50 primary care offices, specialty care and surgical centers, urgent care centers, and community hospital alliances throughout Pennsylvania and New Jersey.

In reviewing cases of rhinovirus after March 17 and comparing them to the number of cases over the same time period in 2015 to 2019, the researchers found cases decreased following the introduction of public health interventions designed to limit viral transmission of SARS-CoV-2. The researchers also analyzed pollution levels after March 17, 2020 and compared them to the same period in 2015 to 2019, but they did not find statistically significant reductions in pollution levels from the available data.

"Pollution and respiratory viruses, particularly rhinovirus, can worsen asthma symptoms and trigger exacerbations," said David A. Hill, MD, Ph.D., senior author and attending physician with the Division of Allergy and Immunology at CHOP. "When we saw this decrease we initially thought it must be some combination of these factors. We were surprised to see that pollution did not actually decline substantially when compared with historical trends in the Philadelphia region as a result of stay-at-home orders, so we believe this change is more directly a result of infection prevention measures, including wearing a face mask, washing hands frequently, and social distancing. Above all, this paper demonstrates that social distancing is an effective tool in reducing transmission of any virus, whether it's a coronavirus or an asthma-exacerbating rhinovirus."

The researchers analyzed the visits by asthma patients after March 17, 2020 and found telehealth video visits, which were not previously available, became the most highly utilized way of seeing a doctor by asthma patients, with 61% of asthma-related appointments being telehealth visits. The research team also saw a decrease in outpatient

steroid prescriptions after stay-at-home orders went into effect. Despite this decrease, Black patients and patients with Medicaid coverage saw the highest rates of steroid prescriptions, with Black patients seeing a 70% increase and Medicaid patients seeing a 63% increase. Black patients made up a lower proportion of telehealth video visits, a difference the authors noted should be the focus of future studies and quality improvement efforts.

"These findings can help inform how we care for asthma patients, not only during this pandemic, but also after we return to a new normal," said Hill. "Asthma is one of the most common chronic childhood diseases, affecting one out of every 12 school-aged children in the United States. We should explore whether enhanced infection-prevention measures have utility in children with asthma, irrespective of COVID-19."

More information: Kiara Taquechel et al, Pediatric Asthma Healthcare Utilization, Viral Testing, and Air Pollution Changes during the COVID-19 Pandemic, *The Journal of Allergy and Clinical Immunology: In Practice* (2020). DOI: 10.1016/j.jaip.2020.07.057

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