

# Pediatric Patients Seeking Less Asthma-Related Care Post-Pandemic

Team A: Dave Little, MD; Emily Higgs

Team B: Kersten Bartelt, RN; Caleb Cox

Last updated 29 October 2024 • Check for updates at [EpicResearch.org](https://EpicResearch.org)

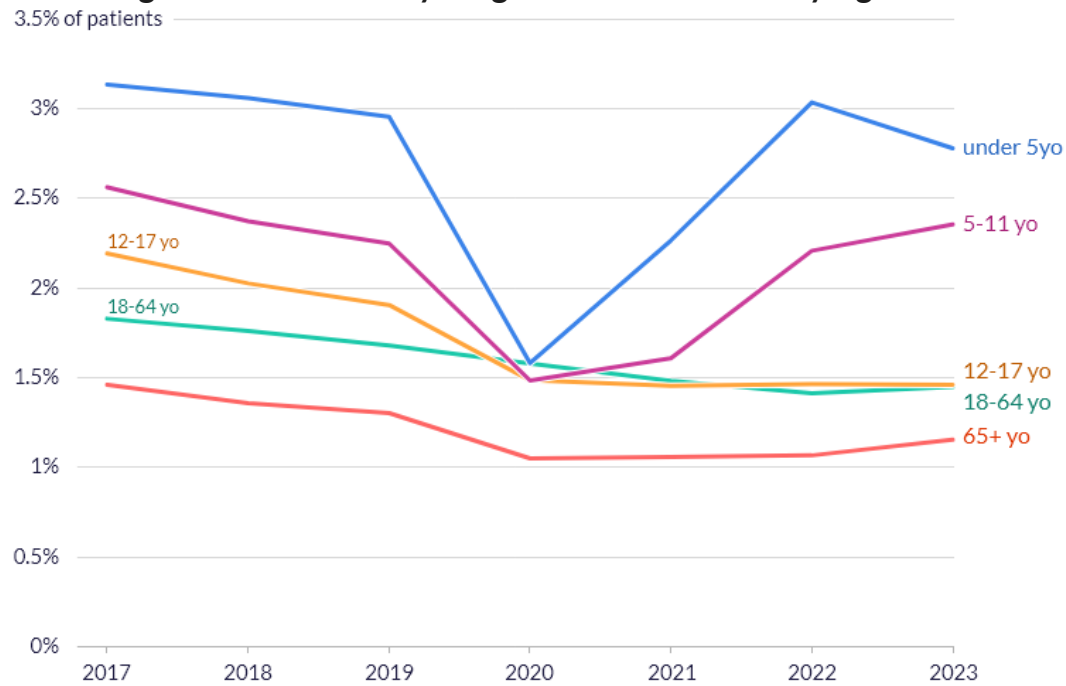
## Key Findings:

- The rate of new asthma diagnoses decreased during 2020 and 2021, coinciding with the COVID-19 pandemic. In 2023, rates remained low for patients 12 years of age and older but returned to pre-pandemic levels for those under 12 years old.
- The rate of patients under 18 seeking care for asthma decreased between 2017 and 2023, while it remained steady for those over 18.
- The rate of ED visits for asthma declined for all age groups between 2017 and 2023.

There have been conflicting reports about the incidence of asthma and complications after the COVID-19 pandemic, with some sources reporting worsening asthma management resulting in increased inhaler use and others reporting fewer asthma-related emergency department visits.<sup>1-3</sup> We aimed to understand the rate of new asthma cases, the overall rate of patients seeking care for asthma, and the rate of patients seeking care for asthma in the ED as a proxy for disease severity over time.

We found that asthma diagnosis rates dropped for patients of all ages in 2020 and 2021, as seen in Figure 1. For individuals 12 and older, the rates have remained lower than the baseline through 2023. However, for children under 12, these rates have trended back toward pre-pandemic levels.

## Percentage of Patients Newly Diagnosed with Asthma by Age



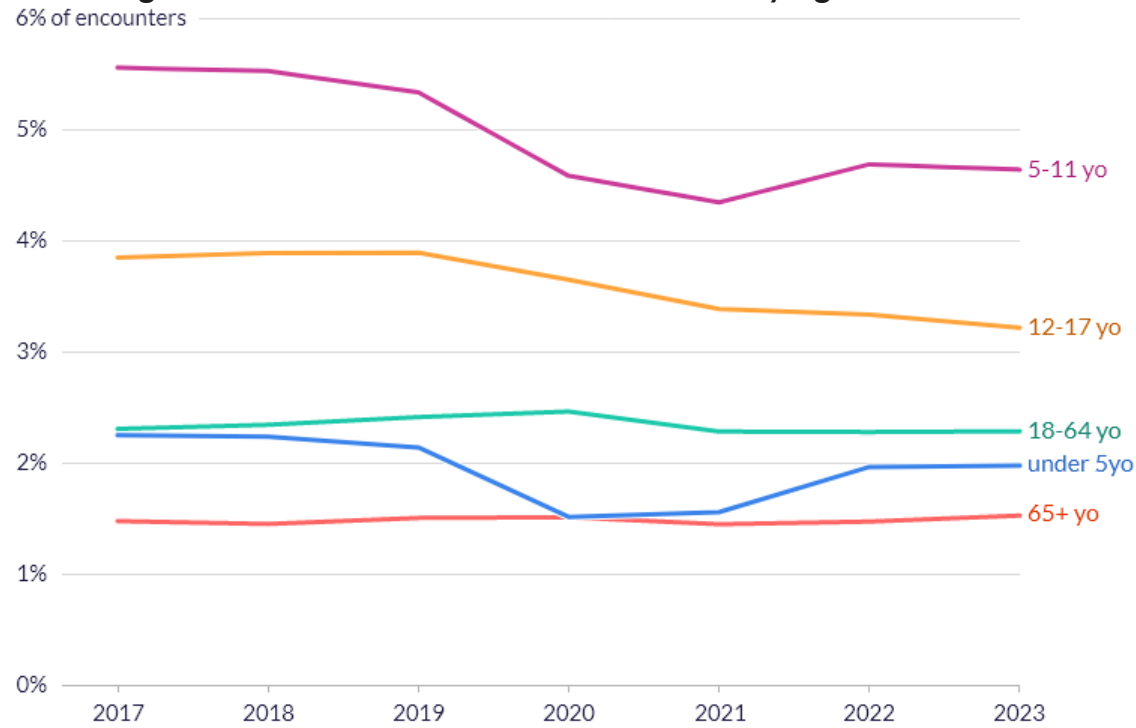
N=110,124,064 patients

"Percentage of Patients Newly Diagnosed with Asthma by Age," 2024. EpicResearch.org

Figure 1. The percentage of patients with at least one encounter who were newly diagnosed with asthma by age between 2017 and 2023.

Next, we examined the rate of face-to-face encounters for asthma to understand care-seeking trends. For pediatric patients under 18, while the percentage of asthma encounters has increased from the pandemic period lows, rates have not returned to pre-pandemic levels. In contrast, those 18 and older maintained a steady rate of seeking care for asthma between 2017 and 2023.

## Percentage of Face-to-Face Encounters for Asthma by Age



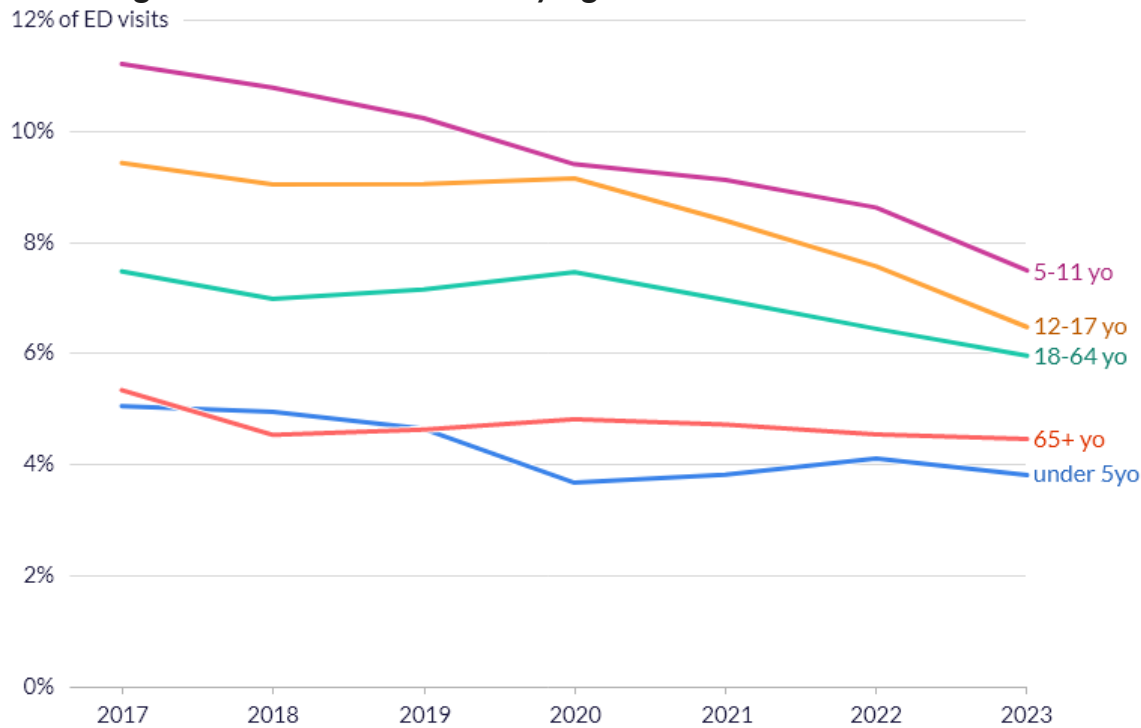
N=2,334,741,868 encounters

"Percentage of Encounters for Asthma by Age," 2024. EpicResearch.org

Figure 2. The percentage of face-to-face encounters that were for asthma by age between 2017 and 2023.

To assess changes in asthma severity, we investigated the rate of asthma-related ED visits between 2017 and 2023. We observed a decline in the percentage of ED visits that were for asthma for all age groups. This trend aligns with the American Lung Association's report of a decrease in asthma-related ED visits between 2016 and 2020 and expands on those findings, indicating a continued decline beyond 2020.<sup>3</sup>

## Percentage of ED Visits for Asthma by Age



N=229,055,194 ED visits

"Percentage of ED Visits for Asthma by Age," 2024. EpicResearch.org

Figure 3. The percentage of ED visits that were for asthma by age between 2017 and 2023.

These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 274 million patient records from 1,500 hospitals and more than 36,000 clinics from all 50 US states, Lebanon, and Saudi Arabia. This study was completed by two teams that worked independently, each composed of a clinician and research scientists. The two teams came to similar conclusions. Graphics by Brian Olson.

## References

1. Philip KEJ, Buttery S, Williams P, et al. Impact of COVID-19 on people with asthma: a mixed methods analysis from a UK wide survey. *BMJ Open Respir Res.* 2022;9(1):e001056. doi:10.1136/bmjresp-2021-001056
2. American Lung Association. COVID-19 and asthma: What you need to know. Lung.org. <https://www.lung.org/blog/covid-19-asthma-faqs>.
3. American Lung Association. COVID-19 and asthma: What you need to know. Lung.org. Accessed September 20, 2024. <https://www.lung.org/blog/covid-19-asthma-faqs>. Accessed September 20, 2024.

## Data Definitions

Term	Definition
Study period	1/1/2017-7/31/2024
Study population	New diagnosis population: All patients in Cosmos with: <ul style="list-style-type: none"> <li>• A face-to-face encounter in a given period (either quarter or year)</li> <li>• A face-to-face encounter preceding the index encounter between 3 and 36 months</li> </ul>

	<ul style="list-style-type: none"> <li>No previous history of <b>asthma</b> before the index encounter</li> </ul>
	Asthma encounters population: All <b>face-to-face encounters</b>
<b>Face-to-face encounter</b>	The following encounter types: <ul style="list-style-type: none"> <li>Emergency</li> <li>Emergency to inpatient</li> <li>Hospital outpatient visit</li> <li>Inpatient admission</li> <li>HOV to inpatient</li> <li>Office visit</li> <li>Well Child</li> <li>Follow-Up</li> <li>Telemedicine</li> <li>Urgent care</li> <li>Walk-In</li> </ul>
<b>Asthma</b>	An encounter or billing diagnosis with ICD-10-CM code J45*
<b>New diagnoses</b>	No diagnosis of <b>asthma</b> in the previous 100 years, either from visit or billing diagnoses or from the problem list.
<b>Asthma-related visits</b>	A face-to-face encounter and a diagnosis of asthma, including visit or billing diagnosis or problem list problems.

**Table 1: Percentage of Patients Newly Diagnosed with Asthma by Age**

	2017	2018	2019	2020	2021	2022	2023
<b>Less than 5 Years</b>	3.1%	3.1%	3.0%	1.6%	2.3%	3.0%	2.8%
<b>5 Years - 11 Years</b>	2.6%	2.4%	2.3%	1.5%	1.6%	2.2%	2.4%
<b>12 Years - 17 Years</b>	2.2%	2.0%	1.9%	1.5%	1.5%	1.5%	1.5%
<b>18 Years - 64 Years</b>	1.8%	1.8%	1.7%	1.6%	1.5%	1.4%	1.4%
<b>65 Years or more</b>	1.5%	1.4%	1.3%	1.1%	1.1%	1.1%	1.2%

**Table 2: Percentage of Face-to-Face Encounters for Asthma by Age**

	2017	2018	2019	2020	2021	2022	2023
<b>Less than 5 Years</b>	2.3%	2.2%	2.1%	1.5%	1.6%	2.0%	2.0%
<b>5 Years - 11 Years</b>	5.5%	5.5%	5.3%	4.6%	4.3%	4.7%	4.6%
<b>12 Years - 17 Years</b>	3.8%	3.9%	3.9%	3.6%	3.4%	3.3%	3.2%
<b>18 Years - 64 Years</b>	2.3%	2.3%	2.4%	2.5%	2.3%	2.3%	2.3%
<b>65 Years or more</b>	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%

**Table 3: Percentage of ED Visits for Asthma by Age**

	2017	2018	2019	2020	2021	2022	2023
Less than 5 Years	5.1%	4.9%	4.6%	3.7%	3.8%	4.1%	3.8%
5 Years - 11 Years	11.2%	10.8%	10.2%	9.4%	9.1%	8.6%	7.5%
12 Years - 17 Years	9.4%	9.0%	9.1%	9.1%	8.4%	7.6%	6.5%
18 Years - 64 Years	7.5%	7.0%	7.2%	7.5%	7.0%	6.4%	6.0%
65 Years or more	5.3%	4.5%	4.6%	4.8%	4.7%	4.5%	4.5%