

Adults No More Susceptible to Common Infections and Illnesses in 2023 Than Prior to the COVID-19 Pandemic

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Key Findings:

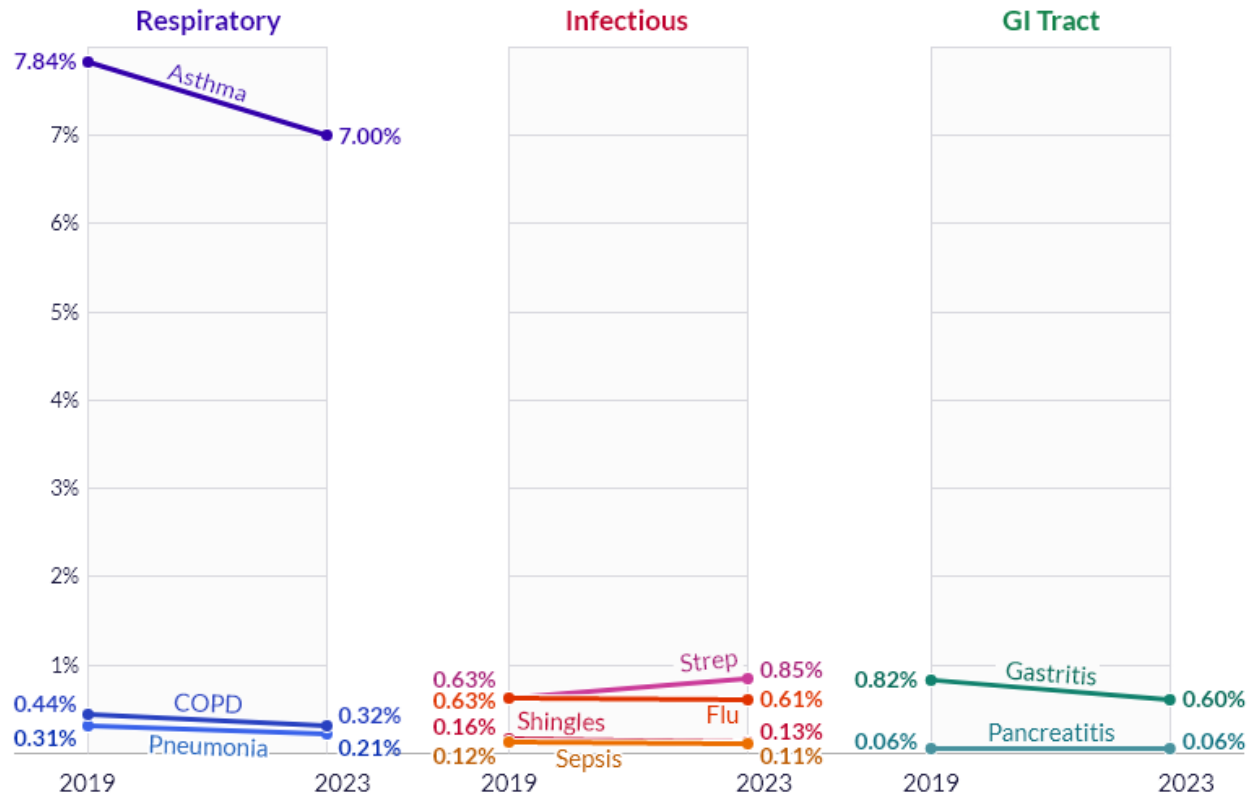
- Among patients aged 18 to 50, the prevalence of asthma, COPD, pneumonia, shingles, influenza, sepsis, gastritis, and pancreatitis did not increase in 2023 compared to 2019.
- Strep throat rates, however, did increase from 0.63% of patients in 2019 to 0.85% of patients in 2023.
- Asthma rates decreased the most, from 7.84% of patients in 2019 to 7.00% of patients in 2023.

The prevalence of disease over time provides valuable insights into changes in population health and the effectiveness of public health interventions. Recently, there have been reports of increased susceptibility to disease following the pandemic.¹

To understand whether the rate of disease is higher after the pandemic compared to before, we studied the prevalence of various diseases in 2019 and in 2023 among adult patients aged 18 to 50. The diseases were grouped into three categories for analysis: respiratory diseases (asthma, pneumonia, and COPD), infectious diseases (strep throat, shingles, sepsis, and influenza), and gastrointestinal (GI) tract diseases (gastritis and pancreatitis). Patients were matched 1:1 between 2019 and 2023 based on patient age, sex, race, ethnicity, Social Vulnerability Index quartile, and Rural Urban Commuting Area (RUCA) score.

We found that rates of respiratory diseases have decreased. Asthma rates decreased from 7.84% in 2019 to 7.00% in 2023, COPD decreased from 0.44% to 0.32%, and pneumonia decreased from 0.31% to 0.21%, as seen in Figure 1. Among infectious diseases, we saw an increase in the rate of strep throat, going from 0.63% in 2019 to 0.85% in 2023, which aligns with our [previous findings](#).² The rates of shingles, sepsis, and influenza were mostly unchanged with small decreases in prevalence in 2023 compared to 2019. We found that gastritis rates were higher in 2019 than 2023, going from 0.82% of patients to 0.60% of patients. Meanwhile, pancreatitis remained unchanged.

Diseases Rates in 2019 and 2023



N=13,856,184 patients

"Diseases Rates in 2019 and 2023," 2024. EpicResearch.org

Figure 1. The rate of respiratory, infectious, and GI tract diseases in 2019 and 2023.

Rates for chlamydia, E Coli, acute hepatitis, carditis, nephritis, Lyme disease, RSV, norovirus, tuberculosis, salmonella, and meningitis were too low to adequately compare.

These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 256 million patient records from 1,500 hospitals and more than 34,100 clinics from all 50 states and Lebanon. 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. Hong J, Shrivastava B. Yes, Everyone Really Is Sick a Lot More Often After Covid. Bloomberg. Published June 14, 2024. https://www.bloomberg.com/news/features/2024-06-14/why-is-everyone-getting-sick-behind-the-global-rise-in-rsv-flu-measles?utm_campaign=news&utm_medium=bd&utm_source=applenews&leadSource=verify%20wa. Accessed June 21, 2024.
2. Bartelt K, Piff A, Alban C, Joyce B. Strep Throat Infections Up 30% From 2017 Peak After Pandemic Drop. Epic Research. <https://epicresearch.org/articles/strep-throat-infections-up-30-from-2017-peak-after-pandemic-drop>. Accessed on June 19, 2024.

Data Definitions

Term	Definition
Study period	2019 and 2023
Study population	<p>Patients were included who:</p> <ul style="list-style-type: none"> • Were aged 18 to 50. • Had a face-to-face encounter in 2019 or 2023. If a patient had multiple encounters in the year, a random one was selected. • Had at least two face-to-face encounters at least 90 days apart that were one to three years before the inclusion encounter.
Outcomes	<p>Acute conditions:</p> <ul style="list-style-type: none"> • Influenza: ICD-10-CM code J10*, J11*, or J09* • Salmonella: ICD-10-CM code A02* • Tuberculosis: ICD-10-CM code A15-A19, or B90 • RSV: ICD-10-CM code J12.1, J20.5, J21.0, or B97.4 • Strep: ICD-10-CM code J02.0, J03.00, or J03.01 • Norovirus: ICD-10-CM code A08.11 • Shingles: ICD-10-CM code B02* • Acute hepatitis: ICD-10-CM code B15-B17 • E Coli: ICD-10-CM code A04*, B96.2*, A41.51, or J15.5 • Chlamydia: ICD-10-CM code A55 or A56 • Lyme disease: ICD-10-CM code A69.2* • Meningitis: SNOMED code 7180009 • Pneumonia: SNOMED code 233604007 • Sepsis: SNOMED code 91302008 • Carditis: SNOMED code 399617002 • Gastritis: SNOMED code 4556007 • Nephritis: SNOMED code 52845002 • Pancreatitis: SNOMED code 75694006 <p>Chronic conditions:</p> <ul style="list-style-type: none"> • Asthma: ICD-10-CM code J45* • COPD: ICD-10-CM code J41*-J44* <p>Patients were considered positive for an acute condition if they had an encounter diagnosis within 365 days prior to their inclusion encounter. Patients were positive for chronic conditions if they had an encounter diagnosis or problem list diagnosis at any point on or before the inclusion encounter.</p> <p>Additional criteria:</p> <ul style="list-style-type: none"> • Diagnosis must be reported in a face-to-face encounter • Diagnosis must be reported by source that has contributed data from 2016-2023
Matching	<ul style="list-style-type: none"> • Age in years • Sex • Race and ethnicity

	<ul style="list-style-type: none"> • SVI quartile • Rural Urban Commuting Area: 1-6 = urban, 7-10 = rural
Race and ethnicity	<p>Patients were classified by self-reported race and ethnicity, and the presence of each race was treated as an independent variable. We used the following groups: Asian, Black, Hispanic, White.</p> <p>We excluded patients with no documented race or ethnicity.</p>
Face-to-face encounter	Outpatient face-to-face, ED, admission, or hospital outpatient visit

Table 1: Disease Rates in 2019 and 2023

Disease	2019 (%)	2023 (%)
Asthma	7.84%	7.00%
COPD	0.44%	0.32%
Pneumonia	0.31%	0.21%
Strep	0.63%	0.85%
Shingles	0.16%	0.13%
Sepsis	0.12%	0.11%
Influenza	0.63%	0.61%
Gastritis	0.82%	0.60%
Pancreatitis	0.06%	0.06%