



AsthmaCAPITALS 2021

The Most Challenging Places
to Live With Asthma



Asthma and Allergy
Foundation of America

2021 Asthma Capitals

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About the Asthma and Allergy Foundation of America (AAFA)

Founded in 1953, AAFA is the oldest and largest non-profit patient organization dedicated to saving lives and reducing the burden of disease for people with asthma, allergies, and related conditions through research, education, advocacy, and support. AAFA offers extensive support for individuals and families affected by asthma and allergic diseases, such as food allergies and atopic dermatitis (eczema). Through its online patient support communities, network of local chapters, and affiliated support groups, AAFA empowers patients and their families by providing practical, evidence-based information and community programs and services. AAFA is the only asthma and allergy patient advocacy group that is certified to meet the standards of excellence set by the National Health Council. For more information, visit aafa.org.

About This Report

The Asthma and Allergy Foundation of America (AAFA) publishes the Asthma Capitals™ report to raise awareness about the nationwide impacts of asthma. The report analyzes data from across the continental United States and ranks the 100 largest cities where it is challenging to live with asthma. The report ranks cities by the most critical of health outcomes – asthma prevalence, emergency department visits due to asthma attacks, and asthma mortality. The outcomes are not weighted equally. The report also examines asthma risk factors that influence the outcomes.

Acknowledgements

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AAFA would like to thank Dr. Mitchell Grayson for serving as medical research advisor on the report's methodology. We are grateful to Valerie Vison, an asthma advocate, for sharing her personal story featured within the report. And lastly, this comprehensive report would not be possible without the dedication of the AAFA staff responsible for this report: Hannah Jaffee, Melanie Carver, Sanaz Eftekhari, Tanya Bumgardner, Nicole Gaghan, and Kimberly Rafferty.

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Introduction

Who gets asthma and why? Is it genetic? Could it be caused by smoking or exposure to toxic materials or chemicals? Can it be brought on by an illness or allergies?

When thinking about what puts someone at risk for developing asthma, risk factors like the ones above usually come to mind. But these aren't the only reasons a person may have asthma. Where they live may influence whether or not they have this common chronic lung disease and how successfully they can manage it.

Knowing what puts someone at higher risk for asthma is an important part of understanding and treating the disease. The Asthma and Allergy Foundation of America's (AAFA) 2021 Asthma Capitals™ report looks at how location may influence asthma in cities across the continental U.S.

The Asthma Capitals™ report ranks 100 cities in the continental U.S. based on these health outcomes: **asthma prevalence, emergency department visits for asthma, and deaths due to asthma.** We also examine risk factors that contribute to these outcomes. Risk factors include poverty, air pollution, access to specialist medical care, pollen counts, medicine use, tobacco policies, and the rate of uninsured residents. The data in this report includes the 100 most populated U.S. cities, and does not include information from Alaska, Hawaii, Puerto Rico, or tribal nations. The residents of these areas are greatly affected by asthma, but more data is needed to get a better picture of the impact.

In creating this report, we could not overlook the influence of the many challenges that arose in 2020. Three major crises brought the impact of asthma into a greater light:

- The COVID-19 pandemic that has spiraled into a public health emergency and crippling economic recession
- A climate crisis that has led to extreme weather patterns, record-breaking wildfires, and massive health impacts related to natural disasters and air pollution
- Widespread upheaval over racial injustices that has once again unmasked long-standing racial disparities in health

All these emergencies have impacted people with asthma and allergies. Like many patient advocacy organizations, AAFA navigated these multiple overlapping crises and continues to do so. We used our expertise and platform to provide public health education. We helped our community stay safe and healthy through these emergencies. We provided around-the-clock emotional, social, and mental health support as people have faced levels of stress and anxiety like never before. We worked with our network of partners, ambassadors, volunteers, and advisors to serve the asthma and allergy community during a period of great uncertainty. But more work is needed.

One critical area that needs urgent focus is that of asthma disparities. The burden of asthma in the United States falls disproportionately on Black, Hispanic, and American Indian/Alaska Native people. These groups have the highest asthma rates, hospitalizations, and deaths. Black Americans are almost 1.5 times more likely to have asthma than white individuals. Puerto Ricans are two times more likely to have asthma. These groups are also more likely to be affected by poverty, air pollution, lack of access to specialists, and lack of health insurance coverage – all risk factors for asthma.

In this report, we review outcomes and risk factors in the top cities, as well as ways we can improve asthma outcomes in the United States. Researchers, health care providers, federal and state policy makers, and local stakeholders all must work together to improve local communities and make asthma care more widely available.

It is our goal that the 2021 Asthma Capitals™ report inspires action. Reduced asthma rates and deaths are possible. And this report highlights where we can focus our efforts for healthier environments and communities.

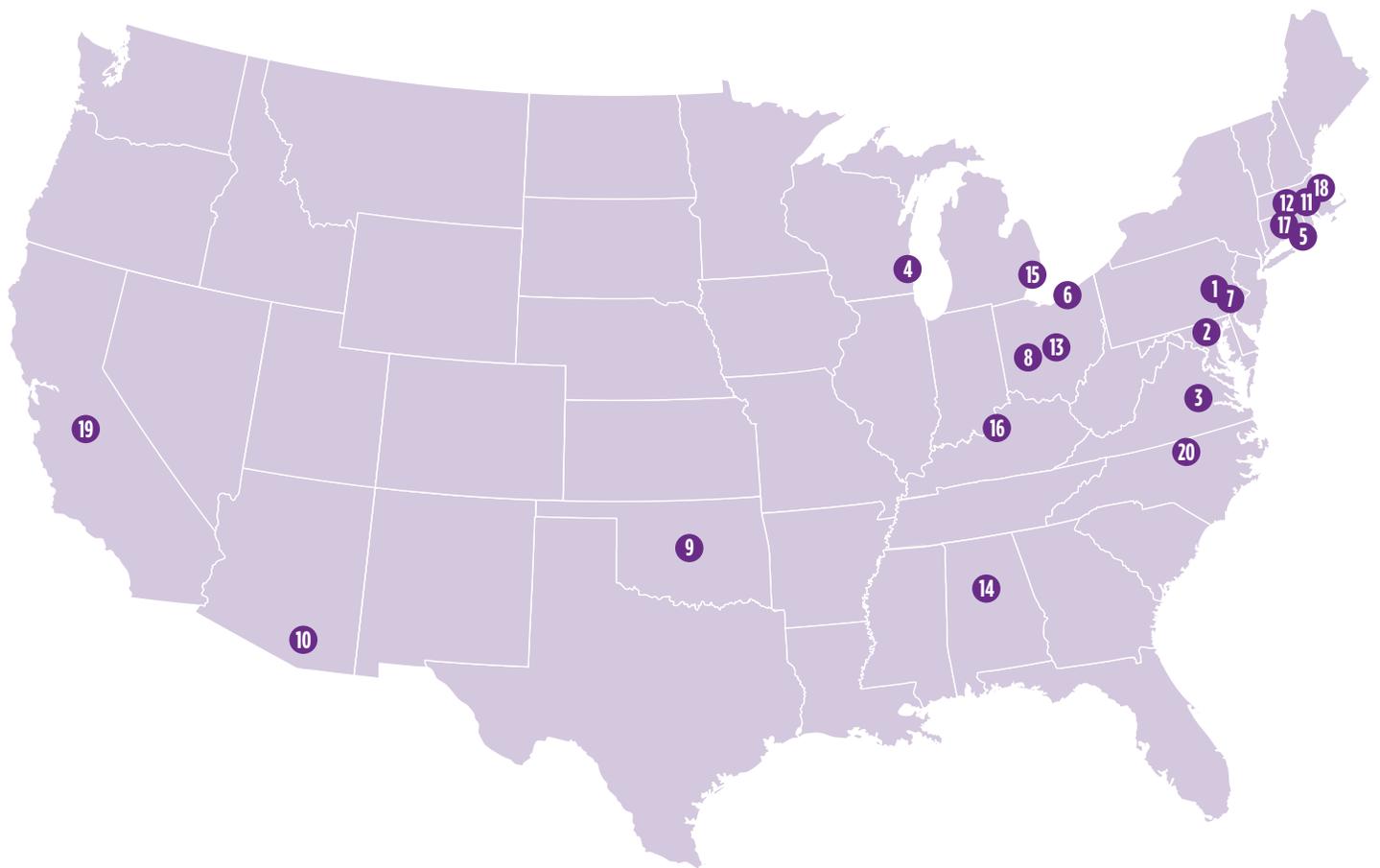
IMPACT OF COVID-19

The COVID-19 pandemic impacted nearly every aspect of daily life through most of 2020. Some of the biggest impacts were seen in healthcare, with limited access to doctors, medicines, and protective equipment. For people living with asthma, the pandemic changed the ways they sought and maintained their asthma treatment. In some cases, the pandemic may have contributed to changes in the health outcomes and risk factors outlined in this report.

- **Pollen:** Pollen is a common allergen that can cause allergic asthma. Pollen seasons have worsened over time, but in 2020 fewer people were affected by pollen allergies. COVID-19 restrictions kept many people inside more than usual. And as people wore masks for COVID-19 protection, they reduced their inhalation of pollen as well. Combined, these steps limited exposure to pollen triggers that can make asthma worse.
- **Medicine use:** In 2020, fewer people filled prescriptions for long-term controller medicines. Though experts emphasized the need to continue using controller medicine, research shows asthma did not reach its usual seasonal peak in 2020.¹ COVID-19 restrictions, school closures, and mask wearing helped reduce exposure to asthma triggers (such as airborne allergens and the flu) which may have led to decreased medicine use. Additionally, the economic impact of COVID-19 may have contributed to decreased use of asthma medicine. As many as 7.7 million U.S. workers lost jobs with employer health coverage², making it more difficult to fill needed prescriptions.
- **Emergency room visits:** Fewer people went to the emergency room for asthma in 2020. With COVID-19 overwhelming many hospital systems across the country, it was more important than ever to avoid unnecessary trips to the emergency room. Experts emphasized the need for asthma control to prevent exacerbations. Reduced exposure to asthma triggers led to a dramatic decrease in emergency department visits – between late 2019 and early 2020, emergency room department visits for asthma decreased by 23%.

1. Sheehan, W. J., Patel, S. J., Margolis, R. H. F., Fox, E. R., Shelef, D. Q., Kachroo, N., Pillai, D., & Teach, S. J. (2021). Pediatric asthma exacerbations during the COVID-19 pandemic: Absence of the typical fall seasonal spike in Washington, DC. *The Journal of Allergy and Clinical Immunology. In Practice*. <https://doi.org/10.1016/j.jaip.2021.02.008>
2. Fronstin, P., & Woodbury, S. A. (2020, October 7). *How many Americans have lost jobs with employer health coverage during the pandemic?* The Commonwealth Fund. <https://www.commonwealthfund.org/publications/issue-briefs/2020/oct/how-many-lost-jobs-employer-coverage-pandemic>

Map of the Top 20 Most Challenging Places to Live With Asthma in 2021



These are the top 20 Asthma Capitals based on estimated asthma prevalence, emergency department visits due to asthma, and asthma-related fatalities. The burden of asthma falls heavily on the eastern half of the country, but two western cities emerged into the top 20 for this year's report. The full list of top 100 cities can be found on [page 7](#) in this report.

- | | |
|----------------------|---------------------|
| 1. Allentown, PA | 11. Worcester, MA |
| 2. Baltimore, MD | 12. Springfield, MA |
| 3. Richmond, VA | 13. Columbus, OH |
| 4. Milwaukee, WI | 14. Birmingham, AL |
| 5. New Haven, CT | 15. Detroit, MI |
| 6. Cleveland, OH | 16. Louisville, KY |
| 7. Philadelphia, PA | 17. Hartford, CT |
| 8. Dayton, OH | 18. Boston, MA |
| 9. Oklahoma City, OK | 19. Fresno, CA |
| 10. Tucson, AZ | 20. Greensboro, NC |

The Top 100 Most Challenging Places to Live With Asthma

NATIONAL RANKINGS

(Factors are not weighted equally)

■ Worse Than Average

▲ Average

● Better Than Average

2021 National Rankings	Overall	Metropolitan Area	Total Score (Avg. 73.31)	Subtotal: Estimated Asthma Prevalence	Subtotal: Crude Death Rate for Asthma	Subtotal: ER Visits for Asthma
1	■	Allentown, PA	100.00	▲	●	■
2	■	Baltimore, MD	98.22	▲	■	■
3	■	Richmond, VA	93.49	▲	■	■
4	■	Milwaukee, WI	93.06	▲	■	■
5	■	New Haven, CT	91.66	■	■	■
6	■	Cleveland, OH	88.65	▲	■	■
7	■	Philadelphia, PA	87.59	▲	■	■
8	■	Dayton, OH	86.47	▲	▲	■
9	■	Oklahoma City, OK	86.42	■	■	▲
10	■	Tucson, AZ	86.00	▲	■	▲
11	■	Worcester, MA	85.85	▲	■	■
12	■	Springfield, MA	84.84	▲	▲	■
13	■	Columbus, OH	84.55	▲	▲	■
14	■	Birmingham, AL	84.30	■	■	▲
15	■	Detroit, MI	83.83	■	■	▲
16	■	Louisville, KY	83.41	▲	●	■
17	▲	Hartford, CT	83.20	■	▲	■
18	▲	Boston, MA	83.11	▲	■	▲
19	▲	Fresno, CA	82.02	●	■	■
20	▲	Greensboro, NC	81.61	▲	▲	■
21	▲	Charleston, SC	81.33	▲	▲	■
22	▲	Jackson, MS	81.07	▲	■	●
23	▲	New York, NY	80.94	▲	■	▲
24	▲	Tulsa, OK	80.82	■	▲	▲
25	▲	Rochester, NY	80.82	▲	▲	■
26	▲	Chattanooga, TN	80.81	▲	▲	▲
27	▲	Washington, DC	80.52	■	▲	●
28	▲	Cincinnati, OH	80.30	▲	■	▲
29	▲	Bridgeport, CT	80.22	■	▲	▲
30	▲	Providence, RI	79.83	■	●	▲
31	▲	Spokane, WA	79.09	▲	■	▲
32	▲	St. Louis, MO	79.08	▲	■	▲

NATIONAL RANKINGS

(Factors are not weighted equally)

■ Worse Than Average

▲ Average

● Better Than Average

2021 National Rankings	Overall	Metropolitan Area	Total Score (Avg. 73.31)	Subtotal: Estimated Asthma Prevalence	Subtotal: Crude Death Rate for Asthma	Subtotal: ER Visits for Asthma
33	▲	Poughkeepsie, NY	78.99	▲	▲	▲
34	▲	Indianapolis, IN	78.63	▲	▲	▲
35	▲	Buffalo, NY	78.51	▲	▲	▲
36	▲	Akron, OH	78.32	▲	▲	■
37	▲	Wichita, KS	77.35	▲	▲	▲
38	▲	Albuquerque, NM	76.99	▲	▲	▲
39	▲	Harrisburg, PA	76.87	▲	▲	▲
40	▲	Scranton, PA	76.70	▲	▲	▲
41	▲	Memphis, TN	76.02	▲	■	●
42	▲	Albany, NY	75.97	▲	▲	▲
43	▲	Las Vegas, NV	74.67	●	▲	■
44	▲	Little Rock, AR	74.41	▲	●	▲
45	▲	New Orleans, LA	74.15	▲	▲	▲
46	▲	Jacksonville, FL	74.03	▲	▲	▲
47	▲	Omaha, NE	73.98	▲	■	▲
48	▲	Cape Coral, FL	73.77	▲	●	■
49	▲	Columbia, SC	73.41	▲	▲	▲
50	▲	Portland, OR	73.00	■	▲	●
51	▲	Ogden, UT	72.94	▲	■	▲
52	▲	Phoenix, AZ	72.91	▲	▲	▲
53	▲	Pittsburgh, PA	72.81	▲	▲	▲
54	▲	Chicago, IL	72.80	▲	■	▲
55	▲	Durham, NC	72.11	▲	▲	▲
56	▲	Virginia Beach, VA	71.74	▲	●	■
57	▲	Winston-Salem, NC	71.39	▲	▲	●
58	▲	Kansas City, MO	71.38	▲	■	●
59	▲	Nashville, TN	71.37	▲	▲	●
60	▲	Atlanta, GA	71.22	▲	▲	▲
61	▲	Raleigh, NC	71.19	▲	●	▲
62	▲	Salt Lake City, UT	70.59	▲	▲	▲
63	▲	Stockton, CA	69.54	●	▲	▲
64	▲	Seattle, WA	69.50	▲	●	▲
65	▲	Bakersfield, CA	68.78	●	▲	▲
66	▲	Sacramento, CA	68.51	▲	■	▲
67	▲	Grand Rapids, MI	68.46	■	●	●

NATIONAL RANKINGS

(Factors are not weighted equally)

■ Worse Than Average

▲ Average

● Better Than Average

2021 National Rankings	Overall	Metropolitan Area	Total Score (Avg. 73.31)	Subtotal: Estimated Asthma Prevalence	Subtotal: Crude Death Rate for Asthma	Subtotal: ER Visits for Asthma
68	▲	Palm Bay, FL	67.23	▲	●	▲
69	▲	Augusta, GA	67.16	▲	▲	▲
70	▲	Charlotte, NC	66.80	▲	▲	●
71	▲	Tampa, FL	66.76	▲	▲	▲
72	▲	Lakeland, FL	66.73	▲	▲	▲
73	▲	Greenville, SC	66.26	▲	▲	▲
74	▲	Toledo, OH	66.08	▲	▲	●
75	▲	Boise, ID	65.72	▲	▲	▲
76	▲	Knoxville, TN	65.40	▲	▲	●
77	▲	Des Moines, IA	64.65	●	●	▲
78	▲	Miami, FL	64.34	▲	●	▲
79	▲	Syracuse, NY	63.62	▲	●	●
80	▲	Orlando, FL	63.60	▲	●	▲
81	▲	San Diego, CA	63.49	▲	●	▲
82	●	San Jose, CA	63.15	▲	▲	●
83	●	Madison, WI	62.89	▲	●	●
84	●	Sarasota, FL	62.54	▲	▲	●
85	●	Daytona Beach, FL	62.21	▲	●	●
86	●	Denver, CO	62.04	▲	●	●
87	●	Riverside, CA	61.48	▲	●	▲
88	●	Dallas, TX	61.38	●	●	▲
89	●	Baton Rouge, LA	61.23	▲	●	●
90	●	Los Angeles, CA	60.06	▲	▲	●
91	●	San Francisco, CA	60.05	▲	●	●
92	●	Minneapolis, MN	59.73	●	▲	●
93	●	Oxnard, CA	59.29	▲	●	●
94	●	Austin, TX	59.06	●	●	▲
95	●	Colorado Springs, CO	58.32	▲	●	●
96	●	San Antonio, TX	58.19	●	●	●
97	●	Houston, TX	55.60	●	●	●
98	●	Provo, UT	54.32	▲	●	●
99	●	McAllen, TX	52.96	●	●	●
100	●	El Paso, TX	52.25	●	●	●

REGIONAL RANKINGS

■ Worse Than Average

▲ Average

● Better Than Average

(Factors are not weighted equally)

NORTHEAST						
2021 Regional Rankings	Overall	Metropolitan Area	Total Score (Avg. 73.31)	Subtotal: Estimated Asthma Prevalence	Subtotal: Crude Death Rate for Asthma	Subtotal: ER Visits for Asthma
1	■	Allentown, PA	100.00	▲	●	■
2	■	New Haven, CT	91.66	■	■	■
3	■	Philadelphia, PA	87.59	▲	■	■
4	■	Worcester, MA	85.85	▲	■	■
5	■	Springfield, MA	84.84	▲	▲	■

SOUTH						
2021 Regional Rankings	Overall	Metropolitan Area	Total Score (Avg. 73.31)	Subtotal: Estimated Asthma Prevalence	Subtotal: Crude Death Rate for Asthma	Subtotal: ER Visits for Asthma
1	■	Baltimore, MD	98.22	▲	■	■
2	■	Richmond, VA	93.49	▲	■	■
3	■	Oklahoma City, OK	86.42	■	■	▲
4	■	Birmingham, AL	84.30	■	■	▲
5	■	Louisville, KY	83.41	▲	●	■

MIDWEST						
2021 Regional Rankings	Overall	Metropolitan Area	Total Score (Avg. 73.31)	Subtotal: Estimated Asthma Prevalence	Subtotal: Crude Death Rate for Asthma	Subtotal: ER Visits for Asthma
1	■	Milwaukee, WI	93.06	▲	■	■
2	■	Cleveland, OH	88.65	▲	■	■
3	■	Dayton, OH	86.47	▲	▲	■
4	■	Columbus, OH	84.55	▲	▲	■
5	■	Detroit, MI	83.83	■	■	▲

WEST						
2021 Regional Rankings	Overall	Metropolitan Area	Total Score (Avg. 73.31)	Subtotal: Estimated Asthma Prevalence	Subtotal: Crude Death Rate for Asthma	Subtotal: ER Visits for Asthma
1	■	Tucson, AZ	86.00	▲	■	▲
2	▲	Fresno, CA	82.02	●	■	■
3	▲	Spokane, WA	79.09	▲	■	▲
4	▲	Albuquerque, NM	76.99	▲	▲	▲
5	▲	Las Vegas, NV	74.67	●	▲	■



Asthma Health Outcomes

AAFA ranks cities based on three health outcomes: asthma prevalence (how many people have asthma), asthma-related emergency department visits, and asthma-related mortality (death) rates. The outcomes are not weighted equally.

ESTIMATED ASTHMA PREVALENCE

About 25 million people living in the United States are living with asthma.³ Factors such as sex, race, ethnicity, and socioeconomic status are associated with asthma, with the disease being more common in males than females in childhood. In adulthood, it reverses and more women than men have asthma.

Prevalence rates differ significantly by race and ethnicity. Puerto Ricans have the highest rate of asthma prevalence compared to any other racial or ethnic group in the United States. Black Americans are also disproportionately diagnosed with asthma compared to white Americans.⁴

The cities with the highest estimated asthma prevalence* are:

Asthma Prevalence Ranking	Metropolitan Area	Overall Asthma Capital National Ranking
1	Washington, DC	27
2	Birmingham, AL	14
3	Providence, RI	30
4	Portland, OR	50
5	Grand Rapids, MI	67
6	Detroit, MI	15
7	Bridgeport, CT	29
8	Oklahoma City, OK	9
9	Tulsa, OK	24
10	Hartford, CT	17



*For each city included in the 2021 Asthma Capitals, AAFA obtained an estimated asthma prevalence for its respective county. The estimates ranged from 7.4% to 11.5%.

Asthma prevalence data often relies on self-report, and prevalence comparisons between cities and/or states may not be reliable due to differences in data collection methods and reporting. Data limitations should be considered when comparing different cities to each other, or with year-over-year comparisons.

3. Centers for Disease Control and Prevention. (2019). *Most recent national asthma data*. U.S. Department of Health and Human Services. https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm

4. Asthma and Allergy Foundation of America, (2020). *Asthma Disparities in America: A Roadmap to Reducing Burden on Racial and Ethnic Minorities*. aafa.org/asthmadisparities

EMERGENCY DEPARTMENT VISITS

Asthma can trigger severe symptoms that require a visit to the emergency department (ED). According to Centers for Disease Control and Prevention (CDC), asthma accounts for about 1.6 million visits to the emergency department⁵ and nearly 200,000 hospitalizations yearly.⁶

Effective asthma management may help reduce ED visits and hospitalizations. Increased ED visits are indicative of poor asthma control. Steps to improving asthma control include reducing exposure to asthma triggers, having access to and taking prescribed asthma medicine, and following an Asthma Action Plan.

There are large asthma disparities in terms of ED visits based on race as well as age. Asthma-related ED visits are nearly five times as high for Black patients compared to white patients.⁵ Children are much more likely than adults to have asthma-related ED visits, with young children ages 0-4 at the highest rate.⁶

The cities with the highest asthma-related ED visits* are:

Emergency Department Visits Ranking	Metropolitan Area	Overall Asthma Capital National Ranking
1	Allentown, PA	1
2	Milwaukee, WI	4
3	Dayton, OH	8
4	Richmond, VA	3
5	Charleston, SC	21
6	Las Vegas, NV	43
7	Columbus, OH	13
8	Baltimore, MD	2
9	Fresno, CA	19
10	Louisville, KY	16



*For each city included in the 2021 Asthma Capitals, AAFA obtained the total number of ED visits where an asthma ICD-10 code was included in a diagnosis field, for the respective census-designated metropolitan statistical area, or MSA, for July 2019-June 2020. Analyses included estimating the ED rate per 10,000 asthma patients.

THE IMPACT OF COVID-19 ON EMERGENCY DEPARTMENT VISITS

Fewer people went to the emergency room for asthma in 2020, with ED visits dropping after the start of the COVID-19 pandemic. From the second half of 2019 to the first half of 2020, there was a 23% decrease in emergency room visits. With the COVID-19 pandemic overwhelming many hospital systems across the country, it was more important than ever to avoid unnecessary trips to the emergency room. Additionally, pandemic restrictions kept people home more and increased mask wearing. This led to less exposure to outdoor allergens (like pollen) and respiratory illnesses (like the flu) that trigger asthma.

5. Centers for Disease Control and Prevention. (2019). *Healthcare use data 2018 - Emergency department visits*. U.S. Department of Health and Human Services. https://www.cdc.gov/asthma/healthcare-use/2018/table_a.html

6. Centers for Disease Control and Prevention. (2019). *Healthcare use data 2018 - Hospitalizations*. U.S. Department of Health and Human Services. https://www.cdc.gov/asthma/healthcare-use/2018/table_b.html

ASTHMA-RELATED MORTALITY

Tragically, asthma can be fatal. In 2019, there were 3,524 deaths attributed to asthma in the U.S.⁷ This means about 10 people per day lose their life to asthma. There hasn't been drastic improvement in these numbers in the last decade.

To reduce the risk of death from asthma, it is important to:

- Have access to asthma medicines and take them as prescribed.
- Seek medical care if symptoms occur more than twice per week.
- Avoid or reduce exposure to asthma triggers.
- Learn the signs and symptoms of asthma, including early warning signals.
- Have an Asthma Action Plan and take quick action according to the plan.

The cities with the most asthma-related deaths* are:

Asthma-Related Deaths Ranking	Metropolitan Area	Overall Asthma Capital National Ranking
1	Baltimore, MD	2
2	Jackson, MS	22
3	Richmond, VA	3
4	Cleveland, OH	6
5	Tucson, AZ	10
6	New York, NY	23
7	Memphis, TN	41
8	Detroit, MI	15
9	Fresno, CA	19
10	Boston, MA	18



*For each city included in the 2021 Asthma Capitals, AAFA obtained the estimated asthma-related crude death rate per 100,000 people for its respective county from 2015-2019. The estimates range from 0.3% to 2.5%.

Some populations are at higher risk for dying from asthma than others. The causes of higher asthma death rates are complex but must be addressed to save lives. The top 10 cities for asthma-related deaths must take action to prevent more tragedies.

If someone's life is in danger, seek emergency care immediately. An Asthma Action Plan can help identify when asthma is a medical emergency. Visit aafa.org/actionplan to download a sample plan.

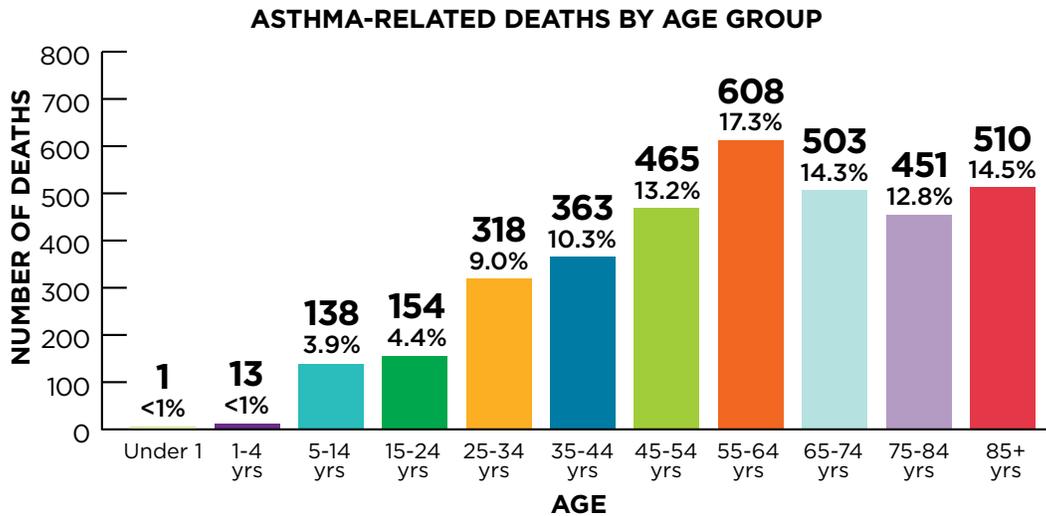


7. Centers for Disease Control and Prevention. *Most recent national asthma data: Asthma mortality (2019)*. U.S. Department of Health and Human Services. https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm

Health disparities are preventable health differences between groups of people. For example, if one group of people has a higher rate of asthma than another group of people, it is an asthma disparity. Higher burden of illness or death are linked to social, economic, and environmental disadvantages. Differences in asthma-related mortality rates among populations in the U.S. show startling evidence of age-, sex- and race-related disparities.

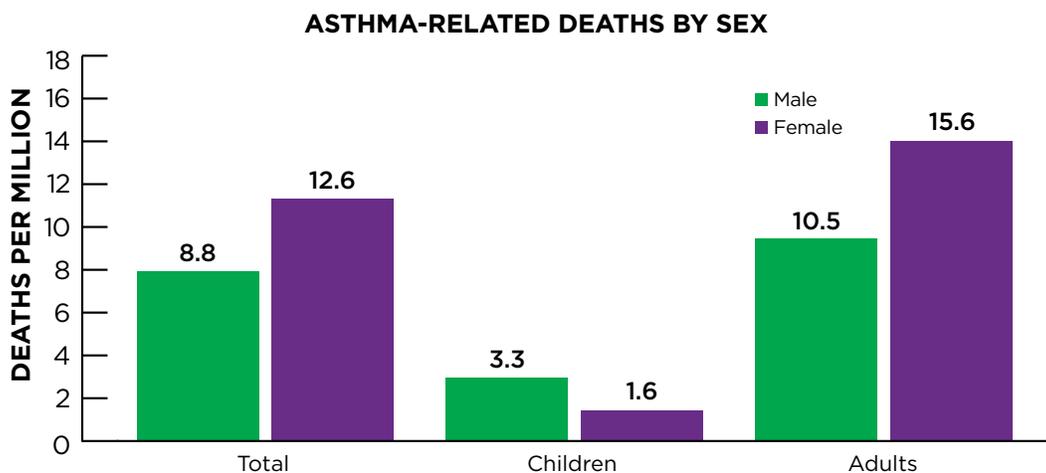
AGE-RELATED ASTHMA DISPARITY

Older adults are more likely to be underdiagnosed, undertreated, and managing multiple health conditions. As people age, their risk of dying from asthma increases.⁸ The graph below shows the distribution of asthma-related deaths in the U.S. in 2019 by age range.



SEX-RELATED ASTHMA DISPARITY

Overall, females are more likely to die from asthma. When age is factored, more male children die from asthma than female children. In adults, the trend reverses and adult females are at a much higher risk of dying from asthma than males.⁸ The graph below shows the 2019 asthma-related death rate (per million people with asthma) by sex, for children and adults in the U.S.

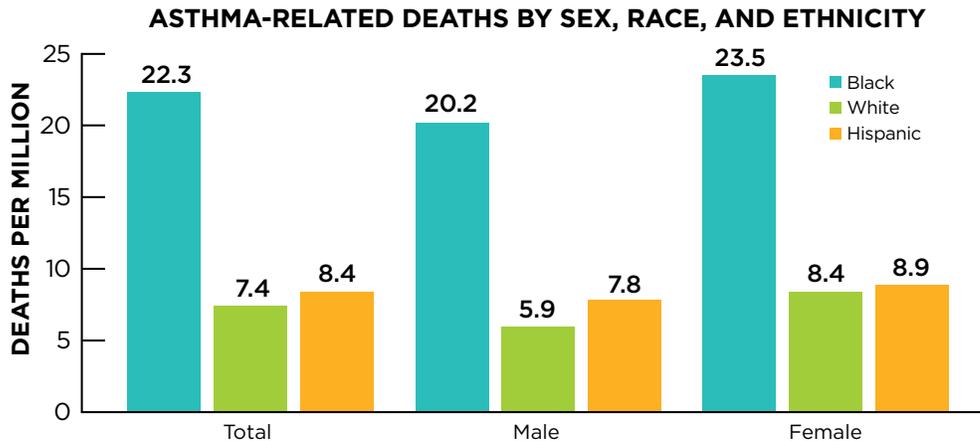


8. Centers for Disease Control and Prevention WONDER database. (2020). *Underlying cause of death, 1999-2019*. U.S. Department of Health and Human Services. <https://wonder.cdc.gov/ucd-icd10.html>

RACE-RELATED ASTHMA DISPARITY

AAFA's [Asthma Disparities in America](#) report looks in depth at the burden of asthma on racial and ethnic groups in the United States.

Deaths due to asthma occur at the highest rate in Black Americans.⁹ Black individuals are about three times more likely to die from asthma than Hispanic or white individuals. When sex is factored in, Black females have the highest rate of fatality due to asthma. This rate is nearly four times the asthma-related death rate among white males. The graph below shows the asthma-related death rate (per million people with asthma) for Black, white, and Hispanic populations in the U.S.



AAFA is working with the National Minority Quality Forum (NMQF) on important asthma research. The goal of this partnership is to provide helpful data to help reduce asthma disparities among minority groups.

NMQF is a healthcare research and education nonprofit. Their mission is to reduce patient risk by assuring the best possible care for all. They combine data and knowledge to help end health disparities. This data helps healthcare providers, professionals, administrators, researchers, policy makers, and community groups give proper health care to minority groups.

NMQF maintains a National Health Index. This index provides demographic information about chronic disease numbers, costs, outcomes, and trends. Asthma is one of the diseases they gather information about.

AAFA is partnering with NMQF on their Asthma Index. We recruited a panel of experts, including patients and caregivers, to guide the development and use of the Asthma Index. Our input also adds the patient voice to this project. This data will give insight that can help reduce asthma disparities.

9. Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System: Mortality (2018)

After reading AAFA's *Asthma Disparities in America* report, Valerie Vison shared her story with AAFA. In the essay below, you'll hear from Valerie, who lost her husband, Jordan, to asthma on July 22, 2020.



In a World of “What If” – Could Racial Bias Have Contributed to My 30-Year-Old Husband’s Death?

By Valerie Vison, Jordan’s wife

I woke up in the middle of the night to the sound of Jordan struggling to breathe. For anyone who has asthma or cares for someone with asthma, it’s the sound you don’t ever want to hear.

It became immediately clear that we needed to dial 911. Once the paramedics stabilized him, it felt like we were out of the woods. He spent the rest of the night in the ER, but he was OK. Over the next four days, our lives returned to normal. He was discharged from the ER with aftercare directions, all of which he dutifully followed. It felt like he was in “recovery mode” and that everything was going to be OK.

It wasn’t OK though. I could never explain what the following Tuesday was like. At 1:20 a.m., I woke up to the sound of Jordan suffering from another attack. Everything in my bones told me this was worse. It all felt like it was unraveling so much quicker.

Over the next five minutes, I did everything I possibly could to pull him back to safety. I tried so desperately to fix it, but I couldn’t. Jordan passed away before the first responders arrived just five minutes later at 1:25 a.m.

Sitting there in a hospital room, the same words repeated over and over in my mind. He’s dead. Every single time those words ran through my mind it shattered every part of my body. And I felt like I had no idea what happened.

I knew the obvious, it had started as an asthma attack. I knew whatever had happened had caused his heart to ultimately stop.



But I had no idea how. Jordan was healthy. He loved the gym far more than most people.

That's what made all of this so much more baffling. It came out of nowhere. When I received his death certificate three weeks later, I felt even more confused. For the first time I read the official cause of death: asthma.

Suddenly this condition Jordan's lived with for nearly 31 years, a condition I've helped him manage for the last 11 years, made no sense. This wasn't on our radar. Whenever we discussed worst case scenarios when it came to his asthma, it never included this.

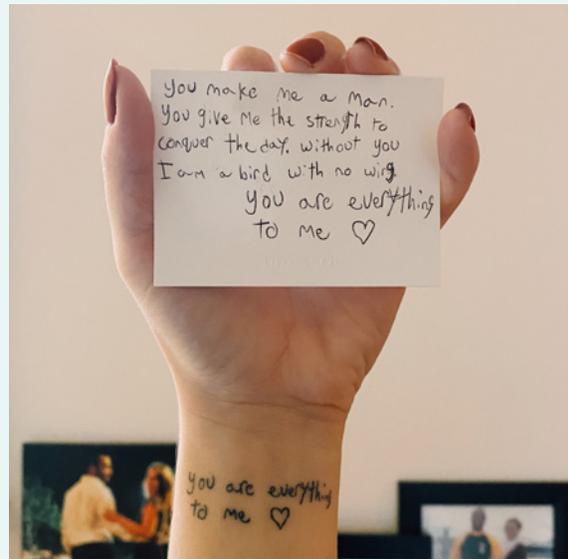
In the weeks after his death, I began researching and analyzing every bit of information I could find regarding asthma. I needed to know more. I wanted to know what we had missed. What I found, though, was something I wasn't expecting.

By this point, most people know that racial disparities in our health care system exist. What neither Jordan nor I knew was that it was actively affecting our lives.

As a Black American, Jordan was three times as likely to die from his asthma. He was five times as likely to visit the ER because of it.

How did we not know this? Why does no one know this? Or at least why isn't anyone talking about it? I can't say that knowing about racial disparities would have changed anything. Or maybe it would have changed everything. What I know is that Jordan should have never died from asthma at the age of 30. It's something that absolutely never should have happened.

While I couldn't save Jordan, I hope that by telling his story we can save someone else.





Risk Factors That Can Worsen Asthma or Influence Asthma Rates

A risk factor is any attribute, characteristic or exposure of an individual that increases the likelihood of developing a disease, like asthma. While the risk factors outlined in this report are not calculated as part of the overall ranking, they are important to address as they contribute to rates of asthma prevalence, emergency room visits, and mortality. These are the top risk factors for asthma that influence the ranking of outcomes for cities in this report:

- Poverty
- Lack of health insurance
- Air pollution
- Pollen
- Asthma quick-relief medicine use
- Asthma long-term controller medicine use
- Smoking laws
- Access to specialists



SOCIAL AND STRUCTURAL DETERMINANTS OF HEALTH

Many risk factors that can worsen asthma are related to social and structural disadvantages experienced by some populations. Social determinants and structural inequities, collectively known as “social determinants of health” (SDOH), play a big role in asthma burden. SDOH can affect how people control their asthma or gain access to health care. Inequities in SDOH are key drivers in asthma disparities, especially among Black Americans.

SDOH include factors such as economic stability, educational attainment, and social and physical environment. Local and federal policies and programs can affect these factors. They can create barriers to health care, such as:

- Access to health care
- Food insecurity
- Quality of housing
- Access to job and educational opportunities
- Access to technology, such as the internet
- Access to transportation

POVERTY

Poverty plays a major role in the development of asthma and a person's ability to manage it. This can be because people with low income and low wealth are more likely to have poor quality of housing, live near highways and other highly polluted areas, and struggle to pay for treatment. Many cities on our report have poverty as a top risk factor.

Good asthma management can be difficult when families are worried about paying for housing, clothing, utilities, and food. The cost of care may affect the decision to seek medical care. A lack of reliable transportation may influence a person's ability to attend regular health care appointments.

Persons living below 100% of the poverty level are more likely to have asthma than those living at any percentage above the poverty level.¹⁰

These cities have the highest rates of poverty*:

Poverty Ranking	Metropolitan Area	Overall Asthma Capital National Ranking
1	McAllen, TX	99
2	New Orleans, LA	45
3	Philadelphia, PA	7
4	Augusta, GA	69
5	Fresno, CA	19
6	Baltimore, MD	2
7	St. Louis, MO	32
8	Jackson, MS	22
9	Detroit, MI	15
10	Richmond, VA	3



*For each city included in the 2021 Asthma Capitals, AAFA obtained the poverty rate for its respective county. The estimates range from 6.1% to 26.9%.

2021 Poverty Guidelines for the 48 Contiguous States and the District of Columbia¹¹:

- 1 person in household: \$12,880
- 2 persons in household: \$17,420
- 3 persons in household: \$21,960
- 4 persons in household: \$26,500
- 5 persons in household: \$31,040



10. Centers for Disease Control and Prevention. (2019). *Most recent national asthma data: National current asthma prevalence (2019)*. U.S. Department of Health and Human Services. https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm

11. Office of the Assistant Secretary for Planning and Evaluation. (2021). *2021 Poverty Guidelines*. U.S. Department of Health and Human Services. <https://aspe.hhs.gov/2021-poverty-guidelines>

COST OF MANAGING ASTHMA

Asthma management can be costly – even with insurance – preventing many people from accessing vital treatment and medicines. According to a study from researchers at the CDC, the average American pays about \$3,266 annually for asthma-related medical costs.¹² People living below the poverty line actually pay more to manage their asthma – about \$3,581 each year per person.

Overall, asthma put an economic burden of \$81.9 billion on the United States in 2015. Today’s costs may even be higher, but the current economic impact is yet to be studied. Unplanned emergency room visits, hospital stays, and missed work and school days put the greatest financial burden on people with asthma and their families. Children with asthma miss about 13.8 million school days per year.¹³ Adults missed about 8.7 million workdays each year. Many families managing asthma have to choose between life-saving treatments and basic costs like rent, mortgage, food, and utilities. Reducing allergens and asthma triggers in the home through the use of asthma and allergy friendly products can add even more to the costs of managing asthma.

Differences in annual medical cost per person¹²:

Race/Ethnicity		Income		Health Insurance	
Black:	\$3,145	Poverty:	\$3,581	Medicare:	\$3,720
Hispanic:	\$2,905	Near poverty:	\$3,274	Medicaid:	\$3,454
White:	\$3,323	Low income:	\$3,183	Private insurance:	\$3,248
		Middle income:	\$3,232	Uninsured:	\$2,145
		High income:	\$3,204		

If finances are interfering with asthma management, local resources may be able to help. Many communities have free clinics that will treat all patients regardless of insurance status or ability to pay.

Some programs may also be able to help cover costs of some medicines, such as:

- State pharmaceutical assistance programs
- Nonprofit programs
- Assistance programs and coupons offered by pharmaceutical companies

Visit aafa.org/asthma-assistance for more information.

12. Nurmagambetov, T., Kuwahara, R., & Garbe, P. (2018). The economic burden of asthma in the United States, 2008-2013. *Annals of the American Thoracic Society*, 15(3), 348-356. <https://doi.org/10.1513/AnnalsATS.201703-259OC>

13. Zahran, H. S., Bailey, C. M., Damon, S. A., Garbe, P. L., & Breyse, P. N. (2018). Vital signs: Asthma in children – United States, 2001-2016. *Morbidity and Mortality Weekly Report*, 67(5), 149-155. <https://doi.org/10.15585/mmwr.mm6705e1>

LACK OF HEALTH INSURANCE

Health care and medicines can be very costly. For patients managing a chronic condition, like asthma, that requires medicine year-round, having insurance is often a big help. However, insurance itself can also be costly. These costs may vary depending on employment status and whether the job offers health insurance as a benefit and pays any of the costs. Other options include marketplace health insurance and government-sponsored insurance, like Medicare or Medicaid.

These cities have the highest number of uninsured residents*:

Lack of Insurance Ranking	Metropolitan Area	Overall Asthma Capital National Ranking
1	McAllen, TX	99
2	Dallas, TX	88
3	El Paso, TX	100
4	Houston, TX	97
5	Miami, FL	78
6	Cape Coral, FL	48
7	San Antonio, TX	96
8	Oklahoma City, OK	9
9	Sarasota, FL	84
10	Augusta, GA	69



*For each city included in the 2021 Asthma Capitals, AAFA obtained the uninsured rate for its respective county. The estimates range from 3.1% to 32.1%.

Some states have expanded health insurance options for their residents, while others have not. Texas, Florida, and Georgia have yet to expand their Medicaid programs under the Affordable Care Act (ACA).¹⁴ Oklahoma recently voted to expand Medicaid, but it has not yet been implemented. Texas is home to the largest number of uninsured Americans of any state in the country.¹⁵ For the millions of uninsured people in these states, this decision has left them without an option for affordable health insurance.

In previous research conducted by AAFA, the top three reasons people cited for not taking their prescribed asthma treatments were due to not being able to afford the medicines, the cost of the medicines, and the lack of health insurance coverage.¹⁶

AAFA offers a chatbot powered by artificial intelligence to help people learn about asthma and get help understanding health insurance. For more information, visit: aafa.org/chatbot
AAFA's Support Center can also provide assistance: aafa.org/contact-us

14. Kaiser Family Foundation. (2021). *Status of state Medicaid expansion decisions: Interactive map*. <https://www.kff.org/medicaid/issue-brief/status-of-state-medicaid-expansion-decisions-interactive-map>

15. Kaiser Family Foundation. (2020). *Health insurance coverage of the total population*. <https://www.kff.org/state-category/health-coverage-uninsured/health-insurance-status/>

16. Asthma and Allergy Foundation of America. (2017). *My Life With Asthma: Survey Overview*. aafa.org/asthmalife

AIR POLLUTION

Air pollution is a mixture of natural and human-made substances in the air we breathe. It is typically separated into outdoor and indoor pollution.¹⁷ Air pollution includes gases, smoke from fires, volcanic ash, dust particles, and other substances that can irritate the lungs. Research shows that air pollution can cause and worsen asthma.

Ozone, a gas, is one of the most common air pollutants. Ozone contributes to what we typically experience as “smog” or haze. It is most common in cities where there are more cars. It is also more common in the summer when there is more sunlight and low winds. Ozone triggers asthma because it is irritating to the lungs and airways.

Other forms of air pollution can also trigger asthma. Small particles in the air can pass through your nose or mouth and get into your lungs. Airborne particles, found in haze, smoke, and airborne dust, present serious air quality problems. People with asthma are at greater risk from breathing in small particles.

Nearly half of the U.S. population lives in areas with unhealthy levels of ozone or particle pollution, and this number has increased in recent years.¹⁸ Climate change – a public health emergency – is one of the most critical explanations for this increase in pollution. This underscores the need to protect the Clean Air Act and enact policies that combat climate change.

These cities all received an F rating from the American Lung Association’s 2021 State of the Air Report:

Metropolitan Area	Overall Asthma Capital National Ranking
Phoenix, AZ	52
Bakersfield, CA	65
Fresno, CA	19
Los Angeles, CA	90
Oxnard, CA	93
Riverside, CA	87
Sacramento, CA	66
San Jose, CA	82
Stockton, CA	63
Las Vegas, NV	43
Pittsburgh, PA	53
Ogden, UT	51
Provo, UT	98
Salt Lake City, UT	62
Seattle, WA	64



*For each city included in the 2021 Asthma Capitals report, AAFA obtained the grades for high ozone days and particle pollution for the respective county. Grades were averaged to produce an overall grade, ranging from A to F.

17. U.S. Environmental Protection Agency. (2019), *Air pollution: Current and future challenges*. U.S. Department of the Interior. <https://www.epa.gov/clean-air-act-overview/air-pollution-current-and-future-challenges>

18. American Lung Association. (2021). *State of the Air Report 2021*. <https://www.lung.org/research/sota>

California dominates this list because of wildfires. In 2020, record-setting wildfires raged across the western United States, putting millions of people with respiratory conditions like asthma at risk. The smoke and ash from the fires pollute the air, creating unhealthy and hazardous air quality.

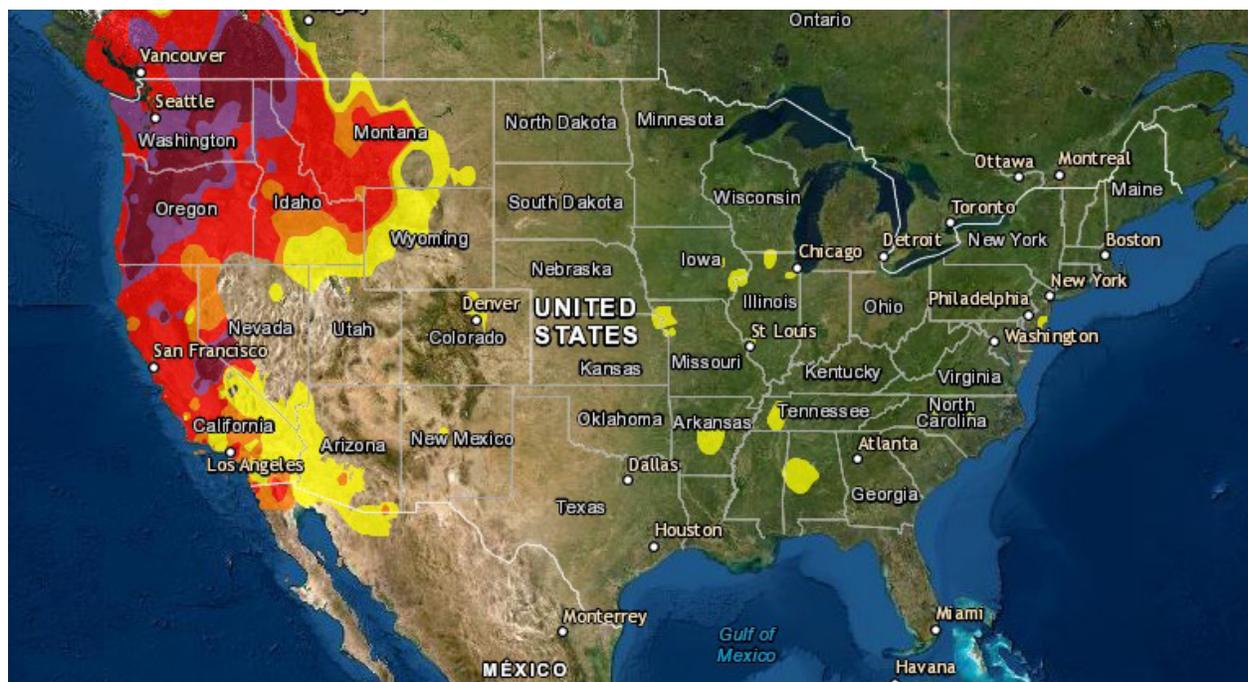
Air Quality Index Levels of Health Concern
Good
Moderate
Unhealthy for Sensitive Groups
Unhealthy
Very Unhealthy
Hazardous

The Environmental Protection Agency (EPA) tracks and reports daily air quality around the country using the Air Quality Index (AQI). The AQI is a measure of air pollution to indicate the safety of the air and possible health effects. People with asthma can watch air quality on [AirNow.gov](https://www.airnow.gov) to help them manage their symptoms.

AQI values are color coded by level of health concern. Green (AQI value of 0-50) means air quality is good. When the air quality reaches yellow (AQI value of 51-100) or higher, people who are sensitive to air pollution need to take caution, especially when outside.

Wildfires do not only affect people in the immediate fire area. Smoke can blow many miles away and impact people hundreds of miles away. Smoke and ash contain harmful particles that can irritate even healthy lungs. The impact on people with asthma can be serious. During the 2020 wildfires, air quality across the western U.S. ranged from “Unhealthy for Sensitive Groups” to “Hazardous,” according to the AirNow AQI.

The Air Quality Index (AQI) shows how clean or polluted the air is, and what associated health effects could be a concern.

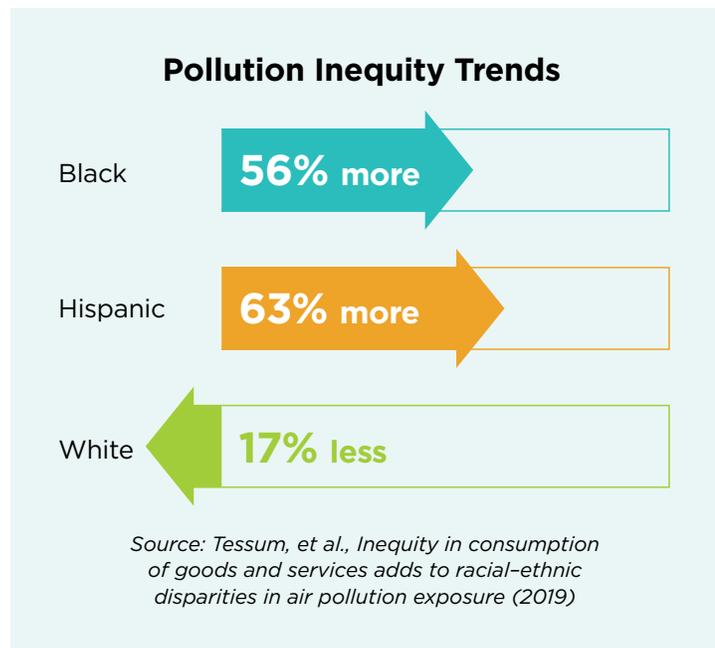


AirNow tracks and reports air quality data across the U.S. Because of wildfires in the western U.S., air quality reached hazardous levels in some places.



As with many determinants of health, the burden of air pollution falls disproportionately on racial and ethnic minorities. Residential segregation resulted in large percentages of racial and ethnic minority populations living near sources of outdoor pollution, such as industrial centers, major roadways, oil and gas refineries, and distribution hubs. In urban areas, traffic-related pollution is often the primary polluting source. Individuals living in these areas are also predominantly low income and are at risk for poor asthma due to economic factors. Proximity to sources of pollution, amplified by socioeconomic stressors like poverty, leads to poor asthma outcomes.¹⁹

A 2019 analysis of links between human activities and air pollution found that exposure to pollutants, specifically, fine particulate matter (PM_{2.5}), was disproportionately experienced by Black and Hispanic populations, but that emissions were disproportionately caused by white populations. The study highlighted the role of race and ethnicity in driving this pollution inequity, defined as the “fractional difference between a racial-ethnic group’s exposure to PM_{2.5} caused by all groups and that group’s population-adjusted contribution to the overall PM_{2.5} exposure of all groups.” “Pollution burden” was high among Black populations (56% inequity) and Hispanic populations (63% inequity), while white populations experienced a “pollution advantage” (17% equity), on average.²⁰



19. Kravitz-Wirtz, N., Teixeira, S., Hajat, A., Woo, B., Crowder, K., & Takeuchi, D. (2018). Early-life air pollution exposure, neighborhood poverty, and childhood asthma in the United States, 1990–2014. *International Journal of Environmental Research and Public Health*, 15(6), 1114. <https://doi.org/10.3390/ijerph15061114>

20. Tessum, C. W., Apte, J. S., Goodkind, A. L., Muller, N. Z., Mullins, K. A., Paoella, D. A., Polasky, S., Springer, N. P., Thakrar, S. K., Marshall, J. D., & Hill, J. D. (2019). Inequity in consumption of goods and services adds to racial-ethnic disparities in air pollution exposure. *Proceedings of the National Academy of Sciences*, 116(13), 6001–6006. <https://doi.org/10.1073/pnas.1818859116>

POLLEN

Substances that cause allergies (allergens) can trigger asthma. When someone inhales something they are allergic to, they may experience asthma symptoms. Pollen is a common allergen that can cause allergic asthma (asthma triggered by allergens).

Many people are experiencing worsening pollen allergy symptoms over the years. Due to climate change, pollen seasons have been getting longer and more intense. Global warming is leading to more extreme weather, like heat waves and droughts. These changes can lead to an increase in ground-level ozone and air pollution. This promotes higher carbon dioxide (CO²) levels and results in warmer temperatures. And the cycle continues.

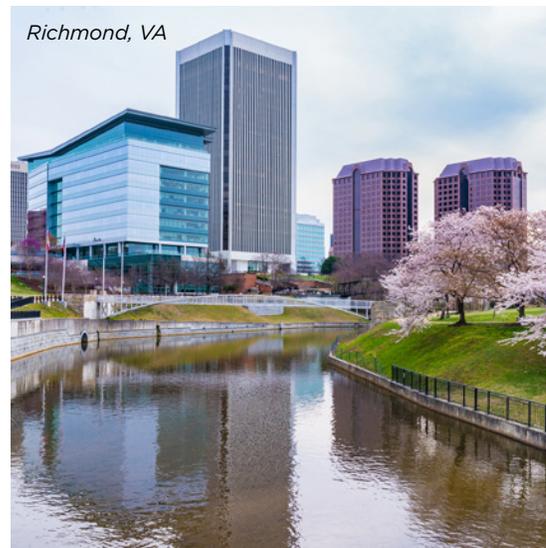


Warmer, longer growing seasons are causing plants to increase the amount of pollen they produce. Allergy seasons are starting earlier and ending later in the year.

With warmer, longer seasons, allergy-causing plants can move into new areas. This is troubling. More than 24 million Americans already have seasonal allergic rhinitis, and pollen allergies are a major cause.²¹ That number could rise in the coming years due to climate change.²²

These cities have the highest estimates of people affected by pollen*:

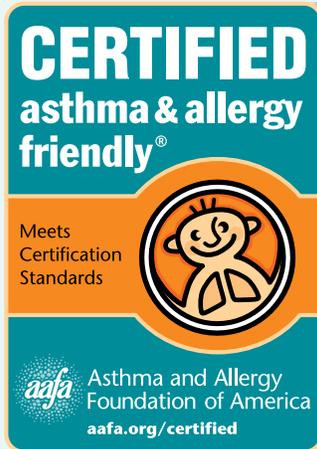
Pollen Ranking (*Tie)	Metropolitan Area	Overall Asthma Capital National Ranking
1	Richmond, VA	3
2*	Bridgeport, CT	29
2*	Hartford, CT	17
2*	New Haven, CT	5
2*	Springfield, MA	12
6	Scranton, PA	40
7*	McAllen, TX	99
7*	San Antonio, TX	96
9	Pittsburgh, PA	53
10	Buffalo, NY	35



**For each city included in the 2021 Asthma Capitals report, AAFA obtained a comprehensive index of the population at risk of being affected by airborne allergenic pollen for the respective Designated Market Area (DMA) from 2020. Pollen affected populations are derived from actual pollen counts, allergy prevalence for each pollen type, and related factors.*

21. Centers for Disease Control and Prevention. (2021). *FastStats - Allergies and hay fever*. U.S. Department of Health and Human Services. <https://www.cdc.gov/nchs/fastats/allergies.htm>

22. Climate Central. (2019). *POLLEN PROBLEMS: Climate change, the growing season, and America's allergies*. <https://www.climatecentral.org/news/report-pollen-allergies-climate-change>



CONTROLLING ASTHMA TRIGGERS AND ALLERGENS

Asthma management involves more than just taking medicine. You also need to reduce exposure to your asthma triggers like air pollution and strong chemicals or allergens like pollen.

Other allergens can also trigger asthma. Dust mites, cockroach debris, animal dander, and mold can all trigger asthma. There are ways to improve indoor air quality and reduce exposure to allergens and irritants.

Many products make claims such as being “hypoallergenic”. But there are no federal regulations on these claims. To improve indoor environments for people with asthma and allergies, AAFA and Allergy Standards Limited developed strict standards and certify only the products that meet all the standards. Look for the **CERTIFIED asthma & allergy friendly**® mark to confirm the product meets the standards to reduce exposure to allergens and improve air quality.

Visit aafa.org/certified to search for CERTIFIED products and learn more about the **asthma & allergy friendly**® Certification Program.

AAFA also releases annual Allergy Capitals reports for spring and fall allergies. Visit allergycapitals.com to learn how your city ranks and what to do if you live in an Allergy Capital and have pollen allergies. Scranton, Pennsylvania, ranked #1 on the 2021 Allergy Capitals™ report.

2021
Allergy Capitals

Asthma Capitals and Allergy Capitals use different methodologies, using different factors (data) for each report. The factors are not weighted equally in the analyses. This may explain some of the differences in ranking between the Asthma Capitals and Allergy Capitals Reports.

ASTHMA QUICK-RELIEF MEDICINE USE

Both long-term control medicines (sometimes called “controllers”) and quick-relief medicines (sometimes called “rescue inhalers”) may be necessary for optimal asthma management. Quick-relief medicines help relieve asthma symptoms as they are happening. These medicines act fast to relax tight muscles around the airways. This allows the airways to open up so air can flow through them. Frequent use of a quick-relief medicine (like albuterol) is an indication there is a high number of asthma episodes and lack of asthma control.

For inhalers to work well they need to be used correctly, but can be difficult for people to use. There are different types of inhalers and this may cause confusion. More than half of all people who use inhalers don’t do each step correctly.²³ It is important for patients, nurses, and doctors to learn proper inhaler technique and review inhaler use at every appointment.

Quick-relief medicine use* is highest in these cities:

Asthma Quick-Relief Medicine Use Ranking	Metropolitan Area	Overall Asthma Capital National Ranking
1	Toledo, OH	74
2	Des Moines, IA	77
3	Syracuse, NY	79
4	Akron, OH	36
5	Dayton, OH	8
6	Cleveland, OH	6
7	Fresno, CA	19
8	Worcester, MA	11
9	Milwaukee, WI	4
10	Poughkeepsie, NY	33



*For each city included in the 2021 Asthma Capitals, AAFA obtained the total number of quick-relief medicine prescriptions for the respective census-designated metropolitan statistical area, or MSA, from 2020. Analysis included estimating the prescription rate per patient prevalence.



23. Anderson, W., Gondalia, R., Hoch, H., Kaye, L., Szefer, S., & Stempel, D. (2019). Screening for inhalation technique errors with electronic medication monitors. *The Journal of Allergy and Clinical Immunology: In Practice*, 7(6), 2065–2067. <https://doi.org/10.1016/j.jaip.2019.02.006>

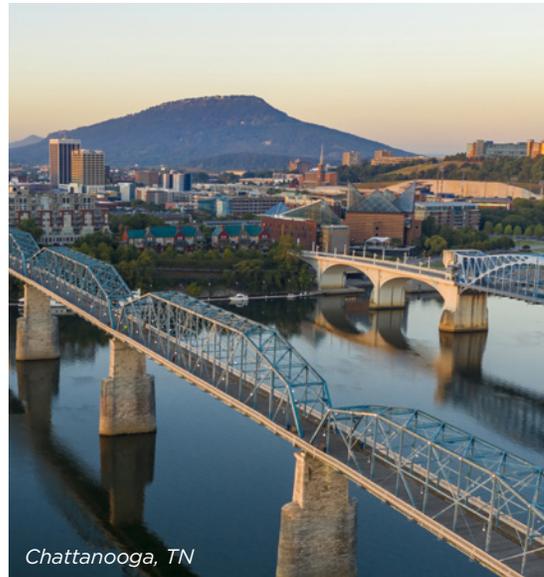
ASTHMA LONG-TERM CONTROLLER MEDICINE USE

Both controller and quick-relief medicines may be necessary for optimal asthma management. Controller medicines help prevent and control asthma symptoms. There are several kinds of controller medicines, including inhaled corticosteroids (ICS). ICS medicines prevent and reduce airway swelling, as well as reduce mucus in the lungs. Combination inhaled medicines combine ICS with a long-acting beta agonist (LABA). LABAs open the airways by relaxing the smooth muscles around the airways. Other types of controller medicines include biologics or leukotriene modifiers.

Asthma controller medicines are prescribed for persistent cases of asthma. A high number of these prescriptions may indicate that a city’s residents have more severe or uncontrolled cases of asthma.

These cities have the highest rates of asthma controller medicine use*:

Asthma Long-Term Controller Medicine Use Ranking	Metropolitan Area	Overall Asthma Capital National Ranking
1	Chattanooga, TN	26
2	Jackson, MS	22
3	Oklahoma City, OK	9
4	Louisville, KY	16
5	Knoxville, TN	76
6	Des Moines, IA	77
7	Providence, RI	30
8	Greenville, SC	73
9	El Paso, TX	100
10	McAllen, TX	99



*For each city included in the 2021 Asthma Capitals, AAFA obtained the total number of controller medicine prescriptions for the respective census-designated metropolitan statistical area, or MSA, from 2020. Analyses included estimating the prescription rate per patient prevalence.

In December 2020, the National Institutes of Health (NIH) updated the clinical guidelines used to diagnose and manage asthma.²⁴

The new guidelines change the way some people can use different types of asthma medicines. The guidelines recommend that long-term controller medicines can be used as needed or daily. They also include changes to the way certain combination medicines are used so they can be used for both long-term control and quick relief. The data on asthma quick-relief medicine use and long-term control medicines in the 2021 Asthma Capitals report is based on previous asthma guidelines that indicated separate medicines for long-term control and quick relief.

24. Cloutier, M. M., Baptist, A. P., Blake, K. V., Brooks, E. G., Bryant-Stephens, T., DiMango, E... Walsh, C. G. (2020). 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. *Journal of Allergy and Clinical Immunology*, 146(6), 1217-1270. <https://doi.org/10.1016/j.jaci.2020.10.003>

ASTHMA CAN COMPLICATE PREGNANCY, ESPECIALLY FOR BLACK WOMEN

Asthma is one of the most common medical problems that occurs during pregnancy. It can be potentially serious and lead to problems like high blood pressure, early labor and delivery, and low birth weight. Asthma can even cause death.

The CDC tracks pregnancy-related deaths (from any cause) in the United States in a system called the **Pregnancy Mortality Surveillance System (PMSS)**. The rate of maternal deaths has been rising. Black and American Indian or Alaska Native women are at highest risk. These groups are also at highest risk for asthma complications. (Black women have the highest rates of asthma deaths in the U.S.)

Asthma treatment and control requires the use of medicines. But because pregnant women are excluded from clinical trials, mothers may question the safety of medicine use while pregnant or lactating. It is important for someone to feel comfort with their treatment so they can manage their asthma effectively. Mother and baby need oxygen to live, so asthma control is critical.

AAFA is a key stakeholder in a workgroup that includes the Food and Drug Administration (FDA), the National Heart Lung Blood Institute (NHLBI), and the National Institutes of Health. The group includes experts from across the United States who specialize in women's health, pregnancy, prenatal care, or asthma.

The aim of the workgroup is to identify actions to improve knowledge regarding asthma medication safety in pregnancy and lactation. The *Journal of Allergy and Clinical Immunology* (JACI) published a summary of the group's collaboration: "**The safety of asthma medications during pregnancy and lactation: Clinical management and research priorities.**"²⁵

On Feb. 8, 2021, Rep. Lauren Underwood (D-IL), Rep. Alma Adams (D-NC), Senator Cory Booker (D-NJ), and other leaders of Congress introduced the **Black Maternal Health Momnibus Act**. The act is made up of 12 bills introduced by Black Maternal Health Caucus members. Its goal is to address the health crisis among Black mothers in the U.S.

America has the highest numbers of deaths among pregnant and new mothers in the developed world. And the rate is rising. This crisis is most severe for Black mothers. Black mothers are three to four times more likely to die from complications that arise in pregnancy.

In AAFA's "**Asthma Disparities in America**" report, we look at how social determinants (factors) of health and structural racism drive disparities in asthma.

AAFA is proud to support the Black Maternal Health Momnibus Act with the goal of ending maternal deaths and closing racial and ethnic disparities in maternal health outcomes.

25. Chambers, C. D., Krishnan, J. A., Alba, L., Albano, J., Bryant, A., Carver, M., Cohen, L. S...Schatz, M. (2021). The safety of asthma medications during pregnancy and lactation: Clinical management and research priorities. *Journal of Allergy and Clinical Immunology*. <https://doi.org/10.1016/j.jaci.2021.02.037>

SMOKING LAWS

According to the CDC, smoking is the leading cause of preventable death in the U.S.²⁶ Smoking is not only harmful to the person doing the smoking but also to those nearby who inhale secondhand smoke or come into contact with thirdhand smoke. Many chemicals and substances in secondhand and thirdhand smoke can irritate the lungs and airways.

Secondhand smoke refers to smoke that is released in the air when a smoker exhales, as well as smoke released from a burning cigarette, cigar, e-cigarette, or pipe.

Thirdhand smoke is residue from tobacco smoke. When a cigarette is smoked, chemicals in the smoke stick to surfaces and dust for months after the smoke is gone. The chemicals in the residue then react to other pollutants in the air, like ozone, to create harmful particles you can easily inhale.²⁷



Many state and local jurisdictions have passed laws that prohibit smoking in some places. These may include workplaces, restaurants, hotels, parks, and transit systems. Research your state or county to see what the laws are in your area.

These cities do the least to protect their residents and visitors from tobacco smoke and have fewer smoke-free laws*, comparatively:

Metropolitan Area	Overall Asthma Capital National Ranking
Chattanooga, TN	26
Memphis, TN	41
Oklahoma City, OK	9
Tulsa, OK	24
Harrisburg, PA	39
Knoxville, TN	76
Nashville, TN	59
Virginia Beach, VA	56

Cities can take these actions to protect people from the harmful effects of tobacco smoke: Strengthen protection for residents by making additional smoke-free zones (like public parks). Support smoking cessation programs. Encourage anti-tobacco campaigns that also teach about the dangers of vaping in schools.

States can also act to protect people from the harmful effects of tobacco smoke: Pass clean air laws that create smoke-free zones for the public. All indoor, public buildings should be smoke-free, and a buffer near entrances/exits should also be provided (e.g., no smoking within 25 feet of a building door or window). Fund smoking cessation programs.

*For each city included in the 2021 Asthma Capitals, AAFA obtained data on whether there was a 100% smoking ban for cars with minors, non-hospitality workplaces, restaurants, bars, and multi-unit housing.

26. Centers for Disease Control and Prevention. (2020). Fast Facts. U.S. Department of Health and Human Services. www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/index.htm.

27. Matt, G. E., Quintana, P. J. E., Destailats, H., Gundel, L. A., Sleiman, M., Singer, B. C...Hovell, M. F. (2011). Thirdhand tobacco smoke: Emerging evidence and arguments for a multidisciplinary research agenda. *Environmental Health Perspectives*, 119(9), 1218-1226. <https://doi.org/10.1289/ehp.1103500>

TOBACCO SMOKE can cause asthma attacks.

TOBACCO SMOKE



7,000 chemicals

70 cancer-causing chemicals

Common **ASTHMA** trigger

SECONDHAND SMOKE

Causes children to have **MORE** asthma attacks



Affects **LUNG GROWTH** in children

THIRDHAND SMOKE

Is a **TOXIC** residue from tobacco smoke

Can be inhaled and absorbed through skin or mouth

Is just as dangerous as secondhand smoke



WAYS TO REDUCE EXPOSURE IN KIDS

- 1** Set a good example by not smoking.
- 2** Talk to your children about smoking.
- 3** Ask others not to smoke in or near your home.



- 4** Choose non-smoking caregivers.
- 5** Visit smoke-free places.
- 6** Support laws that ban smoking in public places.

RESOURCES TO HELP YOU QUIT SMOKING

The only way to protect nonsmokers from the effects of tobacco is to create a completely tobacco-free environment.

There is free help and resources available by phone, online, or mail from the CDC. Call 1-800-QUIT-NOW (1-800-784-8669). Callers are routed to their state quit lines, which offer several types of information and services. These may include:

- Free support, advice, and counseling from experienced coaches
- A personalized quit plan
- Practical information on how to quit, including ways to cope with nicotine withdrawal
- The latest information about stop-smoking medicines
- Free or discounted medicines (available for some callers in most states)

If you prefer online help, visit [smokefree.gov](https://www.smokefree.gov). You will find online resources like live chats, apps, resource links and building a plan to quit.

ACCESS TO SPECIALISTS

Successful asthma management requires coordination of care between the person with asthma and their health care team. In addition to a primary care doctor, a person with asthma might need to be in the care of a specialist. Pulmonologists, allergists, and immunologists, for example, can provide specialized care for people with asthma and may have more experience treating patients with severe asthma or allergic asthma than a primary care physician.

Access to appropriate medical care is dependent upon different factors, including socioeconomic status, insurance status, and availability of specialists in nearby locations. The lack of availability of nearby asthma specialists may be associated with poor asthma outcomes.

Living in an area where there are fewer specialists can mean traveling long distances for care. This can be a burden on personal finances and time, especially when frequent trips are needed. And it may take months to get an appointment.

There is a shortage of medical doctors in the United States and the main reason is that there is a limit on residency slots. In 1997, Congress capped funding in Medicare for graduate medical education. This means there are limited spaces for medical school graduates to train in residency programs. In 2020, Congress increased the cap to support an additional 1,000 physicians. While this is a start, it will not solve the doctor shortage, and may not help significantly increase access to physicians in rural areas. A new Congressional bill, the Resident Physician Shortage Reduction Act of 2021, aims to address the critical shortage by providing 14,000 new slots for graduate medical education.

Emphasis on increasing diverse representation in the physician workforce is integral to addressing health equity. According to the Association of American Medical Colleges, the racial and ethnic makeup of active physicians in 2019 was as follows:²⁸

- White: 56.2%
- Asian: 17.1%
- Unknown: 13.7%
- Hispanic: 5.8%
- Black: 5.0%
- Other: 0.8%
- Multiple Race, Non-Hispanic: 1%
- American Indian or Alaska Native: 0.3%
- Native Hawaiian or Pacific Islander: 0.1%

The COVID-19 pandemic impacted nearly every aspect of daily life. Some of the biggest impacts were seen in healthcare, including access to doctors, medicines, and protective equipment. The pandemic also resulted in major financial burdens, with as many as 7.7 million U.S. workers losing jobs that come with employer health coverage.²⁹ For people living with asthma, the pandemic changed the ways they sought and maintained their asthma treatment. In some cases, the pandemic may have contributed to changes in the health outcomes and risk factors outlined in this report.

28. Association of American Medical Colleges. (2019). *Percentage of all active physicians by race/ethnicity, 2018*. www.aamc.org/data-reports/workforce/interactive-data/figure-18-percentage-all-active-physicians-race/ethnicity-2018.

29. The Commonwealth Fund. (2020). *How many Americans have lost jobs with employer health coverage during the pandemic?* <https://www.commonwealthfund.org/publications/issue-briefs/2020/oct/how-many-lost-jobs-employer-coverage-pandemic>

Regional Trends

The heaviest burden of asthma continues to fall on the eastern half of the United States. Within our top 20 Asthma Capitals, there are two clear clusters, or “Asthma Belts,” that emerge when the rankings are plotted on a map. These Asthma Belts indicate that further examination of these areas is needed on local, state, and possibly even federal levels to improve asthma outcomes.

Northeast Mid-Atlantic Belt

(National Ranking)

1. Allentown, PA
2. Baltimore, MD
3. Richmond, VA
5. New Haven, CT
7. Philadelphia, PA
11. Worcester, MA
12. Springfield, MA
17. Hartford, CT
18. Boston, MA
20. Greensboro, NC



NORTHEAST MID-ATLANTIC ASTHMA BELT

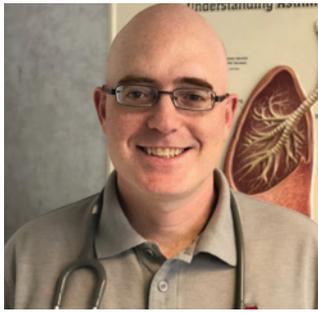
This cluster extends from Massachusetts to North Carolina. Poverty, air pollution, and access to specialists are key risk factors for these cities. This is likely a product of more industrial and urban populations. Asthma rates tend to be higher, especially among children, in urban locations due to more rental housing, more manufacturing and industrial businesses, and proximity to high-traffic roadways.

In our 2019 Asthma Capitals report, Springfield, Massachusetts, ranked as the top Asthma Capital. The area has a high number of asthma-related emergency room visits, high rate of asthma prevalence, high pollen counts, and a history of industrial pollution. Asthma advocates in Springfield sprang into action after the release of our 2019 report. A biomass energy facility was seeking a permit in Springfield. Biomass burning produces air pollution that that is harmful to human health.

In addition to a wide array of health harms, air pollution diminishes lung function and can trigger asthma episodes. The Massachusetts Department of Environmental Protection (MassDEP) listened to the concerns of health and environmental justice advocates and revoked the air permit for the proposed biomass facility. Other improvements in the area have helped people with asthma living in Springfield. It no longer has the top spot on our report, but it does still rank in the top 20 at #12.

This year’s top Asthma Capital is Allentown, Pennsylvania, the mid-way point in the Northeast Mid-Atlantic Asthma Belt. Allentown’s placement in the top spot is largely due to high rates of asthma-related emergency room visits. This year, Allentown had the highest emergency room rate (i.e., the number of asthma-related emergency visits per 10,000 residents with asthma) of all 100 cities we ranked. And compared to previous years, Allentown’s asthma emergency room rate has been increasing steadily.

The Allentown area includes both urban and suburban areas. Yet access to asthma specialists in Allentown is a challenge. There are fewer than a dozen asthma specialists in the area.

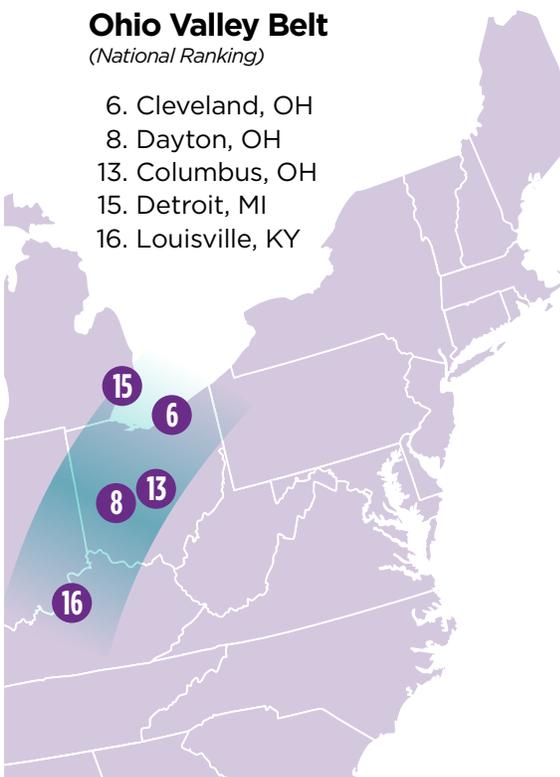


“Springtime is particularly hard for a lot of patients around here. The tree pollen season and the grass pollen season is a difficult time for many of our patients,” **Dr. Robert Zemble**, an allergist with Allentown Asthma & Allergy, and Chief of the Division of Allergy at Lehigh Valley Hospital explained. “It’s one of those things that [can] make it impossible [for them] to enjoy the outside.”

He works in collaboration with the team at Allentown Asthma & Allergy to teach patients about asthma, how to identify symptoms, and how to properly use an inhaler. He points out that proper inhaler use is critical.

“If you don’t [teach people how to properly use their medicine] and they aren’t getting their actual medicine [into their lungs], it doesn’t matter what medicine you prescribe them,” he shared.

His advice for other health care professionals is “to really communicate with your patients. Find out what is triggering their asthma. And really educate them on how and why to use their medicines.”



OHIO VALLEY ASTHMA BELT

Three Ohio cities are in the top 20 of our report – Cleveland, Dayton, and Columbus. Nearby, Detroit, Michigan, and Louisville, Kentucky, appear in this “Asthma Belt.” With so much of this region facing poor outcomes, asthma appears to be a widespread concern. Poverty, air pollution, and high numbers of medicine use are the key risk factors that have placed these cities at the top of our report. The cities in this asthma belt all have a poverty rate that is higher than national average.³⁰

2019 Poverty Rates:

- Detroit – 19.8%
- Cleveland – 16.2%
- Louisville – 14.2%
- Columbus – 13.5%
- Dayton – 13.1%
- National average – 10.5%

Poverty rates among children in these cities are even higher, especially among minority populations. Asthma rates among minorities coincide with these poverty rates. In Ohio overall, Black children are more than two times as likely to have asthma than white children (13.9% and 5.6%, respectively).³¹

30. U.S. Census Bureau. (2020). *Small Area Income and Poverty Estimates (SAIPE) for 2019*. U.S. Department of Commerce. <https://www.census.gov/programs-surveys/saipe.html>

31. Ohio Department of Health. (2020). *Burden of Asthma in Ohio 2019*. <https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/asthma-program/media/burden-of-asthma-in-ohio-2019>



ASTHMA IN THE WEST

Two western cities climbed into the Top 20 Asthma Capitals for 2021: Tucson, Arizona (#10), and Fresno, California (#19). Suburban sprawl, fire suppression, and climate change are driving the increase in wildfires and air pollution in the west. In 2020, both cities had high rates of asthma-related deaths, and Fresno had particularly high rates of asthma-related emergency room visits. High pollen levels and poor air quality contributed to these outcomes.

In the American Lung Association’s State of the Air report, Tucson’s grade for high ozone days dropped from a C in 2019 to an F in 2021.³² Fresno also continues to top the American Lung Association’s list of the most polluted cities for both ozone and particle pollution. Fresno was also heavily impacted by wildfires in 2020. The Creek Fire, the fourth-largest wildfire in modern California history, burned nearly 400,000 acres of land in Fresno County.³³ Climate change, primarily caused by the burning of fossil fuels, is increasing the frequency and severity of wildfires in California. Of the 20 largest fires in California’s modern history, eight have occurred after 2017.³³



2020 Creek Fire, California



Formation of a pyrocumulonimbus above the 2020 Creek Fire in California

32. American Lung Association. (2021). *State of the Air Report 2021*. <https://www.lung.org/research/sota>

33. California Department of Forestry and Fire Protection. (2020). *Top 20 largest California wildfires*. https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf



What Can Be Done

AAFA's mission is to save lives and reduce the burden of disease for people with asthma and allergies through support, advocacy, education, and research. We are committing our resources to programs and policies with the aim to drastically reduce asthma rates, deaths, and disparities, as well as their impact on people and communities. We urge all stakeholders to join us to work harmoniously to improve and save lives.

FEDERAL, STATE, AND LOCAL HEALTH OFFICIALS CAN:

- Track asthma rates and the effectiveness of control measures so continuous improvements can be made in prevention efforts
- Improve asthma care through policies and funding that promote and support:
 - Free asthma screening programs
 - Influenza (flu) and pneumonia vaccination for people with asthma
 - Preexisting conditions coverage protections
 - Medicaid and Medicare expansion
 - Affordable drugs and copayments
 - Asthma education and intervention programs
 - Asthma management plans in schools
 - Nurses in every school
 - Improve the physician pipeline to get doctors into underserved areas
- Promote improvements in indoor air quality for people with asthma through measures such as smoke-free air laws and policies, healthy schools and workplaces, home improvements and remediation for low-income housing
- Reduce air pollution and improve outdoor air quality by promoting policies that support:
 - Carpools, public transportation, cycle and pedestrian-friendly roads
 - Electrifying buses and other public transportation
 - Traffic reduction measures to reduce idling
 - Rebates for electric cars and green energy solutions like solar panels
 - Reduction of food waste
 - Increased consumption of plant-based meals (reduction of meat intake)
 - Reduction of industrial air pollution from methane, nitrogen oxides, carbon dioxide, and ozone
 - Creation and protection of urban green spaces
 - Burn ban enforcements and other fire prevention policies
 - Transitions to cleaner heating (reduce fireplace and wood stoves)
 - Composting and recycling
- Support tobacco cessation programs, tobacco prevention programs and vaping/e-cig interventions for teens and children
- Support and fund primary, secondary and tertiary asthma prevention research
- Include people with asthma in all levels of planning for asthma-related interventions

- Oppose step therapy for drug coverage that does not have adequate patient protections and may force patients to take a drug that is not designed to treat their specific health circumstances, negatively impacting care
- Expand funding for the National Asthma Control Program (NACP) of the CDC
- Support health equity policies and programs
- Recognize World Asthma Day (ginasthma.org/wad) and National Asthma and Allergy Awareness Month (aafa.org/awareness) in May and commit to reviewing the state of asthma annually

HEALTH CARE PROVIDERS CAN:

- Determine the severity of asthma and monitor how much control the patient has over it
- Make an Asthma Action Plan with all asthma patients
- Address co-morbidities and create a plan on how to co-manage those conditions
- Tailor asthma management plans to meet patients where they are – people’s needs are different and each case of asthma is unique
- Learn how to use all asthma medicines and then teach patients and their caregivers how to effectively use the medicines and devices
- Check the patient’s inhaler technique at each asthma appointment
- Incorporate interactive learning in the clinic to teach patients and caregivers how to recognize early warning signs and symptoms of asthma and the **Green, Yellow, and Red Zones of an Asthma Action Plan**
- Implement a way for patients/caregivers to report symptoms easily so that interventions are timely when a person is in the Yellow or Red Zone
- Discuss with patients and their caregivers what their asthma medicines are and why they are used (control, relief, or both)
- Discuss environmental control at appointments and how to avoid asthma triggers such as tobacco smoke, mold, animal dander, dust mites, and air pollution
- Review updated guidelines for asthma treatment (**NIH Focused Updates for 2020**)
- Use a stepwise approach to asthma therapy
- Refer patients to a specialist (e.g., allergist to conduct allergy testing; or an allergist or pulmonologist when a patient’s asthma is severe persistent or difficult to control)
- Refer patients to reputable local or national organizations that provide asthma support and education
- Encourage people with asthma to exercise and help them create a plan for managing/preventing exercise-induced symptoms
- Offer flu and pneumococcal vaccinations
- Assist patients with drug coverage questions, pre-authorizations, and insurance appeals
- Advocate for federal, state, and local policies that improve asthma

PEOPLE WITH ASTHMA AND PARENTS OF CHILDREN WITH ASTHMA CAN:

- Receive ongoing appropriate medical care and ask for a referral to an asthma specialist if their asthma is difficult to control or severe and persistent
- Be empowered through education to manage their asthma and asthma attacks
- Sign up for AAFA's free ASTHMA Care for Adults online course to learn about asthma triggers, how to control asthma and improve the home and work environments (sign up at aafa.org/asthmacare)
- Avoid asthma triggers at school, work, home, and outdoors:
 - Check your indoor environments for ways to reduce asthma triggers
 - Use CERTIFIED **asthma & allergy friendly**® products when you can to reduce exposure to allergens and asthma triggers (pillow encasements, vacuums, air cleaners, etc. – see more at aafa.org/certified)
- Avoid smoking or commit to quitting and sign up for a tobacco cessation program if they already smoke
- Use inhaled corticosteroids and other prescribed medicines correctly – ask the nurse or doctor to check technique at every appointment
- Take steps to reduce personal contributions to air pollution and climate change:
 - Walk or bike whenever possible
 - Use public transportation or carpools
 - Switch to cleaner energy if possible
 - Reduce food waste
 - Reduce meat consumption and replace with more plant-based meals
 - Use LED lights and turn them off when not in use
 - Use a smart thermostat to optimize your heating/cooling
 - Reduce, reuse, recycle
 - Reduce energy consumption
- Become fire-wise (learn more at nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA/Become-a-Firewise-USA-site)
- Vote for asthma-friendly policies
- Speak at local city council meetings about asthma
- Spread asthma awareness on World Asthma Day and during the month of May (learn more at aafa.org/awarenessmonth)



HEALTH INSURANCE COMPANIES CAN:

- Track asthma rates and the effectiveness of control measures so continuous improvements can be made in prevention efforts
- Improve asthma care by covering:
 - Influenza and pneumonia vaccinations (at all locations and without pre-authorizations)
 - Asthma education and intervention programs (offer reimbursements for home visits by nurses and community health workers)
 - The costs for multi-component environmental controls that reduce exposure to asthma triggers (e.g., air cleaners, carpet removal, allergen-barriers for bedding)
 - Lung function tests
- Add all asthma medicines to their formularies so every patient with asthma has access to the medicine their care provider prescribes
- Refer patients to an asthma education or intervention program after emergency visits (AAFA's ASTHMA Care for Adults online course is free and available at aafa.org/asthmacare)
- Support tobacco cessation programs, tobacco prevention programs and vaping/e-cig interventions for teens and children
- Support drug pricing transparency and overhauling the rebate system so patients have access to affordable medicines which increases likelihood of adherence
- Ensure all patients have an Asthma Action Plan
- Commit to researching and addressing why seniors and Black women are at the highest risk of death from asthma
- Include patient protections into any step therapy requirements so patients do not encounter delays and restricted access to medically necessary and effective drugs and treatments

DRUG (PHARMACEUTICAL) COMPANIES CAN:

- Ensure diverse representation of patients in all clinical trial phases
- Implement patient-centered research design and include patients as equal advisors in all stages of drug development
- Support patient education
- Study barriers to medicine adherence
- Improve drug labels to prioritize health literacy and user experience
- Commit to researching and addressing why seniors and Black women are at the highest risk of death from asthma
- Offer patient financial assistance
- Support drug pricing transparency and overhauling the rebate system
- Improve access to pharmacological therapies by keeping prices affordable

Methodology

The 2021 Asthma Capitals™ research and ranking is reported by the Asthma and Allergy Foundation of America (AAFA). The ranking is based on analysis of data from the 100 most-populated Metropolitan Statistical Areas (MSAs) in the contiguous 48 states as determined by most recent U.S. Census Bureau population estimates (2019). The three (3) individual factors analyzed for the 2021 rankings are: estimated asthma prevalence; crude death rate from asthma; and emergency department visits due to asthma. For prevalence and emergency department factors, AAFA used data from the most recently available 12-month period. For mortality, AAFA used data from the most recent five-year period. Weights are applied to each factor and factors are not weighted equally. Total scores are calculated as a composite of all three factors, and cities are ranked from highest total score (city rank #1) to lowest total score (city rank #100).

ESTIMATED ASTHMA PREVALENCE

For each city, AAFA obtained the estimated asthma prevalence for the respective county. Prevalence data were obtained from the American Lung Association's 2020 Estimated Prevalence and Incidence of Lung Disease Report, which analyzed data from the Behavioral Risk Factor Surveillance Survey (2017).

CRUDE DEATH RATE FROM ASTHMA

For each city, AAFA obtained the estimated asthma-related crude death rate per 100,000 people for the respective county. Data were obtained from the Centers for Disease Control and Prevention WONDER Online Database; death rates from the most recent 5-year period (2015-2019) were analyzed.

EMERGENCY DEPARTMENT VISITS DUE TO ASTHMA

For each MSA, AAFA obtained the total number of emergency department visits where an asthma ICD-10 code was included as a diagnosis. Data were obtained from the IQVIA Emergency Visit Database (2019-2020).

RISK FACTORS

Data on the following asthma-related risk factors were obtained and analyzed; however, these data did NOT factor into the scores or rankings. Data are from the most recently available calendar year.

- **Annual Air Quality** – Pollution levels and number of unhealthy outdoor ozone days, scored on a scale of A (best) to F (worst). Data were obtained from the American Lung Association 2021 State of the Air Report, which analyzed air quality monitoring data from 2017, 2018, and 2019.
- **Annual Pollen Score** – A comprehensive index of the population at risk of being affected by airborne allergenic pollen, derived from actual pollen counts, allergy prevalence for each pollen type, and related factors (by Designated Market Area). Data were obtained from the IQVIA Allergy Activity Notification (AAN) Program Database for the most recent spring and fall allergy seasons (2020).
- **Medicine Use** – Number of long-term controller and quick-relief medication prescriptions per patient prevalence. Data were obtained from the IQVIA National Prescription Audit (NPA) by Designated Market Area for 2020.
- **Public Smoking Laws** – Number of “100% smoke-free” public smoking bans (e.g., bars, restaurants, workplaces, etc.) as of Jan. 1, 2021. Data were obtained from the American Nonsmokers Rights Foundation.
- **Poverty rate** – Estimated population living in poverty. Data were obtained from the United States Census Bureau Small Area Income and Poverty Estimates (2019).
- **Uninsured rate** – Estimated population without health insurance. Data were obtained from the United States Census Bureau Small Area Health Insurance Estimates (2018).

Resources

Get general information on asthma:
aafa.org/asthma

Get general information on allergies:
aafa.org/allergies

Join AAFA's patient support community for emotional support and asthma education:
aafa.org/join

Follow our blog for news on asthma and allergies:
aafa.org/blog

Find products to help you create a healthier home through our **asthma & allergy friendly**[®] Certification Program:
aafa.org/certified

Learn how to improve your indoor air quality:
aafa.org/iaq

Learn how to manage pollen allergies:
aafa.org/pollen

Find school resources for managing your child's asthma:
aafa.org/school

Download an Asthma Action Plan:
aafa.org/asthmaactionplan

AAFA's Allergy Capitals[™] Report:
allergycapitals.com

AAFA's COVID Resource Center:
aafa.org/covid-19

AAFA's COVID-19 and Asthma Toolkit for Schools:
aafa.org/schools-covid19

AAFA's Asthma Disparities Report:
aafa.org/asthmadisparities

National Asthma and Allergy Awareness Month:
aafa.org/awarenessmonth

Find an allergist or immunologist:
allergist.aaaai.org/find

Follow the EPA's air quality reports:
airnow.gov

Follow daily local pollen counts:
pollen.aaaai.org

American Lung Association's State of the Air Report:
stateoftheair.org

For help to quit or reduce smoking:
smokefree.gov
cdc.gov/tobacco/quit_smoking

ASTHMA & ALLERGY Awareness
People need clean air, safe food,
and healthy homes

aafa.org

