

WISCONSIN ASTHMA PLAN 2021-2025



WISCONSIN
ASTHMA
COALITION

★ Children's Health
Alliance of Wisconsin

OVERVIEW

Asthma is a common, chronic lung condition characterized by ongoing airway inflammation associated with increased airway responsiveness to a variety of triggers. Inflammation causes reversible airway obstruction, which results in wheezing, chest tightness, cough and shortness of breath. Several factors can trigger asthma attacks including allergens (e.g., pet dander, pollen, dust mites, mold), irritants (e.g., chemicals, tobacco smoke, air pollution), viral infections, exercise, cold air and stress.

Asthma is a complex, multi-faceted condition that requires a comprehensive approach to effective management at both the individual and population levels. Comprehensive asthma care includes a seamless alignment of the full array of services across the public health and health care continuum. In Wisconsin, more than 500,000 children and adults have asthma. Historical and structural racism plays a role in both creating and maintaining disparities in access to programs and services and disparities in life outcomes. The legacy of historic racism from redlining and restrictive zoning¹, environmental injustices^{2,3} and within health care systems⁴ have led to low-income communities and communities of color bearing a disproportionate burden from asthma and the underlying factors associated with the disease. To reduce disparities and eliminate the burden of asthma in Wisconsin, it is critical to ensure all people with asthma have equal access to guideline-based medical management, pharmacotherapy and healthy living environments. For the segment of the population whose asthma remains poorly controlled, additional steps must be taken to provide them with progressively more individualized services (e.g., intensive self-management education, home environmental assessment, trigger reduction services, environmental management strategies). In addition, it is imperative that health systems and public health work closely with each other and the community to address root causes of health inequities by actively promoting and supporting policies that mitigate negative effects of social determinates of health (e.g., racism, sexism, poverty, stress, employment, food insecurity, housing instability, healthcare access, and exposure to indoor and outdoor pollutants). An overview of Wisconsin's asthma burden follows, and additional data and discussion surrounding asthma disparities are provided in the Appendix.

¹ Nardone, A., Casey, J. A., Morello-Frosch, R., Mujahid, M., Balmes, J. R., & Thakur, N. (2020). Associations between historical residential redlining and current age-adjusted rates of emergency department visits due to asthma across eight cities in California: an ecological study. *The Lancet Planetary Health*, 4(1). [https://doi.org/10.1016/s2542-5196\(19\)30241-4](https://doi.org/10.1016/s2542-5196(19)30241-4)

² Brown, P., Mayer, B., Zavestoski, S., Luebke, T., Mandelbaum, J., & McCormick, S. (2003). The health politics of asthma: environmental justice and collective illness experience in the United States. *Social Science & Medicine*, 57(3), 453–464. [https://doi.org/10.1016/s0277-9536\(02\)00375-1](https://doi.org/10.1016/s0277-9536(02)00375-1)

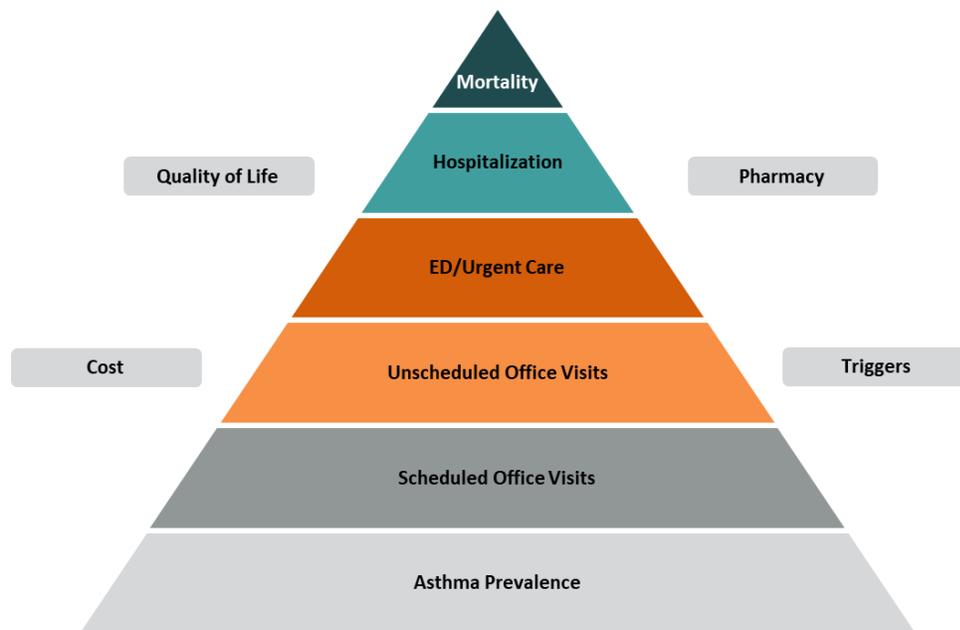
³ Bravo, M. A., Anthopolos, R., Bell, M. L., & Miranda, M. L. (2016). Racial isolation and exposure to airborne particulate matter and ozone in understudied US populations: Environmental justice applications of downscaled numerical model output. *Environment International*, 92-93, 247–255. <https://doi.org/10.1016/j.envint.2016.04.008>

⁴ Hardeman, R. R., Medina, E. M., & Kozhimannil, K. B. (2016). Structural Racism and Supporting Black Lives — The Role of Health Professionals. *New England Journal of Medicine*, 375(22), 2113–2115. <https://doi.org/10.1056/nejmp1609535>

BURDEN OF ASTHMA

The Asthma Surveillance Pyramid (Figure 1) is a model developed by the U.S. Centers for Disease Control and Prevention to describe the spectrum of asthma indicators and the means by which the burden of asthma may be measured. Each level of the pyramid represents an indicator of asthma. The pyramid sits on a base that represents asthma prevalence, or all people with asthma. This is the largest tier in the pyramid and represents those at risk for adverse asthma-related health events resulting in emergency department (ED) utilization, inpatient hospitalization or death. Each successively higher level in the pyramid represents an increasingly severe or costly outcome, affecting a smaller proportion of people with asthma. Outside the pyramid are four factors that impact or are impacted by asthma: quality of life, cost, pharmacy and triggers. The [Wisconsin Asthma Burden Report 2020](#) highlights data for many of these indicators and illustrates the need for continued statewide efforts to address asthma as a public health priority.

Figure 1. Asthma surveillance pyramid



Source: Centers for Disease Control and Prevention. A Public Health Response to Asthma. Public Health Training Network Satellite Broadcast. Course Materials 2001.

The infographic (Figure 2) summarizes the most recent asthma data, including prevalence, disease management, ED visits, hospitalizations and mortality. In 2018, 9% of adults and 8.4% of children in Wisconsin had asthma. This prevalence estimate translates to approximately 406,000 adults (1 in 11

adults) and 107,000 children (1 in 12 children) affected by asthma in 2018. Asthma mortality in Wisconsin has been decreasing; however, 71 people died from asthma in 2018. Of those who died from asthma, 39% were age 65 or older at the time of death.

In Wisconsin, there were 17,981 ED visits and 2,011 hospitalizations with asthma listed as the primary diagnosis in 2018, leading to more than \$75 million in billed charges. Children younger than age five had the highest rates, which were two times higher than adults 35 to 64 years of age and almost six times higher than adults age 65 years and older. Racial and ethnic disparities in asthma health care access and utilization, due to systemic racism and environmental injustices, continue to persist (see Appendix, Asthma Disparities in Wisconsin).

Significant work remains to ensure people with asthma can properly manage and control their disease. Asthma symptoms are responsible for decreased quality of life, sleep disturbances and an inability to carry out one's normal activities. In Wisconsin, about 40% of adults and 59% of children with asthma report that their asthma is well-controlled. One-third (33%) of all children with asthma missed at least one day of school in the past 12 months due to their asthma and over a quarter (29%) of adults with asthma reported that they were unable to work or carry out usual activities for one or more days due to their asthma in the past year. Over half (55%) of employed Wisconsin adults with asthma reported that their asthma was caused, or made worse by, exposures at work.

Medical management of asthma in the state continues to fall short of the National Institutes of Health (NIH) asthma guidelines, which recommend that persons with asthma receive at least two routine checkups per year, receive an annual influenza vaccine and are provided a written asthma management plan. Only 27% of adults and 20% of children in Wisconsin with a current asthma diagnosis reported having at least two routine checkups for their asthma in the past 12 months. Among people with asthma on Medicaid, about 56% of people received a flu vaccination in the 2018-2019 flu season. Flu vaccination was highest among youth less than 18 years old (63%) and adults ages 65 or older (65%). Flu vaccination is lowest among 18-34 year olds (44%). Over one-third (35%) of adults and over half (58%) of children in Wisconsin with asthma were given an asthma management plan by their health care provider. The disproportionate burden of asthma and lack of adherence to treatment guidelines suggest that opportunities exist to enhance the care and health of people with asthma.

Figure 2. Infographic: The impact of asthma in Wisconsin

ASTHMA IS COMMON

APPROXIMATELY **512,000** PEOPLE IN WISCONSIN CURRENTLY HAVE ASTHMA



ASTHMA IS DEADLY

2 CHILDREN HAVE A 3X HIGHER ASTHMA ED RATE COMPARED TO ADULTS



3 1 PERSON DIES EVERY 5 DAYS
71 PEOPLE IN WISCONSIN DIED OF ASTHMA IN 2018 AND
39% WERE AGE 65 OR OLDER AT THE TIME OF DEATH

ASTHMA IS DISRUPTIVE



ASTHMA IS EXPENSIVE

2



ASTHMA CAN BE CONTROLLED

TWO ROUTINE CHECKUPS PER YEAR

NIH asthma guidelines recommend that persons with asthma seek at least two routine checkups per year (5).

Only 27% of adults and 20% of children with current asthma have had at least 2 doctor visits in the last year (4).



Sources: 4 and 5

FLU VACCINE

A flu vaccine is recommended for all persons with asthma.

Only 56% of people with asthma on Medicaid received their flu vaccine in the 2018-2019 flu season.



Source: 6

ASTHMA MANAGEMENT PLAN

35% of adults and 58% of children were given an asthma management plan by their health care provider.



Source: 4

Sources:

- 1 Wisconsin Department of Health Services, Behavioral Risk Factor Surveillance System (BRFSS), 2018 adults and children.
- 2 Wisconsin Department of Health Services, Inpatient Hospitalization Discharge and Emergency Department Visit Data Files, 2016-2018.
- 3 Wisconsin Department of Health Services, Mortality Files, 2018.
- 4 Wisconsin Department of Health Services, BRFSS Asthma Call-back Survey, adults (2012-2016) and children (2012-2014).
- 5 National Asthma Education and Prevention Program, 2007. Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma. Bethesda (MD): National Heart, Lung and Blood Institute.
- 6 Wisconsin Department of Health Services, Medicaid and Wisconsin Immunization Record match, 2018-2019.

WISCONSIN ASTHMA PLAN 2021-2025

All Wisconsinites deserve to live healthy lives no matter where they call home. To make this happen, we need to devote more resources to communities that are facing the greatest threats and improve our responses in all communities to ensure EVERYONE has the opportunity for optimum health. The Wisconsin Asthma Coalition (WAC) created the Wisconsin Asthma Plan 2021-2025 (WAP) to address these priorities as well as the components necessary for quality asthma care. The NIH asthma reduction strategies and guidelines have not changed substantially since the last WAP iteration; consequently, this new plan can most accurately be described as a *refresh* of the old plan, with updates to incorporate lessons learned and new approaches. To ensure our members' and the community's voices are heard, the new plan draws upon the expertise of the WAC Advisory Committee and the coalition's membership, as well as feedback from numerous community stakeholders. Lastly, this plan is meant to encourage broader community ownership for addressing asthma health outcomes.

Clinical interventions alone will not eliminate asthma disparities; therefore, the goals, objectives and activities have been updated to encourage action from a wide range of participants. In short, everyone must pitch in to help improve asthma outcomes across Wisconsin.

CHANGES FROM THE WISCONSIN ASTHMA PLAN 2015-2020

The Wisconsin Asthma Plan 2021-2025 is divided into three priority areas: Health Care, Environment, and Community Partnerships and Policy. While the previous plan included a section dedicated to asthma education, this plan has been reorganized to reflect the need for asthma education across the continuum of care. The former Routine Health Care and Pharmaceutical Care sections were combined into "Health Care" to foster closer alignment among these two health care sectors. The Community Partnerships and Policy section was added to encourage wide-ranging collaboration among health care, public health and community-based organizations in recognition that medical care alone cannot address what actually makes us sick. Instead, the plan encourages a community-focused approach to address the social determinants of health by supporting and advocating for policies that improve the underlying social and economic conditions in communities disproportionately burdened by asthma. Furthermore, objectives and activities from the previous plan that were completed or are no longer relevant have been removed. New objectives and activities have been added to continue programs proven to work, build upon existing opportunities and improve the plan's usability for a diverse range of stakeholders.



WISCONSIN ASTHMA PLAN 2021-2025 STRATEGIC AIMS

REDUCE ASTHMA DEATHS

- From 10.6 deaths per one million in 2018 (an average of 65 deaths annually)

REDUCE HOSPITALIZATIONS FOR ASTHMA, FOCUSING ON RACIAL AND ETHNIC DISPARITIES

- From the overall rate from 3.6 hospitalizations per 10,000 in 2016-2018, and
 - 14.5 hospitalizations per 10,000 among Black populations in 2016-2018
 - 6.2 hospitalizations per 10,000 among American Indian/Alaska Native populations in 2016-2018
 - 4.7 hospitalizations per 10,000 among Hispanic populations in 2016-2018

REDUCE EMERGENCY DEPARTMENT (ED) VISITS FOR ASTHMA, FOCUSING ON RACIAL AND ETHNIC DISPARITIES

- From the overall rate from 34.8 ED visits per 10,000 in 2016-2018, and
 - From 158.2 ED visits per 10,000 among Black populations in 2016-2018
 - From 55.5 ED visits per 10,000 among American Indian/Alaska Native populations in 2016-2018
 - From 42.7 ED visits per 10,000 among Hispanic populations in 2016-2018

REDUCE THE PROPORTION OF PERSONS WITH ASTHMA WHO MISSED SCHOOL OR WORK DAYS

- From 33.2% of all children with asthma who missed at least one day of school in the past 12 months due to their asthma (during 2012-2014)
- From 29.2% of adults with asthma who reported they were unable to work or carry out usual activities for one or more days due to their asthma in the past year (during 2012-2016)

INCREASE THE PROPORTION OF PERSONS WITH ASTHMA WHO RECEIVE APPROPRIATE ASTHMA CARE ACCORDING TO THE NIH ASTHMA GUIDELINES

- From 27.5% of adults and 20.4% of children in Wisconsin with a current asthma diagnosis who reported having at least two routine checkups for their asthma in the past 12 months (adults: 2012-2016, children 2012-2014)
- From 35.1% of adults and 58.0% of children in Wisconsin with asthma who were given an asthma action plan by their health care provider (adults: 2012-2016, children: 2012-2014)

WISCONSIN ASTHMA PLAN 2021-2025 GOALS AND OBJECTIVES

HEALTH CARE

Many people with asthma are treated in primary care and specialty care settings. Adherence to asthma guidelines in these settings is critical to recognizing poorly controlled asthma and ultimately improving asthma management. NIH asthma guidelines are designed to help clinicians manage asthma more effectively with an increased focus on achieving and maintaining proper asthma control over time. In addition, improving coordination and collaboration between clinicians and pharmacists can help to identify gaps in care, provide alternative therapy recommendations and facilitate appropriate referrals to clinical or community-based resources, when necessary. Coordination and communication between health care entities and community organizations can foster well-informed community programs and build trust between health care systems and the community.

Goal: Increase appropriate use of NIH asthma guidelines for optimal diagnosis, prescribing and ongoing management of asthma.

Objectives	Activities
<p>Objective A: Improve access and adherence to asthma therapies and medication management.</p>	<ul style="list-style-type: none"> • Activity 1: Advocate for the unrestricted availability and affordability of asthma therapies and devices • Activity 2: Promote evidence-based medication prescribing and adherence strategies • Activity 3: Promote the proper use of short-acting beta agonists (SABA) and long-term controllers • Activity 4: Promote the importance of respiratory disease vaccines and allergy testing for asthma management
<p>Objective B: Implement NIH asthma guideline-based health care recommendations.</p>	<ul style="list-style-type: none"> • Activity 1: Use validated tools to assess severity and control (e.g., ACT, TRACK, or ATAQ) • Activity 2: Use asthma management plans that are responsive to the health literacy of asthma patients and caregivers, and embed in health record • Activity 3: Provide basic home environmental assessment as part of the clinic visit • Activity 4: Promote the use of and training for spirometry testing • Activity 5: Provide asthma self-management education (AS-ME) to patients and family in home and clinic settings

<p>Objective C: Increase communication and coordination between health care providers and pharmacists and across health systems.</p>	<ul style="list-style-type: none"> • Activity 1: Promote written discharge plans that include a.) Medication name, dose and clear directions, and b.) Schedule follow-up with a primary care provider within one to four weeks • Activity 2: Identify and share successful urgent care, emergency department and hospital protocols, and promote best practices among health systems • Activity 3: Provide training to urgent care, emergency services and hospital staff on acute-care specific NIH asthma guidelines • Activity 4: Promote patient-centered care coordination within health systems • Activity 5: Encourage enhanced data sharing among all health care partners
<p>Objective D: Increase communication and coordination between health care systems and the community.</p>	<ul style="list-style-type: none"> • Activity 1: Develop systems to ensure all children with asthma have an individual asthma management plan in their health record and at school • Activity 2: Create a protocol to screen for occupation related "take-home" triggers among household members and refer to specialists as needed • Activity 3: Increase awareness of community-based asthma partners (e.g., local coalitions, advocacy groups)

ENVIRONMENT

High levels of outdoor air pollutants can trigger asthma attacks. These pollutants can include particulate matter, ozone, nitrogen dioxide, sulfur dioxide, smoke and seasonal allergens, which can make everyday living extremely difficult for people with asthma. In addition to comprehensive outdoor environmental strategies, asthma management plans must also incorporate assessment and remediation of indoor environmental triggers. People spend most of their time indoors, whether it's at home, work, school, daycare, restaurants or shopping. And, like outdoor environments, indoor environments may contain some of the same pollutants and irritants mentioned above, as well as tobacco and vape smoke and allergens from pets, dust mites, cockroaches, rodents and molds. Environmental control strategies that identify and mitigate indoor and outdoor asthma triggers are an important component of asthma management and improved overall health for people with asthma.

Goal: Improve environmental control measures to avoid or eliminate factors that precipitate asthma symptoms or exacerbations.	
Objectives	Activities
<p>Objective A: Implement school and childcare environmental assessment programs.</p>	<ul style="list-style-type: none"> • Activity 1: Provide basic asthma awareness and education to ALL school personnel • Activity 2: Implement environmental trigger assessment and education programs (e.g., WAC Environmental Walkthrough Program) • Activity 3: Promote policies that limit exposure to diesel exhaust from school bus idling • Activity 4: Partner with, and encourage, parent and teacher organizations or associations to support school environmental programs
<p>Objective B: Implement home environmental programs.</p>	<ul style="list-style-type: none"> • Activity 1: Implement in-person or home environmental assessment and self-management education using validated tools (e.g., EPA Asthma Home Environment Checklist) • Activity 2: Advocate for local and statewide policies that encourage affordable, asthma-friendly housing • Activity 3: Promote awareness of occupation-related "take-home" asthma triggers (e.g., cleaning chemicals, toxic fumes and sprays, cigarette smoke) • Activity 4: Develop virtual home visit protocols

<p>Objective C: Identify and reduce the burden of asthma in the workplace.</p>	<ul style="list-style-type: none"> • Activity 1: Provide training and education of asthma as an occupational health issue • Activity 2: Encourage asthma-related programs and policies in worksite health, safety and wellness programs using existing business resources (e.g., NIOSH, WISBD, OSHA, CPWR) • Activity 3: Promote smoke-free and vape-free workspace policies • Activity 4: Use asthma-friendly green cleaning and sanitation practices (e.g., use natural cleaners, provide adequate ventilation)
<p>Objective D: Reduce exposure to asthma triggers in outdoor environments.</p>	<ul style="list-style-type: none"> • Activity 1: Promote effective environmental health education tools and messaging (e.g., videos, website, apps, media alerts) • Activity 2: Support policies and programs that reduce exposure to poor air quality (e.g., wood smoke, outdoor wood-fired boilers, recreational fire, leaf burning and burn barrel hazards) • Activity 3: Encourage individuals to sign up to receive county-specific Wisconsin DNR air quality alerts • Activity 4: Disseminate guidance to community partners (e.g., businesses, general public, media, nursing homes, schools) on how to respond to air quality alerts
<p>Objective E: Support statewide tobacco prevention and control efforts.</p>	<ul style="list-style-type: none"> • Activity 1: Support tobacco prevention and control policies in public spaces (e.g., multi-unit housing, college campuses, parks, casinos) • Activity 2: Promote smoking cessation in households and workplaces with persons with asthma • Activity 3: Promote asthma risk messaging for tobacco products, e-cigarettes and other nicotine delivery devices • Activity 4: Support policies to eliminate marketing tobacco products to children

COMMUNITY PARTNERSHIPS AND POLICY

The burden of asthma is not equally distributed in Wisconsin (see Asthma Disparities section in Appendix). Low-income families and communities of color face higher asthma prevalence and disproportionately worse asthma outcomes than their higher income and white counterparts. In addition, the effects of poverty are compounded for people with asthma. For example, children with asthma are more likely to miss school, which results in parents or caregivers missing work to care for their children. We know that missing even one day of work can have a devastating impact for families in poverty, widen the financial gap and ultimately increase health disparities. High-burdened communities need access to clinical *and* community-based asthma services. While physicians provide guideline-based care in the health care setting, community-based partners (e.g., public health, schools, community health workers) can provide community-level data, AS-ME, home environmental assessments and referrals to appropriate clinical services. Most importantly, sustainable funding for these community-based services is needed. Advocating for and advancing policies that improve asthma health outcomes as well as support low-income communities' overall health and well-being are an important aspect of population-based, community-focused asthma management strategies.

Goal: Foster strategic partnerships to expand community-based asthma services and support policies to reduce health disparities	
Objectives	Activities
<p>Objective A: Promote and provide asthma education in the community.</p>	<ul style="list-style-type: none"> • Activity 1: Utilize NIH Asthma Guidelines and evidence-based practices within existing and newly created educational programs • Activity 2: Consider training non-traditional partners to deliver asthma education (e.g., pharmacists, school staff, community health workers, social workers) • Activity 3: Promote opportunities for asthma educators to obtain and maintain asthma educator certification (AE-C) • Activity 4: Use "plain language" and provide non-English documentation and translation (as needed) to ensure communication and materials are appropriate for populations of all literacy levels and languages

<p>Objective B: Secure insurance coverage for enhanced asthma services</p>	<ul style="list-style-type: none">• Activity 1: Strengthen partnerships with Wisconsin Medicaid and health plans to improve coverage of asthma services• Activity 2: Partner with statewide organizations and professions to build support for policies that encourage reimbursement for comprehensive asthma services (e.g., Wisconsin Public Health Association, Wisconsin Hospital Association, Wisconsin Association of Local Health Departments and Boards, school educators and nurses, community health workers, health educators)• Activity 3: Educate policy makers on the benefits of comprehensive asthma management (e.g., AS-ME, home environmental assessment, trigger reduction supplies)
<p>Objective C: Support policies that improve asthma health outcomes and reduce health disparities</p>	<ul style="list-style-type: none">• Activity 1: Encourage community organizations and community members to participate in asthma-related policy and advocacy efforts to reduce health disparities• Activity 2: Share asthma-specific media messages with your community and stakeholders from trusted sources (e.g., CDC, DHS Wisconsin Asthma Program, American Lung Association, WAC, Fight Asthma Milwaukee Allies)• Activity 3: Provide support and collaborate with partners on efforts to reduce air pollution and promote clean air through innovative programs and policies (e.g., clean energy, stove exchange programs, Cleaner Milwaukee Coalition, green certification programs for manufacturers and businesses)

APPENDIX

ASTHMA DISPARITIES IN WISCONSIN

The burden of asthma is not equally shared in the population. In Wisconsin, certain age groups, gender, racial and ethnic minorities, geographic regions and socio-economic groups are disproportionately affected. As mentioned in the introduction, systemic racism as well as many social, economic and environmental factors (social determinants of health) create an undue burden on populations of color compared to white populations. These social determinants of health include, but are not limited to: racism, sexism, poverty, stress, access to healthy housing, access to health care and exposure to indoor and outdoor pollutants. Recent data show significant disparities in asthma burden among Black, American Indian/Alaska Native and Hispanic populations, and among children under five years of age.

Age and gender

Across age categories, Wisconsin children younger than five years of age have the highest hospitalization rate (7.8 per 10,000, 2016-2018) and emergency department (ED) visit rate (59.1 per 10,000, 2016-2018). By gender, females have higher asthma prevalence and rates of health care utilization after puberty while males are more severely impacted by asthma during childhood (Figure 3). A disproportionate burden of asthma among females versus males is reflected in current asthma prevalence (11% vs. 7%, 2018), hospital ED visits (36.8 vs. 32.7 per 10,000, 2016-2018) and inpatient hospitalizations (4.6 vs. 2.5 per 10,000, 2016-2018).

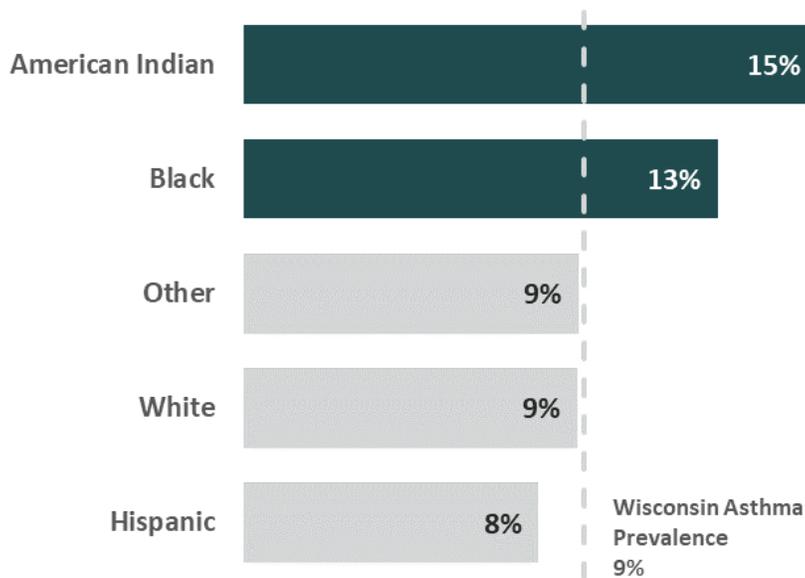
Figure 3. Asthma ED visit rates by age and gender, 2016-2018



Race and ethnicity

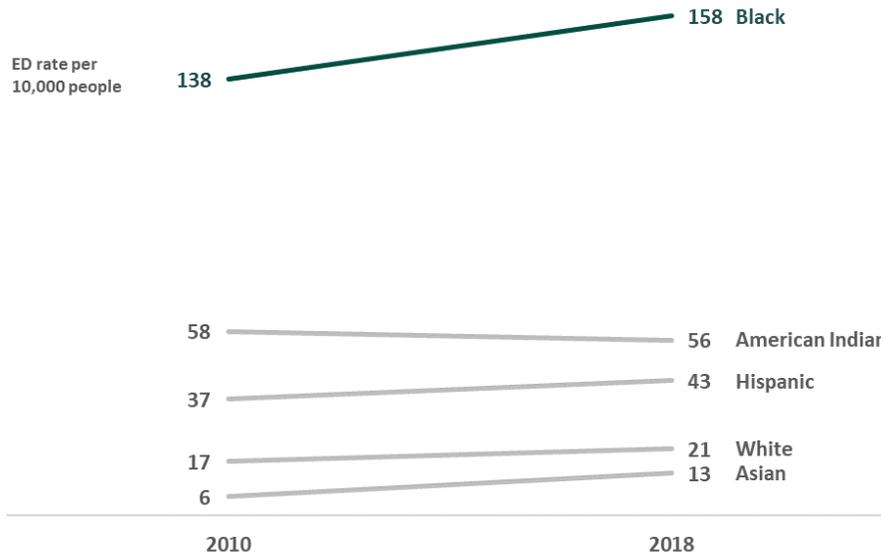
At both state and national levels, asthma-related adverse health outcomes continue to disproportionately affect Hispanic, Black and American Indian/Alaska Native populations. Adult asthma prevalence by race and ethnicity is: 15% American Indian/Alaska Native, 13% Black, 9% white and 8% Hispanic (Figure 4, 2016-2018). Child asthma prevalence shows 16% of Black children have asthma, which is twice the rate of white and Hispanic (both 7%, 2016-2018).

Figure 4. Asthma disparities by race and ethnicity, 2016-2018



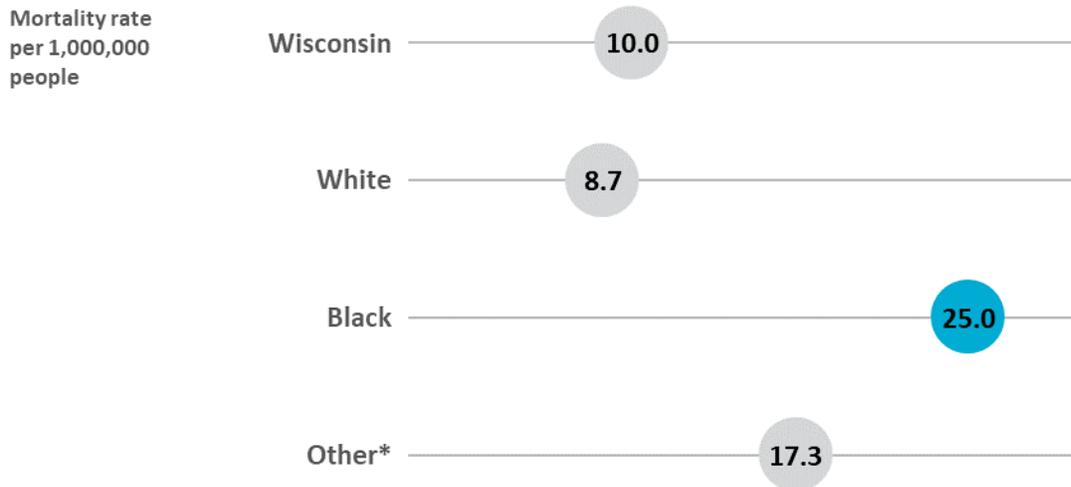
Large disparities are seen for ED visits by race and ethnicity and have increased for Black populations during the period from 2010–2018 (Figure 5). Compared to white populations, the 2018 ED rate is 7.5 times higher for Black populations, 2.5 times higher for American Indians, and 2 times higher for Hispanic populations. We see similar disparities among hospitalization rates (per 10,000 people, 2016-2018): 14.5 Black, 6.2 American Indian/Alaska Native, 4.7 Hispanic, 2.9 Asian, 2.5 white. Compared to white populations, hospitalization rates are 6 times higher for Black populations, 2.5 times higher for American Indian/Alaska Native populations, and 2 times higher for Hispanic populations.

Figure 5. Asthma ED visit rates by race and ethnicity, 2010-2018



The asthma mortality rate is three times higher for Black compared to white populations (Figure 6).

Figure 6. Asthma mortality rates by race and ethnicity, 2015-2018



*Includes American Indian, Asian, and multi-race.

Socioeconomic status

Asthma prevalence in adults appears to be inversely associated with income level. Adults with the lowest annual household income in 2016-2018 (less than \$15,000) reported the highest asthma prevalence (17%), while households earning more than \$75,000 annually reported the lowest asthma prevalence (7%) (Figure 7). Overall, trends show a decrease in current asthma prevalence with an increase in income. Furthermore, households with the lowest incomes also report higher rates of poorly-controlled asthma (Figure 8).

Figure 7. Asthma disparities by income, 2016-2018

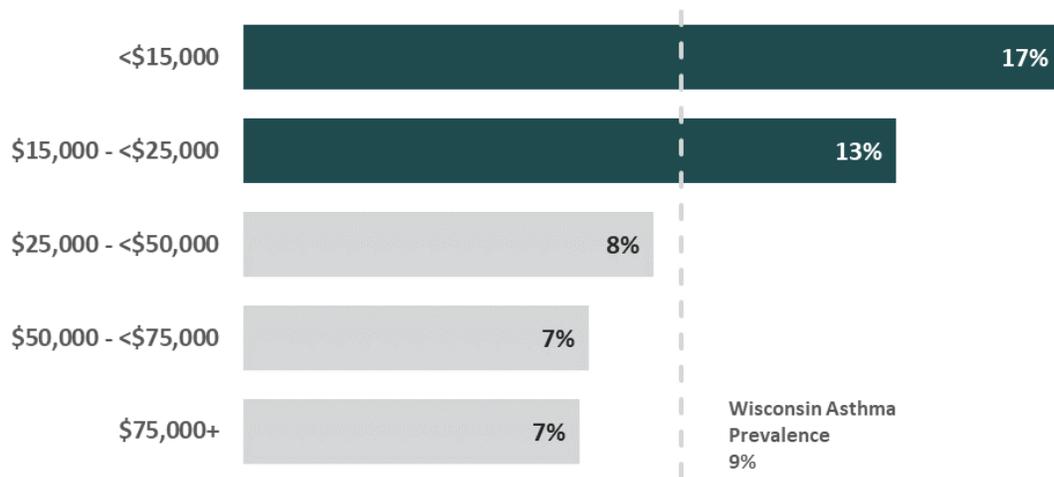
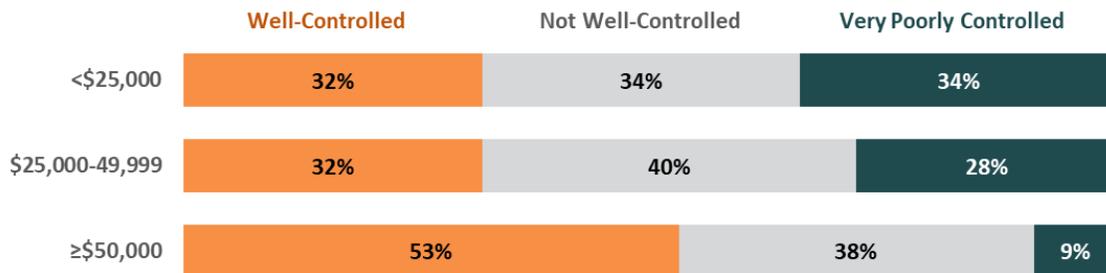


Figure 8. Asthma control by income, 2012-2016



Geographic regions

Milwaukee County is the most populous, racially and ethnically diverse, and urbanized county in the state. It ranks highest among counties for asthma ED visit rates (74.8 per 10,000, 2016-2018) and has the second highest asthma hospitalization rate in the state (6.7 per 10,000, 2016-2018). Within Milwaukee, a

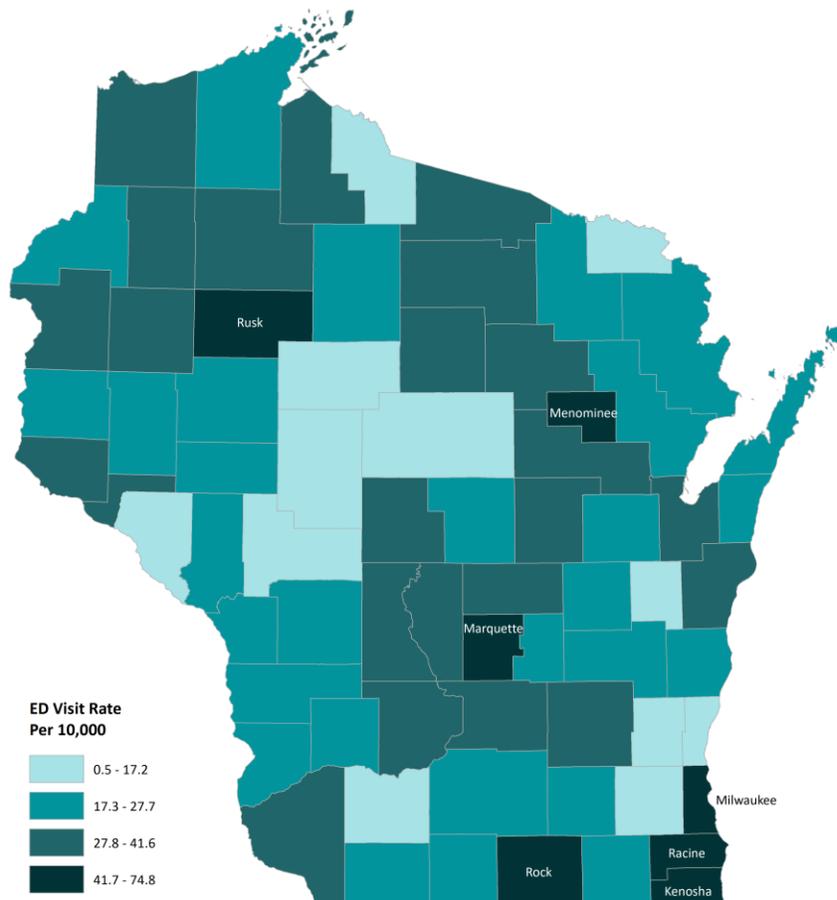
review of ED visit rates by ZIP code tabulation area (ZCTA) showed rates as high as 268 per 10,000 in some neighborhoods, while others had rates as low as 15 per 10,000.

Menominee County, comprising members of the Menominee Tribe, ranks second for its asthma ED visit rate (60.6 per 10,000, 2016-2018) and highest among counties for its asthma hospitalization rate (6.9 per 10,000, 2016-2018).

In addition, Kenosha, Racine, and Rock Counties have experienced consistently high asthma ED visit and hospitalization rates over the past decade. See Figure 9 for a map of ED visit rates by county.

Figure 9. Asthma ED visit rates by county, 2016-2018

The counties with the highest rates in Wisconsin are: Milwaukee (74.8), Menominee (60.6), Racine (50.4), Kenosha (46.4) and Rock (48.2).



For more Wisconsin asthma data, see the [Wisconsin Asthma Program's Statistics webpage](#).



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