

HEALTH DISPARITIES IN WISCONSIN HOSPITALIZATIONS FOR ASTHMA

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SUMMARY - Asthma is a chronic disease that causes substantial disease burden in Wisconsin. Certain groups are more likely to be affected by asthma. Black and American Indian/Alaska Native populations experience asthma hospitalization rates that are significantly higher than rates for white populations in Wisconsin.

Asthma hospitalizations can be reduced by implementing individual- and community-level strategies. Self-management strategies include adhering to medication recommendations, avoiding known asthma triggers, and controlling asthma symptoms.

Asthma self-efficacy may be increased by creating asthma action plans and improving the cultural competency of asthma educational materials. Community programs to improve indoor air quality can help reduce asthma symptoms and may decrease asthma-related hospitalizations.

BACKGROUND

Asthma is a chronic inflammatory disease characterized by intermittent wheezing, chest tightness, and shortness of breath that can limit an individual's ability to bring oxygen into the lungs, making breathing difficult.¹ While asthma cannot be cured, it can be controlled by self-management

strategies such as the regular use of controller medications, receiving an annual influenza immunization, and avoiding exposure to triggers such as cigarette smoke. Incorporating such self-management strategies into an asthma action plan can be a very effective approach to keeping asthma

appropriately controlled.

Asthma affects 12% of Wisconsin adults and 11% of Wisconsin children,² and resulted in 5,111 hospitalizations and 21,382 emergency department visits in 2014.³ While asthma affects individuals throughout Wisconsin, some groups are more likely to be

affected by the disease.

The Wisconsin Department of Health Services (DHS) Asthma Program conducts asthma surveillance and summarizes rates of asthma-related adverse health outcomes on a regular basis.² In concert with national trends,⁴ the most recent data reveal that black individuals in Wisconsin experience higher prevalence of asthma compared to other racial/ethnic groups (15.9 for blacks, as opposed to 10.3 for Hispanics, 12.9 for American Indian and Alaskan Natives, 6.2 for Asians, and 8.6 for whites).^{2,3} This surveillance brief uses publicly available data from DHS to expand on these numbers by examining rates of asthma hospitalization by race and ethnicity in Wisconsin. It also provides suggestions for reducing asthma disparities.

METHODS

We used data from the Wisconsin Environmental Public Health Tracking (Tracking) Program’s public data portal⁵ to compare rates of asthma hospitalizations, over time, by race and ethnicity in Wisconsin. We calculated rate ratios to compare the

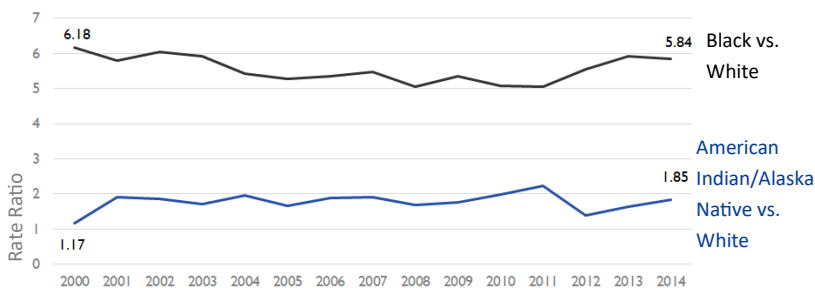
annual age-adjusted rates per 10,000 population for black and American Indian/Alaska Native to white populations and Hispanic to non-Hispanic populations during 2000-2014. Statistically significant differences were identified using non-overlapping confidence intervals.

RESULTS

Racial Disparities in Hospitalizations

Disparities by race were evident in the asthma hospitalization data from Tracking. In 2014, the age-adjusted asthma hospitalization rate for black residents was 36.25 per 10,000 population, which is 5.8 times as high as the rate for white residents (6.21 per 10,000 population).³ Figure 1 shows this trend has been relatively consistent from 2000-2014, with the rate for black residents remaining significantly higher (six times) than the rate for white residents in each year (2000-2014). The age-adjusted asthma hospitalization rate for American Indian and Alaska Natives was 11.48 per 10,000 population, which is nearly twice as high (1.8 times) as the rate for whites in 2014.³ This rate ratio is consistent across the years

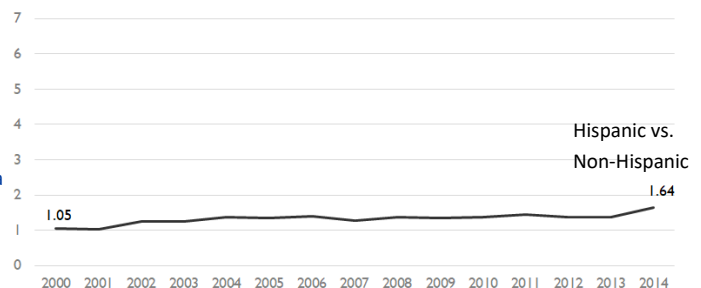
FIGURE 1. Rate Ratio of Age-Adjusted Asthma Hospitalization Rates by Race: Wisconsin, 2000-2014



Black Wisconsinites have a rate of asthma-related hospitalizations **six times higher** than white Wisconsinites.

American Indian/Alaska native Wisconsinites have a rate of asthma-related hospitalizations **1.8 times higher** than white Wisconsinites.

FIGURE 2. Rate Ratio of Age-Adjusted Asthma Hospitalization Rates by Ethnicity: Wisconsin, 2000-2014



In 2014, Hispanic Wisconsinites had an asthma-related hospitalization rate **1.6 times higher** than non-Hispanic Wisconsinites.

shown and significantly higher during each year during 2002-2014.

Ethnic Disparities in Hospitalizations

While the historical populations of other races in Wisconsin are too small to make statistically adequate comparisons, the Tracking data can be broken down by ethnicity. In 2014, the rate for the Hispanic population was 13.57 per 10,000 population—1.6 times as high as the non-Hispanic population's rate of 8.29 per 10,000 population (Figure 2), while the average annual rate ratio during this period is 1.3. The annual differences in rates between these populations are statistically significant during 2000-2014.

Discussion of Findings

These comparisons of age-adjusted hospitalization rates for asthma using rate ratios illustrate that significant differences by race and ethnicity exist in Wisconsin. Rates for black Wisconsin residents are particularly high compared to white residents and have remained relatively unchanged across the 15 years of data presented in this brief. However, while the disparity is the greatest for blacks, other racial and ethnic disparities exist, namely for American Indian/Alaska Natives and Hispanics.

ADDRESSING ASTHMA DISPARITIES

Self-Management and Clinical Care

Asthma care and control are essential components in preventing hospitalizations. One route to reduce existing disparities would be to improve self-management of asthma for different population groups in Wisconsin. University of Wisconsin researchers found asthma self-efficacy—a person's belief that they can manage their disease—differed by race, ethnicity, and income in a large California sample. Black individuals typically had lower self-efficacy related to asthma than did their white counterparts. However, researchers saw improvements in self-efficacy when patients had an asthma management plan from their doctor,⁶ suggesting that an asthma action plan or similar strategy might be a way to reduce disparities by improving self-efficacy.

Researchers have also found that pediatric patients on Medicaid who used clinics and hospitals with the highest cultural competence scores were less likely to underuse



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preventive asthma medications, and their parents were more likely to report higher satisfaction with care.⁷

Research has also highlighted that asthma educational materials could be improved with regards to cultural competency.⁸ Improving communications with vulnerable populations could improve asthma self-management for members of these groups. This is also consistent with findings that suggest acculturation (i.e., English proficiency) and education level are strong predictors of asthma self-efficacy.

Community Interventions, Projects, and Programs

Many other factors are likely to influence racial and ethnic disparities in asthma in Wisconsin. Environmental exposures can differ by location and this can affect the susceptibility of some populations to asthma attacks. For instance, proximity to freeways or industrial sites can influence population patterns in asthma.^{9,10} As such, changes in the built environment can affect asthma and may reduce health costs for communities.

Improving known environmental factors is another way to reduce asthma symptoms and improve self-management. For instance, the City of Milwaukee Health Department recently embarked on a smoking cessation project called *Smoke Free Homes for Strong Babies*, which focuses on men who live with pregnant women, infants, and young children.¹¹ By helping men

quit smoking, this program aims to improve indoor air, which can prevent asthma attacks.

Other programs to improve indoor air have focused on housing. The Clear Gains Smoke-Free Housing Initiative, led by the Wisconsin Tobacco Prevention and Control Program and the American Lung Association, is increasing access to smoke-free housing in Wisconsin. Since 2010, over 200 buildings holding 7,000 units have gone smoke-free, giving an estimated 15,000 Wisconsinites smoke-free spaces to live.¹²

Asthma Care and Environmental Strategies is a new initiative developed by the Wisconsin Asthma Program that provides patients with poorly-controlled asthma and their families with intensive self-management education and a free environmental home assessment to identify and help remediate asthma triggers. The program is available in Sawyer, Kenosha, Milwaukee, and Rock counties, which were selected for initial implementation because of their high asthma burden and disparities among racial and ethnic populations.

RESOURCES

The Tracking portal provides a repository of environmental public health data that communities can explore to consider questions on a variety of topics. The portal hosts asthma data, as discussed here, but also includes data on air quality, cancer, carbon monoxide poisoning, heart attacks, heat stress, historical climate measures, reproductive outcomes, and water quality. Wisconsin Tracking is part of the National Environmental Public Health

Tracking Network within the Centers for Disease Control and Prevention (CDC). The national network also contains additional data topics.¹³ The Wisconsin Asthma Program¹⁴ and the Wisconsin Asthma Coalition¹⁵ also offer resources for individuals and communities working to address asthma.

CONCLUSIONS

Disparities in asthma hospitalizations by race and ethnicity exist in Wisconsin and are particularly pronounced among black residents of the state. Community and individual strategies can help reduce disparities and decrease the number of people living with uncontrolled asthma.

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¹⁵Wisconsin Asthma Program. Wisconsin Asthma Coalition. <https://www.dhs.wisconsin.gov/asthma/wac.htm>

ACKNOWLEDGEMENTS

The authors would like to thank Meridith Mueller, MPH; Mark Werner, PhD; and Lola Awoyinka, MPH, for their contributions to this surveillance brief.

ABOUT TRACKING

The Wisconsin Environmental Public Health Tracking Program is your source for environmental public health data on Wisconsin communities.

FUNDING

The Wisconsin Environmental Public Health Tracking Program is funded by the Centers for Disease Control and Prevention.

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