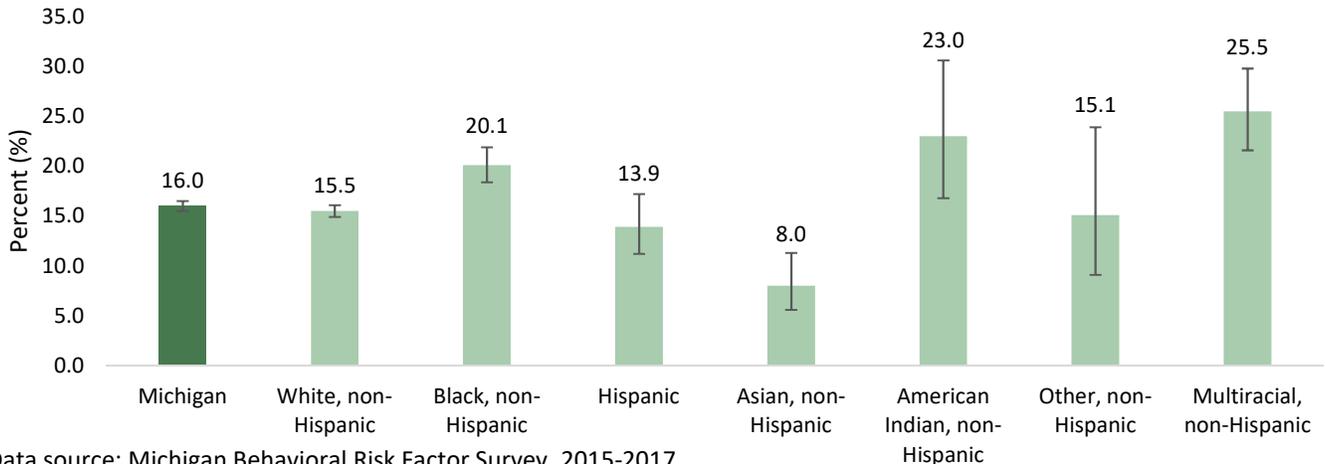


# Asthma by Race and Ethnicity

February 2020

Michigan Department of Health and Human Services (MDHHS) has worked hard to lessen inequities in asthma outcomes among racial/ethnic groups, but disparities remain. Understanding which groups face a high burden of asthma is essential to improving their health and the health of Michigan as a whole.

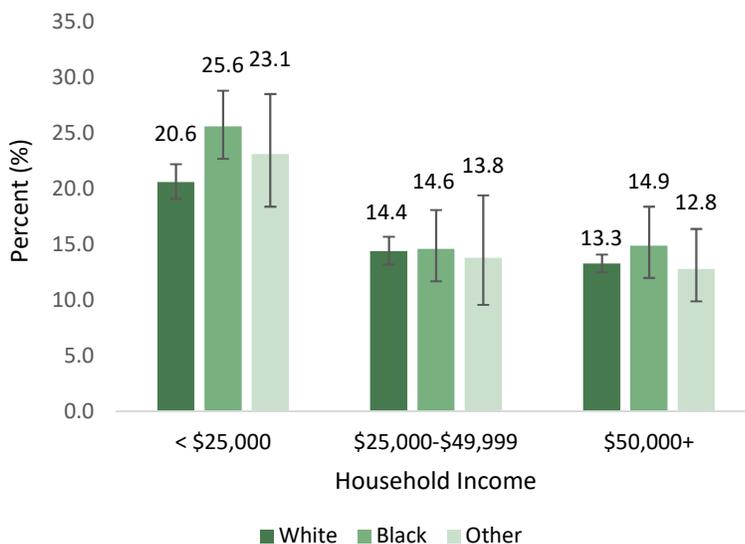
## Lifetime Asthma Among Michigan Adults, 2015-2017



Data source: Michigan Behavioral Risk Factor Survey, 2015-2017  
 Error bars represent 95% confidence intervals.

- Between 2015 and 2017, 16.0% of Michigan adults reported that they had ever been told by a doctor, nurse or other health professional that they have asthma.
- Black, non-Hispanic adults (20.1%) and American Indian, non-Hispanic adults (23.0%) were significantly more likely to report lifetime asthma compared to Michigan (16.0%).
- Asian, non-Hispanic adults reported a significantly lower prevalence of lifetime asthma (8.0%) compared to Michigan (16.0%).

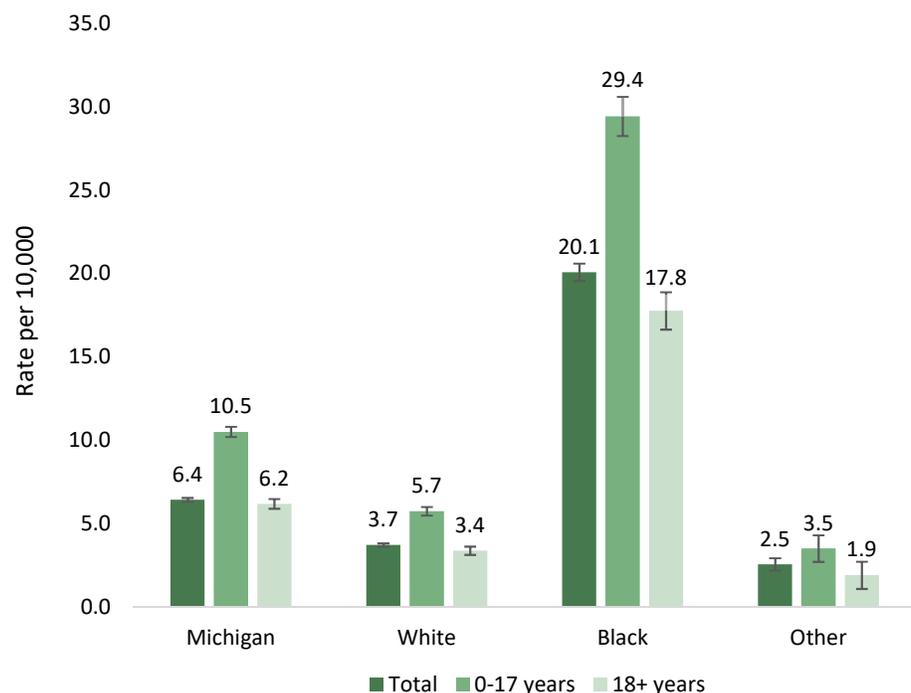
## Lifetime Asthma by Race\* and Income, 2015-2017



Data source: Michigan Behavioral Risk Factor Survey, 2015-2017  
 \*White, Black, and Other categories include participants who self-identified as Hispanic.  
 Error bars represent 95% confidence intervals.

- Black adults with incomes of < \$25,000 were the most likely to report lifetime asthma (25.6%), while Other adults with incomes \$50,000 or more were the least likely to report current asthma (12.8%).
- Among adults with household incomes of < \$25,000, Black adults (25.6%) were significantly more likely to report lifetime asthma than White adults (20.6%).
- At higher income levels, Black, White, and Other adults report comparable prevalences of asthma.
- White and Black adults with incomes < \$25,000 were significantly more likely to report asthma in comparison to White and Black adults with higher incomes.

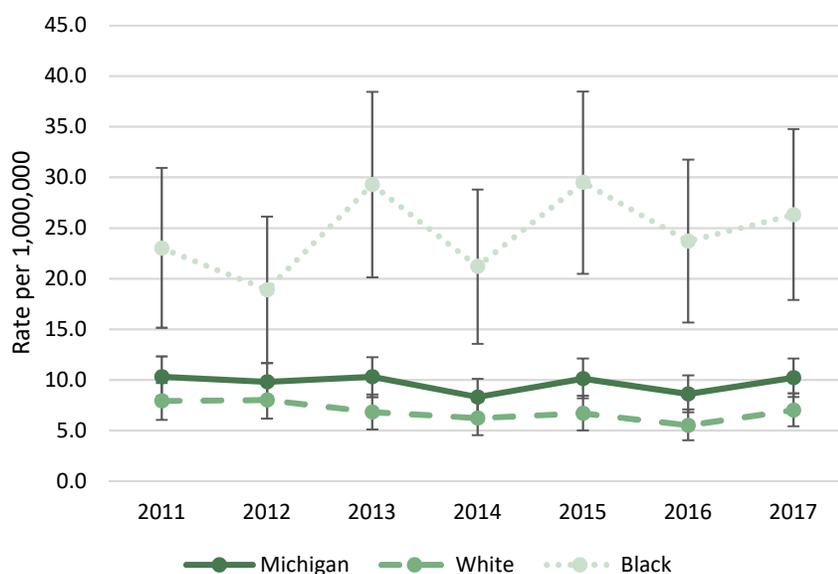
Asthma Hospitalization by Race and Age Michigan, 2016-2017



- Black children were hospitalized at a higher rate (29.4 per 10,000) than White or Other children (5.7 and 3.5 per 10,000, respectively).
- Black adults were hospitalized at a higher rate (17.8 per 10,000) than White or Other adults (3.4 and 1.9 per 10,000, respectively).
- White and Black children were hospitalized at a higher rate (5.7 and 29.4 per 10,000) than their adult counterparts (3.4 and 1.9 per 10,000).

Data source: Michigan Inpatient Database, 2016-2017  
 Error bars represent 95% confidence intervals.

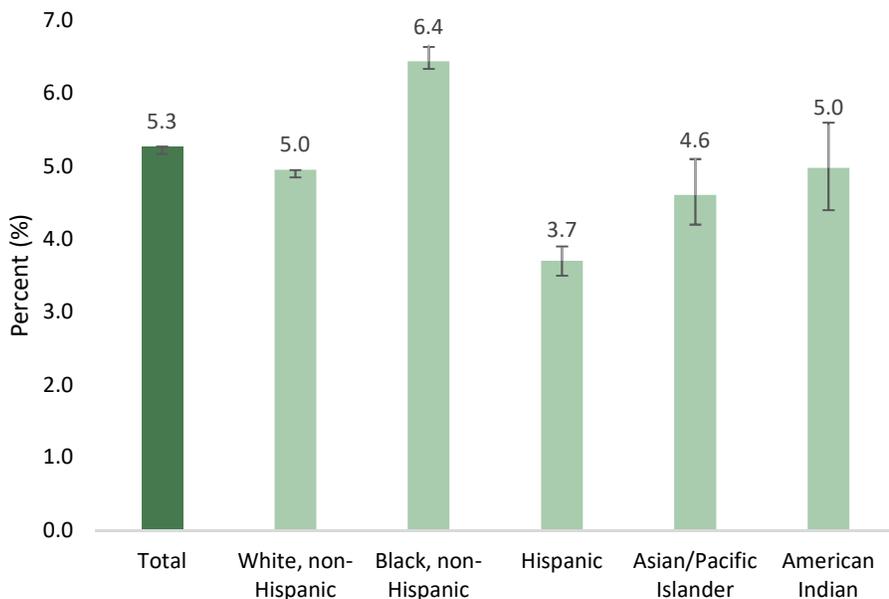
Asthma Mortality by Race and Year, 2011-2017



- In 2017, the mortality rate for asthma was 10.2 per 1,000,000 in Michigan
- In 2017, the mortality rate for asthma was 7.0 per 1,000,000 among White residents and 26.3 per 1,000,000 among Black residents.
- From 2011-2017, the asthma mortality rate has not changed significantly among Michigan residents, nor among White or Black residents specifically.

Data source: Division for Vital Records and Health Statistics, Michigan Death File, 2011-2017  
 Error bars represent 95% confidence intervals.

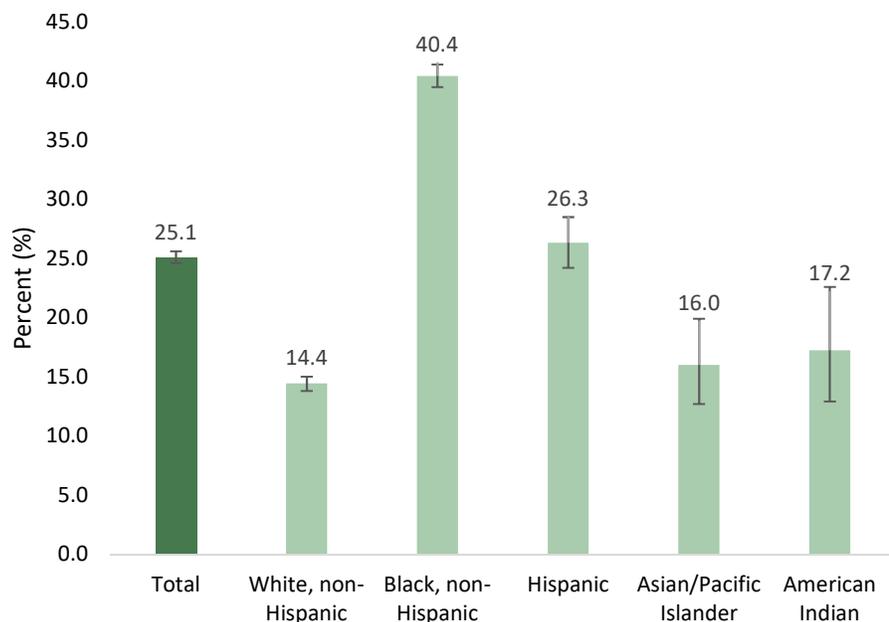
Persistent Asthma Among Children (5-17 years) on Medicaid, 2016



Data source: Medicaid Claims Data from the MDHHS Data Warehouse, 2016  
 Error bars represent 95% confidence intervals.

- Among children aged 5-17 years on Medicaid in 2016, 5.3% had persistent asthma (see methods).
- The prevalence of persistent asthma among Black, non-Hispanic children (6.4%) was significantly higher than the overall prevalence (5.3%).
- The prevalence of persistent asthma among White, non-Hispanic (5.0%), Hispanic (3.7%), and Asian children (4.6%) was significantly lower than Michigan overall (5.3%).
- The prevalence of persistent asthma was 28% higher among Black, non-Hispanic children compared to White, non-Hispanic children.

1+ Emergency Department Visits Among Children (5-17 years) with Persistent Asthma on Medicaid, 2016



Data source: Medicaid Claims Data from the MDHHS Data Warehouse, 2016  
 Error bars represent 95% confidence intervals.

- Among children aged 5-17 years with persistent asthma on Medicaid in 2016, 25.1% visited the emergency department (ED) one or more times for asthma.
- Black, non-Hispanic children with asthma were significantly more likely to visit the ED compared to children overall, while White, non-Hispanic, American Indian, and Asian/Pacific Islander were less likely to visit the ED.
- Black, non-Hispanic children with asthma were 2.8 times more likely than White, non-Hispanic children with asthma to visit the ED for asthma one or more times.

## Methods

### Methods: Behavioral Risk Factor Survey

- The Michigan Behavioral Risk Factor Survey (MiBRFS) is an annual, statewide telephone survey of Michigan adults aged 18 years and older that is conducted through a collaborative effort between the Population Health Surveillance Branch (PHSB) of the Centers for Disease Control and Prevention (CDC), the Michigan State University Institute for Public Policy and Social Research (IPPSR), and the Michigan Department of Health and Human Services. MiBRFS data contributes to the national Behavioral Risk Factor Surveillance System (BRFSS) that is managed by the PHSB at the CDC. Data were weighted to adjust for the probabilities of selection and a raking weighting factor was used to adjust for the distribution of the Michigan adult population based on eight demographic variables. All analyses were performed using SAS-callable SUDAAN® to account for the complex sampling design.
- The total sample size for the combined 2015-2017 MiBRFS dataset was equal to 31,848 completed interviews from both landline telephones and cell phones. The 2015-2017 combined dataset included 25,150 White, Non-Hispanic; 3,254 Black, Non-Hispanic; 504 Asian or other Pacific Islander, Non-Hispanic; 259 American Indian/Alaska Native, Non-Hispanic; 146 Other, non-Hispanic; 695 Multiracial, Non-Hispanic; and 814 Hispanic respondents. Race and ethnicity were determined by self-report, and those with unknown race/ethnicity were excluded from this analysis.
- A respondent was categorized as having lifetime asthma if they answered “yes” to the following question: “Has a doctor, nurse, or other health professional ever told you that you [have] asthma?”

### Methods: Hospitalization

- Age-adjusted hospitalization rates were calculated using the Michigan Inpatient Database (MIDB), collected by the Michigan Health and Hospital Association (MHHA), and yearly bridged-race population estimates provided by the National Vital Statistics System maintained by the Centers for Disease Control and Prevention. MIDB is a voluntary survey system of every hospital discharge from almost all of Michigan’s acute care hospitals and of discharges of Michigan residents from acute care hospitals in contiguous states. This report utilized 2016-2017 MIDB data.
- An asthma hospitalization was defined as an inpatient stay with a primary discharge diagnosis of asthma (ICD-10 CM=J45). These data represent the number of hospitalizations for asthma, not the number of persons with a hospitalization for asthma.
- Hospitalization rates were calculated and presented per 10,000 population. The asthma hospitalization rates are representative of Michigan residents of all ages. Direct age-adjustment was performed using the 2000 US standard population, so that valid comparisons could be made between populations of different age distributions. Rates were also calculated by race and age to identify disparities and patterns.
- The ‘Other Race’ category includes all persons who were not recorded as Black or White.

## Methods

### Methods: Mortality

- The Michigan Death File is a database maintained by the Division for Vital Records and Health Statistics at MDHHS, which includes all deaths for Michigan residents. This report utilized the Michigan Death Files from 2011-2017.
- An asthma death is defined as the underlying cause of death being asthma, ICD-10=J45 or J46.
- Asthma mortality rates were calculated by race and sex to identify disparities and patterns and were presented per 1,00,000 population. The asthma mortality rates are representative of Michigan residents of all ages. Direct age-adjustment was performed using the 2000 US standard population to ensure that valid comparisons could be made between populations of different age distributions.

### Methods: Medicaid

- Persistent asthma is defined according to HEDIS® specifications: having (1)  $\geq 4$  asthma medication dispensing events, OR (2)  $\geq 1$  emergency department visits for asthma, OR (3)  $\geq 1$  hospitalization for asthma, OR (4)  $\geq 4$  outpatient visits for asthma and  $\geq 2$  asthma medication dispensing events. (National Committee for Quality Assurance. Use of Appropriate Medications for People with Asthma. HEDIS® 2016, Volume 2: Technical Specifications for Health Plans. Washington, DC; 2016.)
- An asthma emergency department (ED) visit is defined as an ED visit with a primary diagnosis of asthma (ICD-10 CM = J45). These data represent the number of persons visiting the emergency department for asthma, not the number of ED visits for asthma.
- This summary included the Michigan Medicaid population aged 5 to 17 years of age (as of the last day of each respective calendar year) who had full Medicaid coverage and were not dually enrolled in any other insurance plan (such as Medicare) for at least 11 months of the measurement year.
- Race/ethnic groups were defined using the following classification in the Data Warehouse: 1) non-Hispanic Black beneficiaries were those who were identified as Black, non-Hispanic, 2) non-Hispanic White beneficiaries were those who were identified as White, non-Hispanic, and 3) Hispanic beneficiaries were those who were identified as Hispanic. American Indian were those who were identified as American Indian or Alaska Native. Asian/Pacific Islander beneficiaries were those who were identified as Asian American, East Indian, Pacific Islander, or beneficiaries from an East or Southeast Asian country. Hispanic ethnicity was not specified for American Indian and Asian/Pacific Islander in the Data Warehouse.

## Further Information

- Visit [www.Michigan.gov/Asthma](http://www.Michigan.gov/Asthma) or [www.Michigan.gov/AsthmaEPI](http://www.Michigan.gov/AsthmaEPI) to view more data on asthma prevalence, hospitalization, and mortality.
- Suggested citation: Daniel-Wayman S and Anderson B. Asthma by Race and Ethnicity, Michigan: Bureau of Epidemiology and Population Health, Michigan Department of Health and Human Services, 2020.

