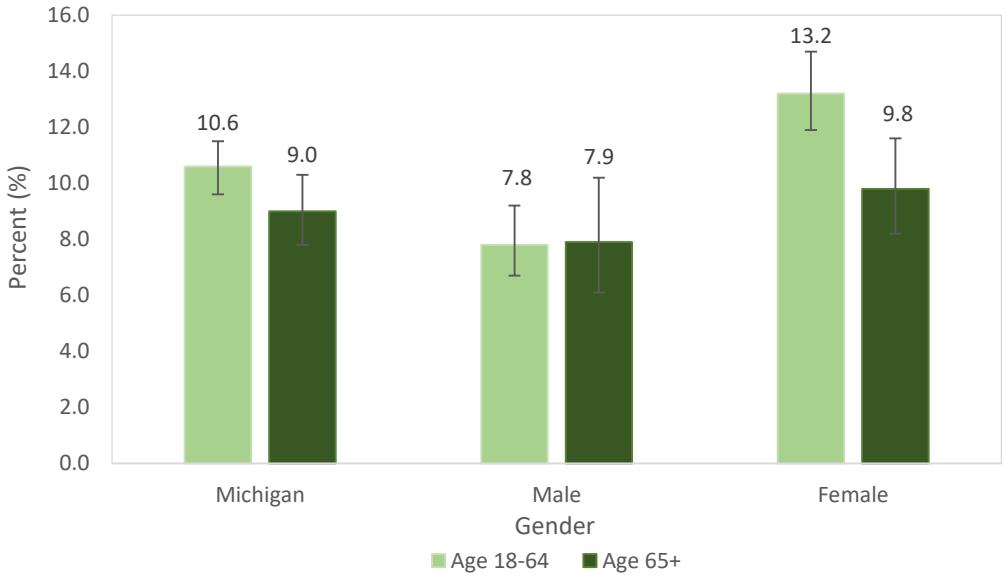
Asthma in the Elderly Population

January 2018

Asthma is a chronic breathing problem that is caused by inflammation of the airways of the lungs. The following report depicts asthma rates for Michigan's elderly population (persons 65+ years old) using data collected from the Michigan Behavioral Risk Factor Survey (MiBRFS) and Michigan Inpatient Database (MIDB).

Asthma Prevalence by Age and Gender

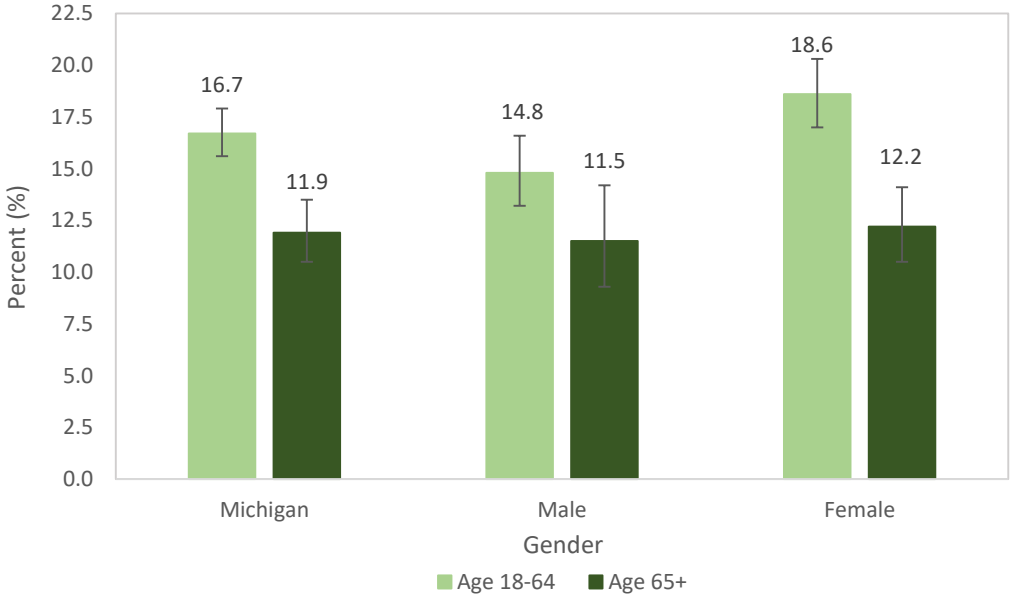
Current Asthma Prevalence among Michigan Adults by Age and Gender, 2015



Data Source: Michigan Behavioral Risk Factor Survey, 2015

- Michigan residents who were 65+ years old reported a lower rate of current asthma (9.0%) in comparison to residents who were 18-64 years old (10.6%).
- Female respondents who were 65+ years old reported a significantly lower rate of current asthma (9.8%) in comparison to female respondents who were 18-64 years old (13.2%).

Lifetime Asthma Prevalence among Michigan Adults by Age and Gender, 2015

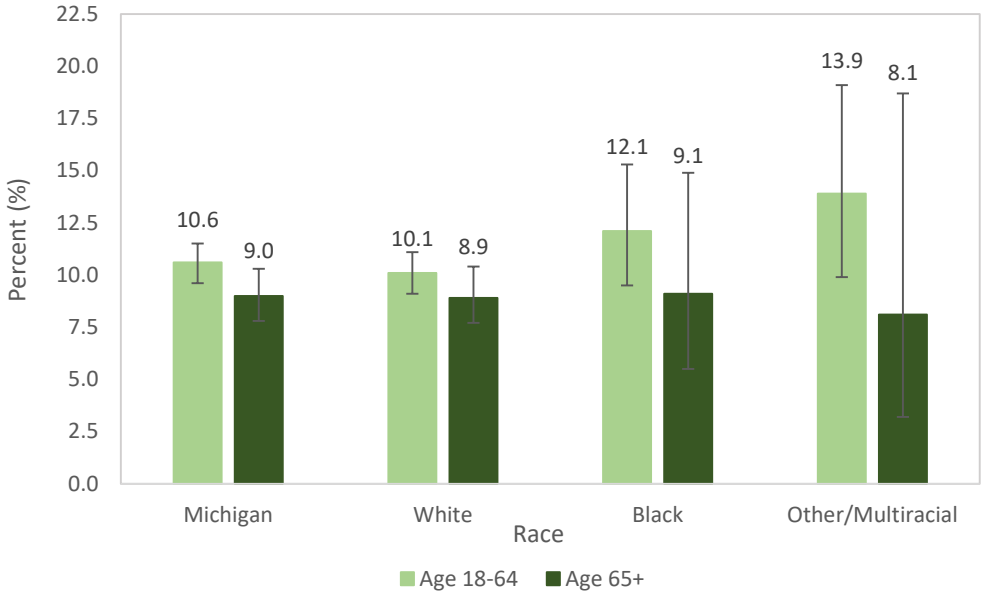


Data Source: Michigan Behavioral Risk Factor Survey, 2015

- Michigan residents who were 65+ years old reported a significantly lower rate of lifetime asthma (11.9%) in comparison to residents who were 18-64 years old (16.7%).
- Female respondents who were 65+ years old reported a significantly lower rate of lifetime asthma (12.2%) in comparison to female respondents who were 18-64 years old (18.6%).

Asthma Prevalence by Race and Age

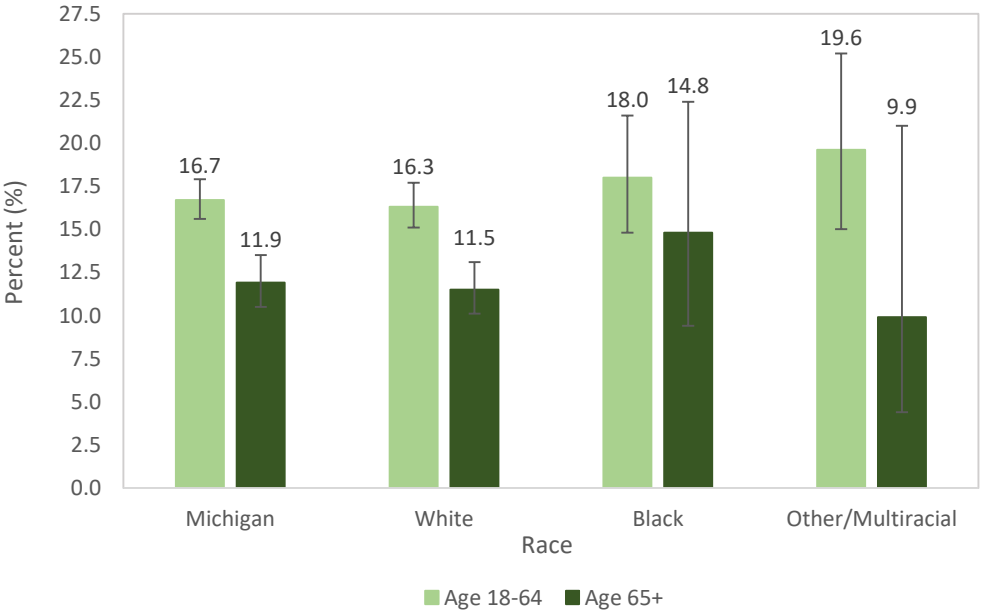
Current Asthma Prevalence among Michigan Adults by Race and Age, 2015



Data Source: Michigan Behavioral Risk Factor Survey, 2015

- White, Black, and Other/Multiracial respondents who were 65+ years old reported lower rates of current asthma compared to respondents who were 18-64 years old.
- Other/Multiracial respondents who were 65+ years old reported the lowest rate of current asthma (8.1%) within this age group.

Lifetime Asthma Prevalence among Michigan Adults by Race and Age, 2015



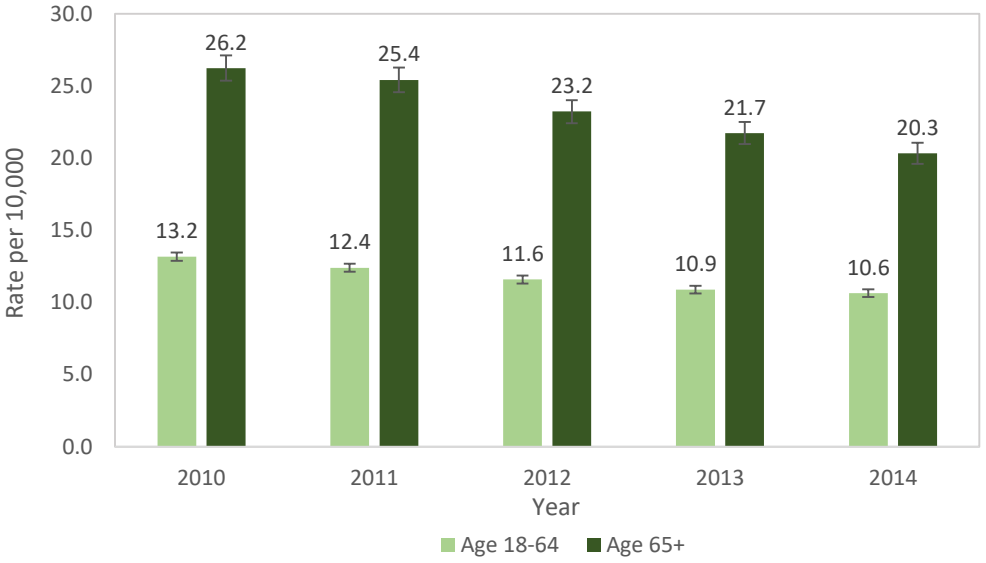
Data Source: Michigan Behavioral Risk Factor Survey, 2015

- White respondents who were 65+ years old reported a significantly lower rate of lifetime asthma (11.5%) in comparison to White respondents who were 18-64 years old (16.3%).
- Other/Multiracial respondents who were 65+ years old reported the lowest rate of lifetime asthma (9.9%) within this age group.

Asthma in the Elderly Population

Asthma Hospitalization by Age

Asthma Hospitalization among Michigan Residents by Age, 2010-2014

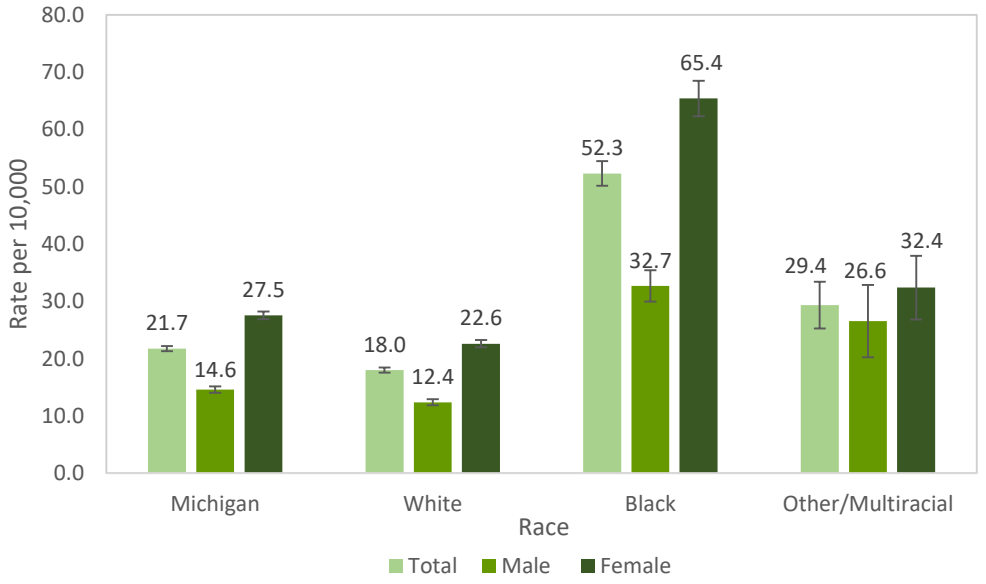


Data Source: Michigan Inpatient Database, MDHHS, 2010-2014

- In 2014, the asthma hospitalization rate for individuals who were 65+ years old was 20.3 per 10,000. There were 22.5% fewer hospitalizations for individuals who were 65+ years old in 2014 in comparison to 2010 (26.2 per 10,000).
- From 2010 to 2014, the asthma hospitalization rates for persons who were 65+ years old were significantly higher than the rates for persons who were 18-64 years old.

Asthma Hospitalization by Race and Gender

Asthma Hospitalization by Race and Gender, Age 65+, 2012-2014



Data Source: Michigan Inpatient Database, MDHHS, 2012-2014

- Black females experienced a significantly higher hospitalization rate (65.4 per 10,000) in comparison to White and Other/Multiracial females (22.6 and 32.4 per 10,000, respectively).
- White and Black females experienced significantly higher hospitalization rates (22.6 and 65.4 per 10,000, respectively) in comparison to White and Black males (12.4 and 32.7 per 10,000, respectively).

Asthma and Chronic Obstructive Pulmonary Disease

- Chronic obstructive pulmonary disease (COPD) is an umbrella term for bronchitis and emphysema. COPD is a progressive adult disease that limits the ability to exhale, and is usually caused by smoking.
- In COPD patients, the lung's air sacs become swollen and the airways can become partially blocked, causing difficulty breathing (illustrated in Figure 1).
- While COPD and asthma are both considered separate respiratory conditions, they share the symptoms of coughing , wheezing, and shortness of breath.
- Asthma-COPD overlap syndrome (ACOS), also known as chronic obstructive asthma, is a commonly encountered yet loosely defined clinical entity. Patients with ACOS have the combined risk factors of smoking and atopic allergy. Furthermore, ACOS patients are generally younger than patients with COPD.

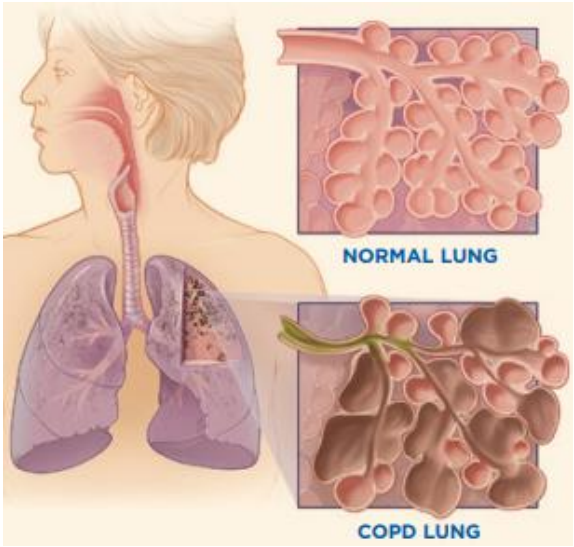
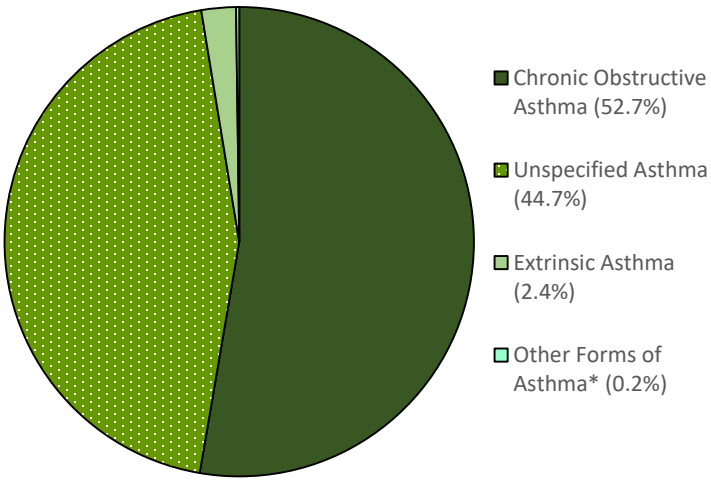


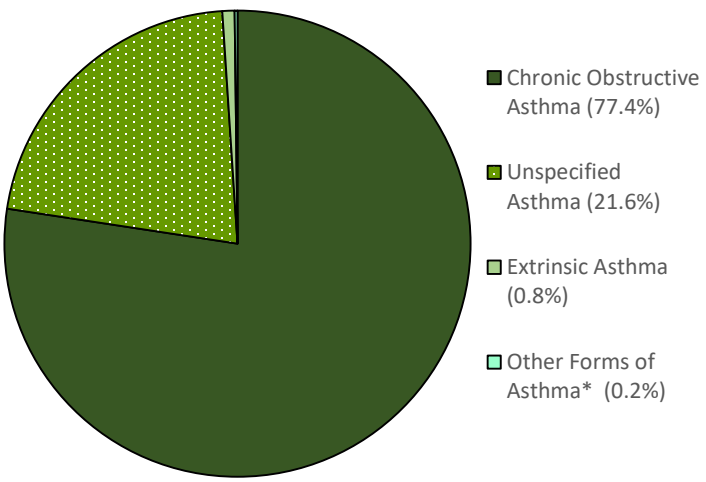
Figure 1

Asthma Diagnosis at Hospitalization by Age

Asthma Diagnosis at Hospitalization, Ages 18-64, 2014



Asthma Diagnosis at Hospitalization, Ages 65+, 2014



Data Source: Michigan Inpatient Database, MDHHS, 2014

- Chronic obstructive asthma is defined as asthma with chronic obstructive pulmonary disease (COPD). Extrinsic asthma refers to allergic asthma, or asthma caused by the inhalation of an allergen.
- In 2014, 77.4% of individuals age 65+ who were hospitalized for asthma had a diagnosis of chronic obstructive asthma. In comparison, 52.7% of individuals ages 18-64 who were hospitalized for asthma had a diagnosis of chronic obstructive asthma during the same year.
- This data indicates that the majority of individuals ages 65+, when hospitalized with asthma, were also diagnosed with COPD.

* Other Forms of Asthma includes intrinsic asthma (asthma caused by external irritants, but not allergens), exercise-induced bronchospasm, & cough variant asthma.

Methods

Michigan 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.
- In 2015, the total sample size of completed interviews for the core survey was 8,935 (landline telephone = 4,215; cell phone = 4,720), which consisted of 7,188 White, non-Hispanics, 946 Black, non-Hispanics, 450 Other/Multiracial, non-Hispanics, and 206 Hispanics. Race/ethnicity was not available for 145 respondents, thus these individuals were excluded from this analysis. Due to relatively small racial-ethnic subgroup sample sizes, we were required to combine demographic groups in this analysis. Some of the estimates for these racial-ethnic subgroups are relatively imprecise (i.e., have large confidence intervals) and should be used with caution. Furthermore, only comparisons between estimates with non-overlapping 95% confidence intervals should be considered significantly different.
- For the 2015 Michigan BRFS, the sample of landline telephone numbers that were utilized for data collection was selected using a list-assisted, random-digit-dialed methodology with a disproportionate stratification based on phone bank density, and whether or not the phone numbers were directory listed. The sample of cell phone numbers used within the 2015 Michigan BRFS data collection process was randomly selected from dedicated cellular telephone banks sorted on the basis of area code and exchange within the state of Michigan.
- 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?" A respondent was categorized as having current asthma if they answered "yes" to the following questions: "Has a doctor, nurse, or other health professional ever told you that you [have] asthma?" and "Do you still have asthma?"

Hospitalization

- The Michigan Inpatient Database (MIDB) includes virtually all hospital discharges for Michigan residents. This report utilized 2010-2014 MIDB data.
- An asthma hospitalization was defined as an inpatient stay with a primary discharge diagnosis of asthma (ICD-9 – CM=493.XX). 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. Rates were age-adjusted, using the 2000 US standard population, so that valid comparisons could be made between populations of different age distributions. Rates were calculated by race and sex to identify disparities and patterns.
- Asthma diagnosis at hospitalization was determined by referencing the ICD-9-CM code for primary discharge diagnosis. MIDB defines asthma diagnoses as either extrinsic asthma (ICD-9-CM=493.0), intrinsic asthma (ICD-9-CM=493.1), chronic obstructive asthma (ICD-9-CM=493.2), other asthma (ICD-9-CM=493.8), and unspecified asthma (ICD-9-CM=493.9). This surveillance brief grouped intrinsic asthma and other asthma diagnoses into the category "Other Forms of Asthma" because of the small percentage of patients with these diagnoses.

Figure 1 Citation

National Heart Lung and Blood Institute. Breathing Better With a COPD Diagnosis. Retrieved from https://www.cdc.gov/copd/pdfs/fact_sheet-Breathing_Better_with_a_COPD_Diagnosis.pdf

For more information:

Visit www.michigan.gov/asthma or www.michigan.gov/asthmaepi to view more data on asthma prevalence and hospitalization.
Visit www.michigan.gov/brfs to view more information on the Michigan Behavioral Risk Factor Survey.

Suggested citation:

Merrill S, Anderson B, and Wahl R. Asthma in the Elderly Population. Lansing, Michigan: Bureau of Epidemiology and Population Health, Michigan Department of Health and Human Services, January 2018.

MDHHS
Michigan Department of Health & Human Services