

Asthma Disparities in Ohio, 2021



Department
of Health

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Definitions

In 1984, the Centers for Disease Control and Prevention (CDC) established the Behavioral Risk Factor Surveillance System (BRFSS). BRFSS is the nation's largest health survey that collects state-level data about U.S. residents regarding their health-related risk behaviors and events, chronic health conditions, and use of preventive services. The Ohio BRFSS is a major source of state-based health risk behavior data related to chronic disease prevalence.

Current Prevalence: Estimated number of adult (i.e., 18 and older) Ohioans who responded, “yes” to the BRFSS question: “Do you still have asthma?”

Asthma Death: Deaths with International Classification of Diseases (ICD)-10 code J45-J46 as the underlying cause of death among residents during a calendar year.

Inpatient Hospitalizations: Inpatient hospitalizations with a primary diagnosis of International Classification of Diseases (ICD)-10-CM code J45 among residents during a calendar year.

Emergency Department (ED) Visit: ED Visits with a primary diagnosis of International Classification of Diseases (ICD)-10-CM code J45 among residents during a calendar year.

Key Findings – Adults

In 2021, approximately 9.68% of adults reported having current asthma. Both racial and gender disparities continue to exist within these populations in Ohio.

- Black adults experience higher prevalence of asthma compared to their white counterparts.
- Black adults experienced asthma-related emergency department visits at a rate over six times that of their white counterparts.
- Black adults experienced asthma-related inpatient hospitalizations at a rate of almost six times that of their white counterparts.
- Black adults experienced asthma-related deaths at a rate of over 2.5 times that of their white counterparts.
- Adult women experienced asthma emergency department visitations at a rate approximately 1.5 times that of adult men, (34.28 to 22.45 cases per 10,000 residents respectively).
- Adults aged 65 years and older die from asthma at a rate of over two times that of alternative adult age groups, yet had the lowest prevalence rate of current asthma between the adult age groups.

Key Findings – Children

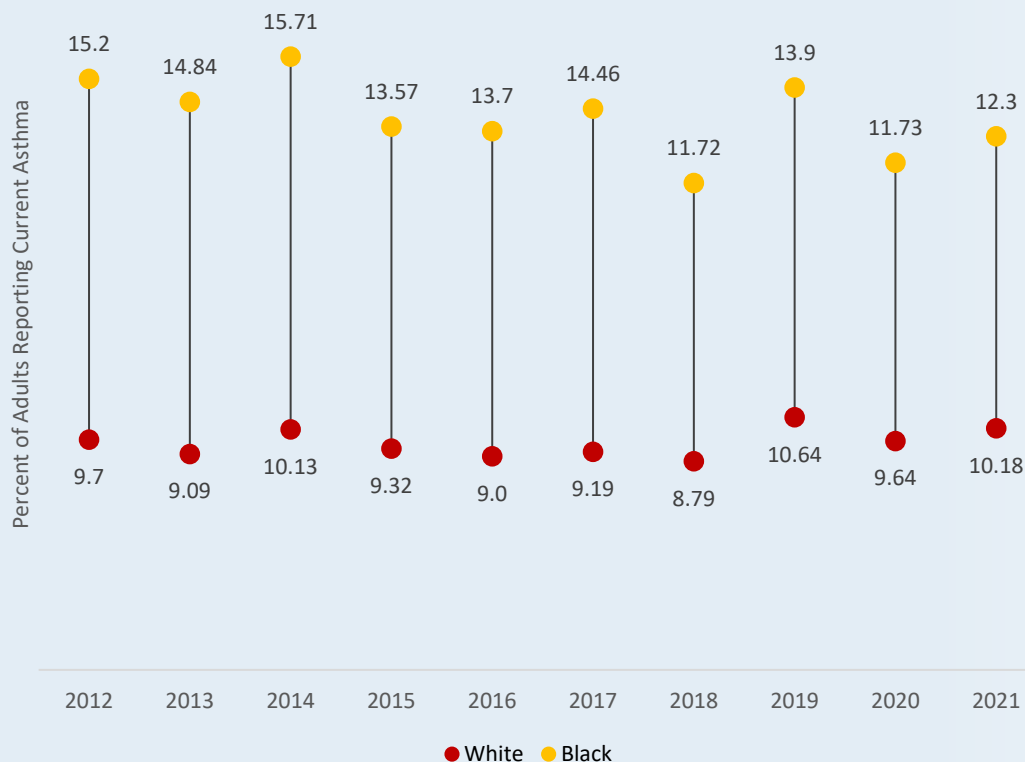
In 2021, approximately 5.87% of children reported having current asthma. Both racial and gender disparities continue to exist within these populations in Ohio.

- Black children experience higher prevalence of asthma compared to their white counterparts.
- Black children experienced asthma-related emergency department visits at a rate of 5.7 times that of their white counterparts.
- Black children experienced asthma-related inpatient hospitalizations at a rate of almost 6.5 times that of their white counterparts.
- Black children experienced asthma-related deaths at a rate of approximately 14 times that of their white counterparts.
- Among children, females tend to have a lower asthma prevalence rate when compared to male children. However, this changes in adulthood, when adult females are found to have a higher asthma prevalence rate of almost double that of male adults.

Disparities in Adult Asthma Prevalence

Figure 1: Race

Estimated Percentage of Current Asthma Prevalence Among Ohio Adults
by Race and Year 2012-2021



Racial disparities exist in the prevalence of asthma between Black and White adults in Ohio.

Throughout the 2012-2021 surveillance period, current asthma was found to be more prevalent in Black adults when compared to White adults. In 2021, 12.3% of Black adults reported experiencing current asthma, compared to 10.18% of White adults.

Source: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey (BRFSS) Data, Years 2012-2021

Disparities in Adult Asthma Prevalence

Figure 2: Sex

Estimated Percentage of Current Asthma Prevalence Among Ohio Adults by Sex and Year 2012-2021



During the 2012-2021 surveillance period in Ohio, adult females consistently reported asthma at a higher rate compared to males. In 2021, approximately 13.89% of adult females reported current asthma compared to 6.74% of adult males. Figure 2 shows that disparities exist between sexes, as females were found to have a higher prevalence of current asthma at a rate of at least 1.4 times that of their male counterpart for each year.

Source: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey (BRFSS) Data, Years 2012-2021

Disparities in Adult Asthma Prevalence

Figure 3: Age Groups

Average Current Asthma Prevalence Compared to Asthma Mortality (per million residents) by Age Group for Adults Aged 18+ 2012-2021

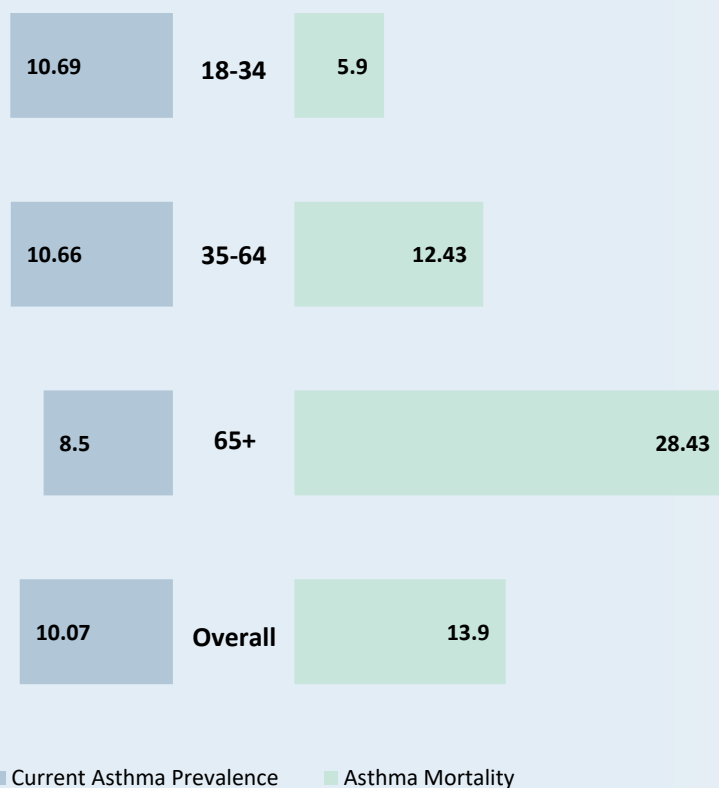


Figure 3 shows the disparities in asthma prevalence in relation to asthma mortality for the various adult age groups in Ohio during the 2012-2021 surveillance period. Adults aged 65 and older reported current asthma at a much lower rate than adults between the ages of 18-64. However, adults aged 65 and older adversely experienced asthma-related deaths at a rate more than two times that of the next leading age group.

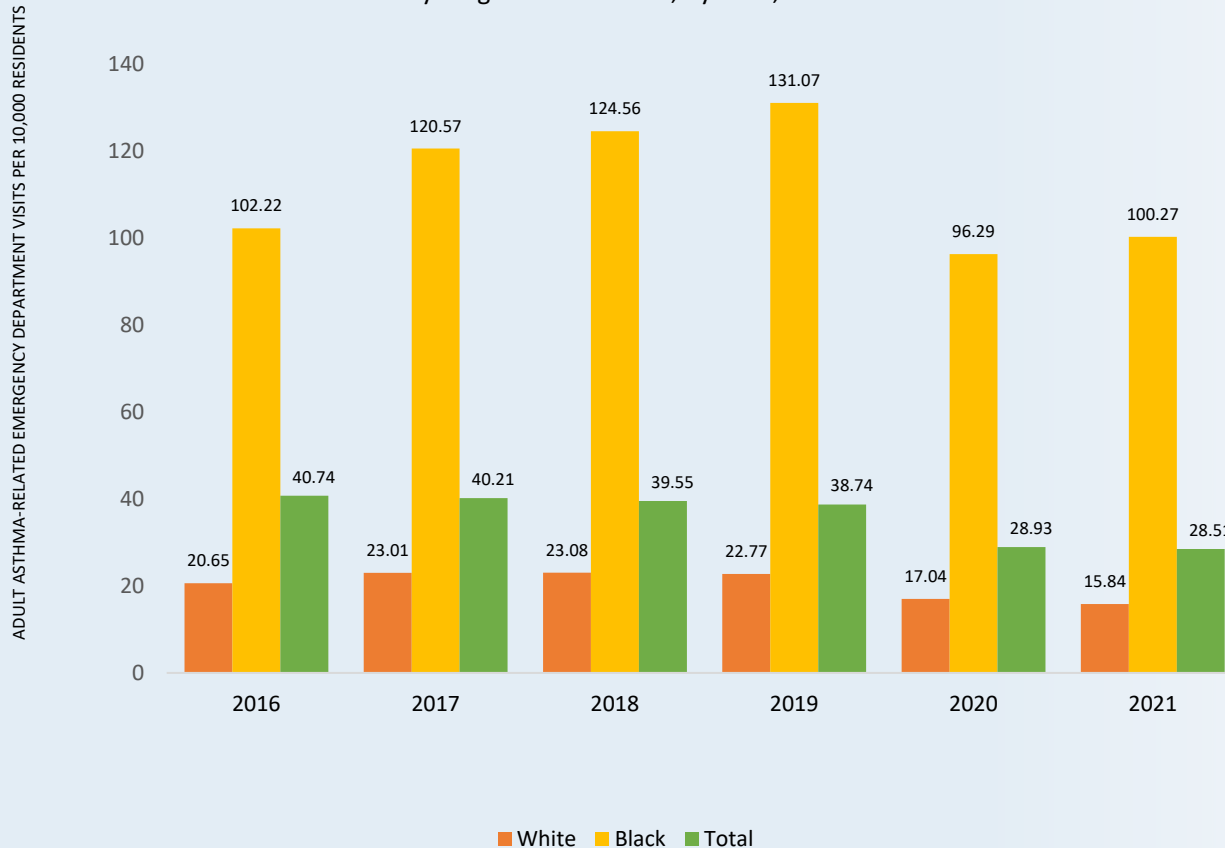
Source: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey (BRFSS)
Data, Years 2012-2021

Ohio Department of Health, Bureau of Vital and Health Statistics and CDC WONDER On-line Database 1990-2021, Years 2012-2021

Disparities in Adult Emergency Department Visit Rates

Figure 4: Race

Emergency Department (ED) Visit Rates per 10,000 Residents for Ohio Adults with a Primary Diagnosis of Asthma, by Race, 2016-2021



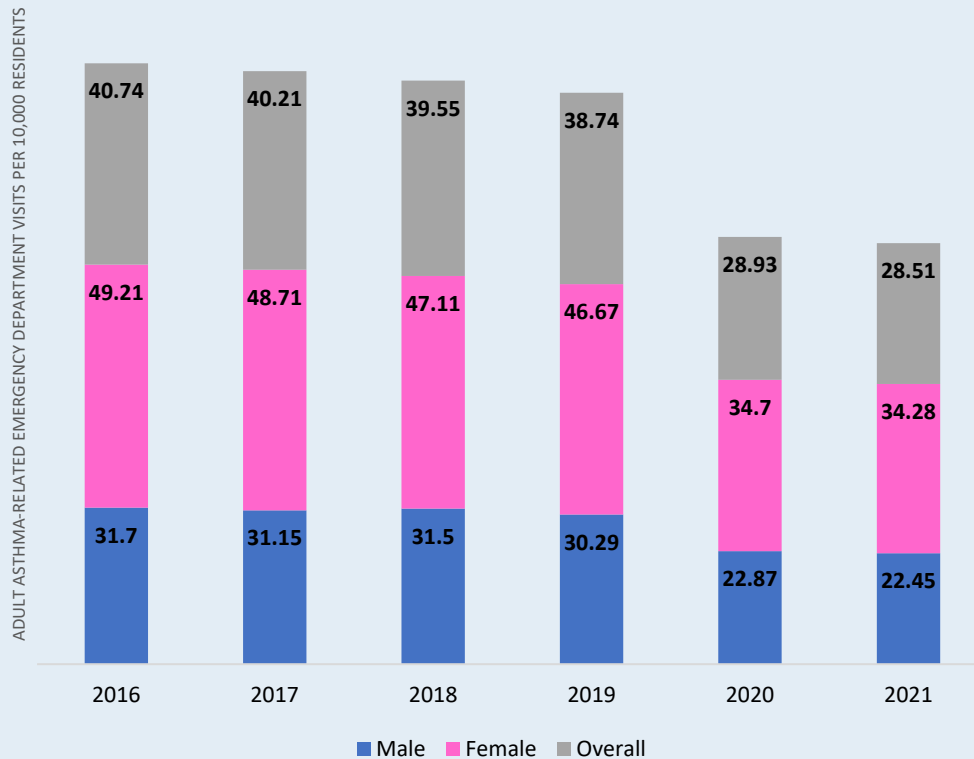
Source: Ohio Hospital Association Clinical-Financial Data Set, Years 2016-2020 and CDC WONDER Online Database 1990-2020, Years 2016-2021

It is evident that racial disparities exist for asthma-related emergency department visits in Ohio. Figure 4 shows that Black adults are more than five times more likely than White adults to visit the emergency department for asthma-related complications. In 2021, Black adults had an asthma-related emergency department visitation rate of over six times that of their White counterparts.

Disparities in Adult Emergency Department Visit Rates

Figure 5: Sex

Emergency Department (ED) Visit Rates per 10,000 Residents for Ohio Adults with a Primary Diagnosis of Asthma, by Sex, 2016-2021



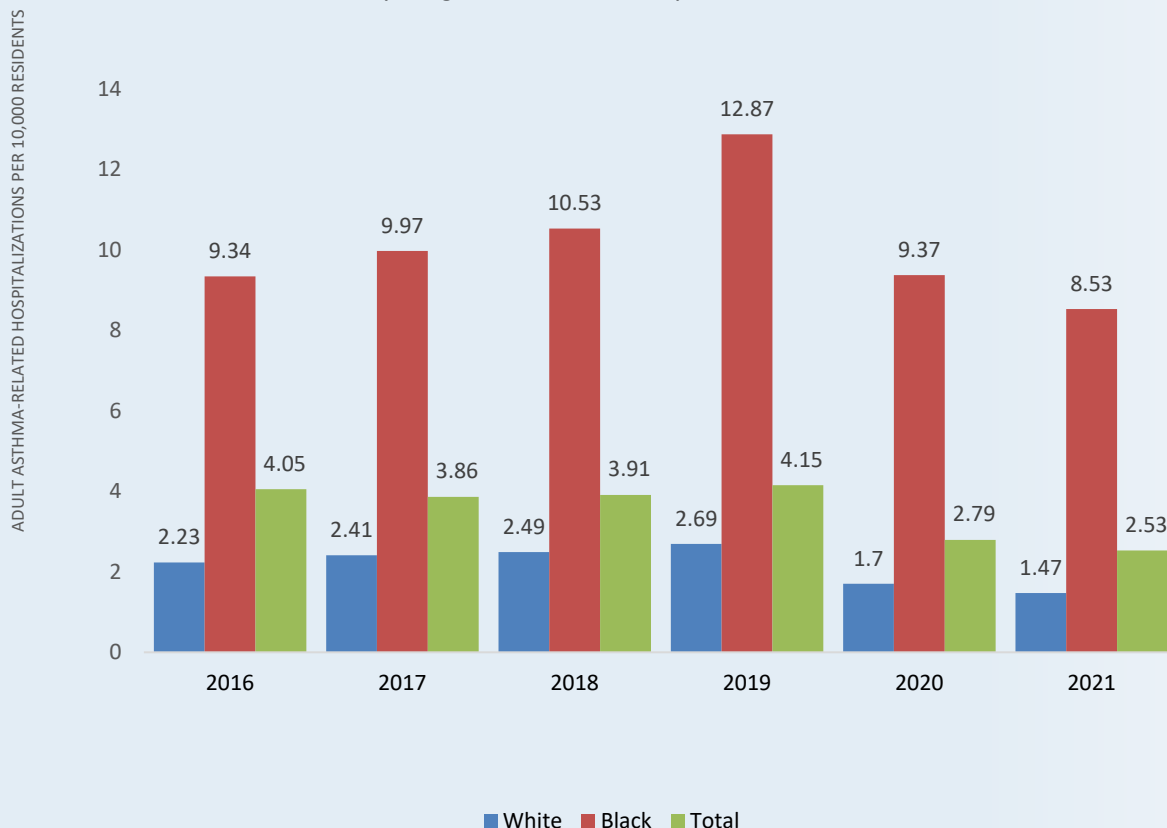
Disparities in asthma-related emergency department visits also exist between sexes. Consistently, throughout the years of 2016-2021, adult women experienced higher asthma-related emergency department visitation rates when compared to adult men. In 2021, adult women had an emergency department visitation rate approximately 1.5 times that of adult men (34.28 and 22.45 emergency department visits per 10,000 residents respectively).

Source: Ohio Hospital Association Clinical-Financial Data Set, Years 2016-2020 and CDC WONDER On-line Database 1990-2020, Years 2016-2021

Disparities in Adult Inpatient Hospitalization Rates

Figure 6: Race

Inpatient Hospitalization Rates per 10,000 Residents for Ohio Adults with a Primary Diagnosis of Asthma, by Race, 2016-2021

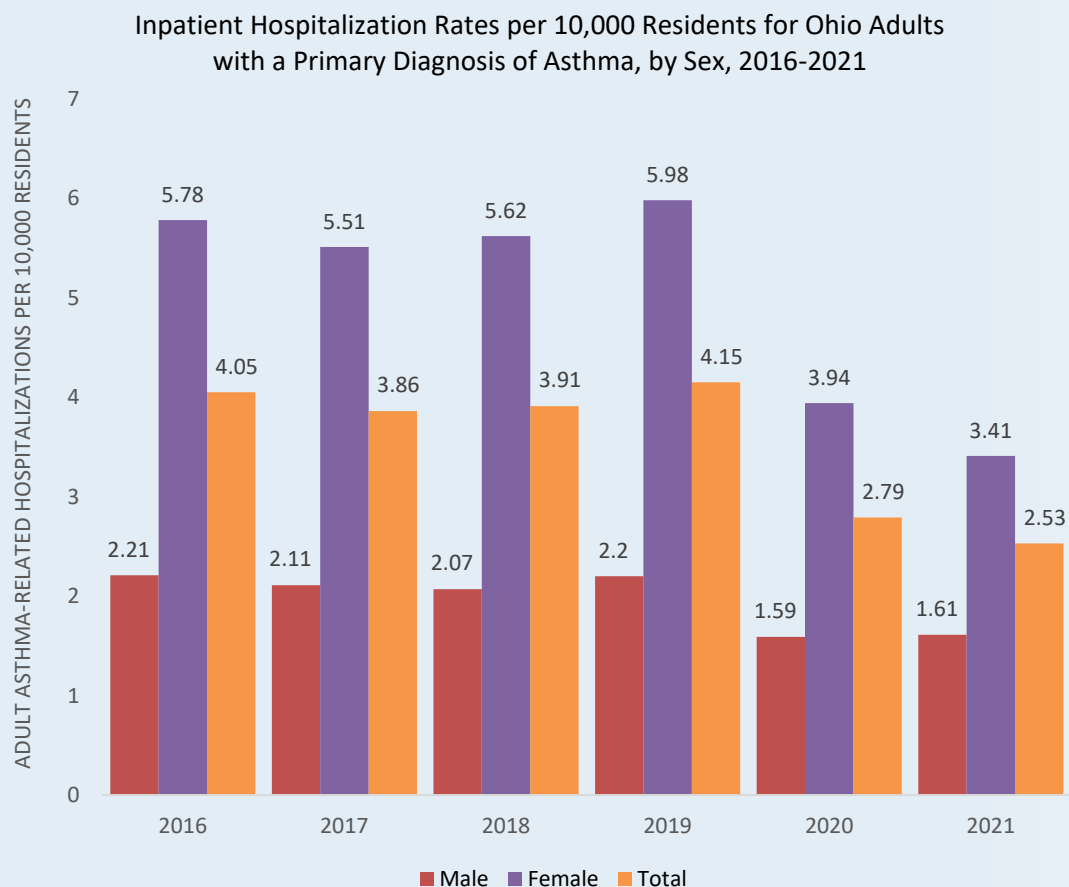


Throughout the years of 2016-2021, Black adults experienced a much higher rate of asthma-related inpatient hospitalizations compared to White adults. In 2021, Black adults experienced asthma-related hospitalizations at a rate of nearly six times that of White adults (8.53 and 1.47 inpatient hospitalizations per 10,000 residents respectively).

Source: Ohio Hospital Association Clinical-Financial Data Set, Years 2016-2020 and CDC WONDER Online Database 1990-2020, Years 2016-2021

Disparities in Adult Inpatient Hospitalization Rates

Figure 7: Sex

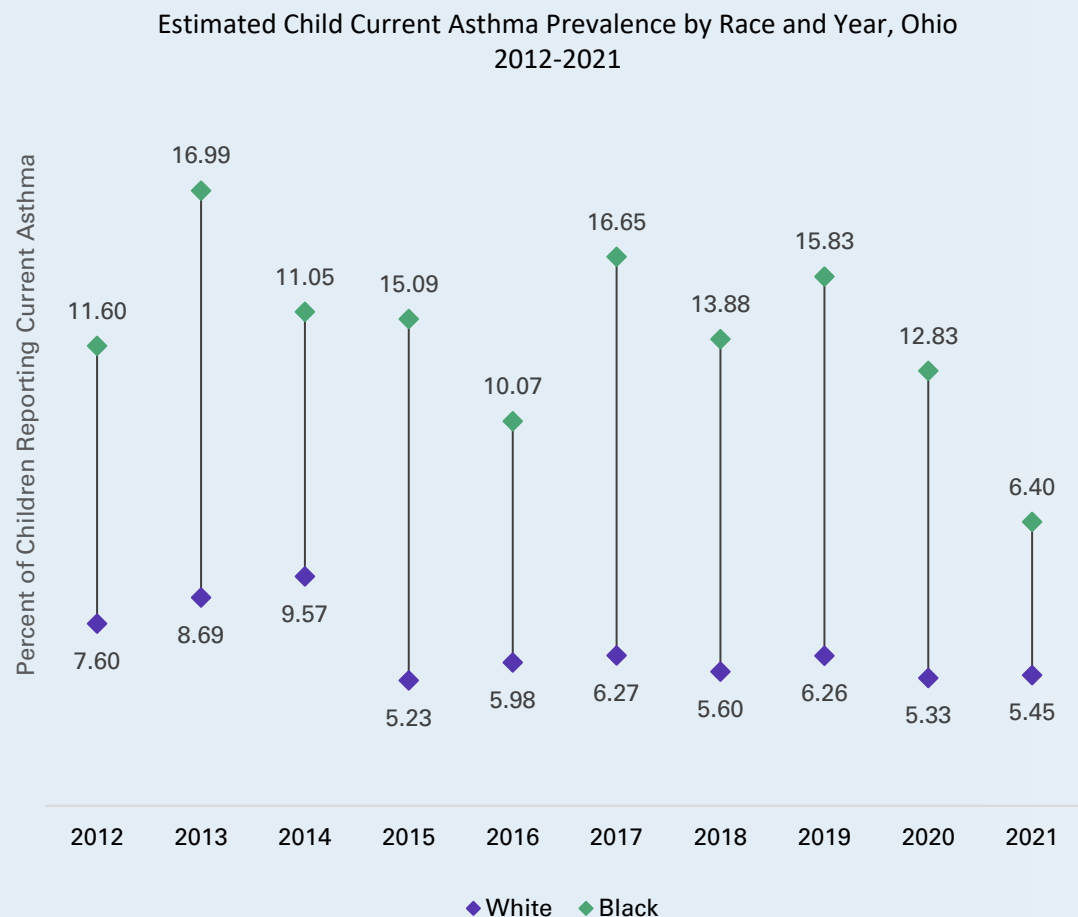


Disparities also exist between adult males and females in asthma-related inpatient hospitalizations. Throughout the years of 2016-2020, adult females experienced asthma related hospitalizations at a rate at least 2.5 times greater than that of adult males. However, this rate slightly decreased in 2021, with adult females experiencing asthma-related inpatient hospitalizations at a rate of 2.1 times greater than their male counterparts (3.41 and 1.61 inpatient hospitalizations per 10,000 residents, respectively).

Source: Ohio Hospital Association Clinical-Financial Data Set, Years 2016-2020 and CDC WONDER On-line Database 1990-2020, Years 2016-2021

Disparities in Child Asthma Prevalence

Figure 8: Race

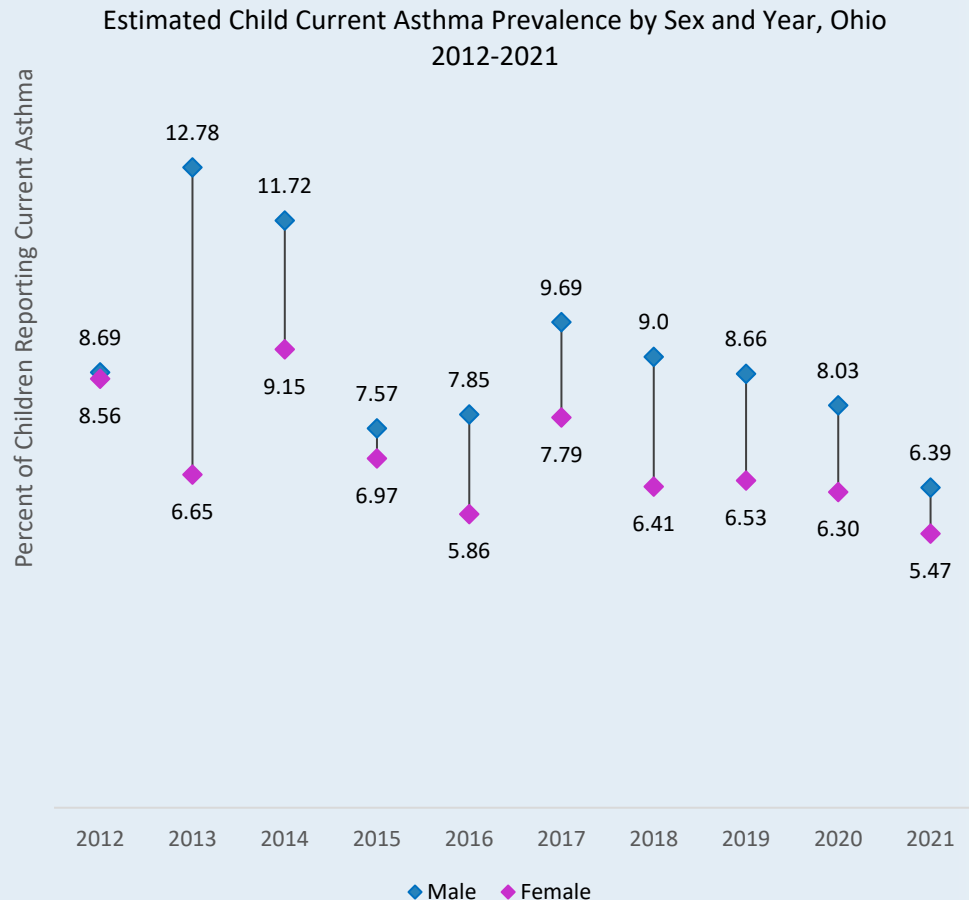


Much like the observed patterns of racial disparities in adults, children also experience disparities in the prevalence of asthma particularly between White and Black children. In 2020, 12.83% of Black children and adolescents reported current asthma compared to 5.33% of White children and adolescents. However, in 2021 the percentage of Black children who reported current asthma decreased by over half of what was reported in the previous year (2020).

Source: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey (BRFSS)
Data, Years 2012-2021

Disparities in Child Asthma Prevalence

Figure 9: Sex

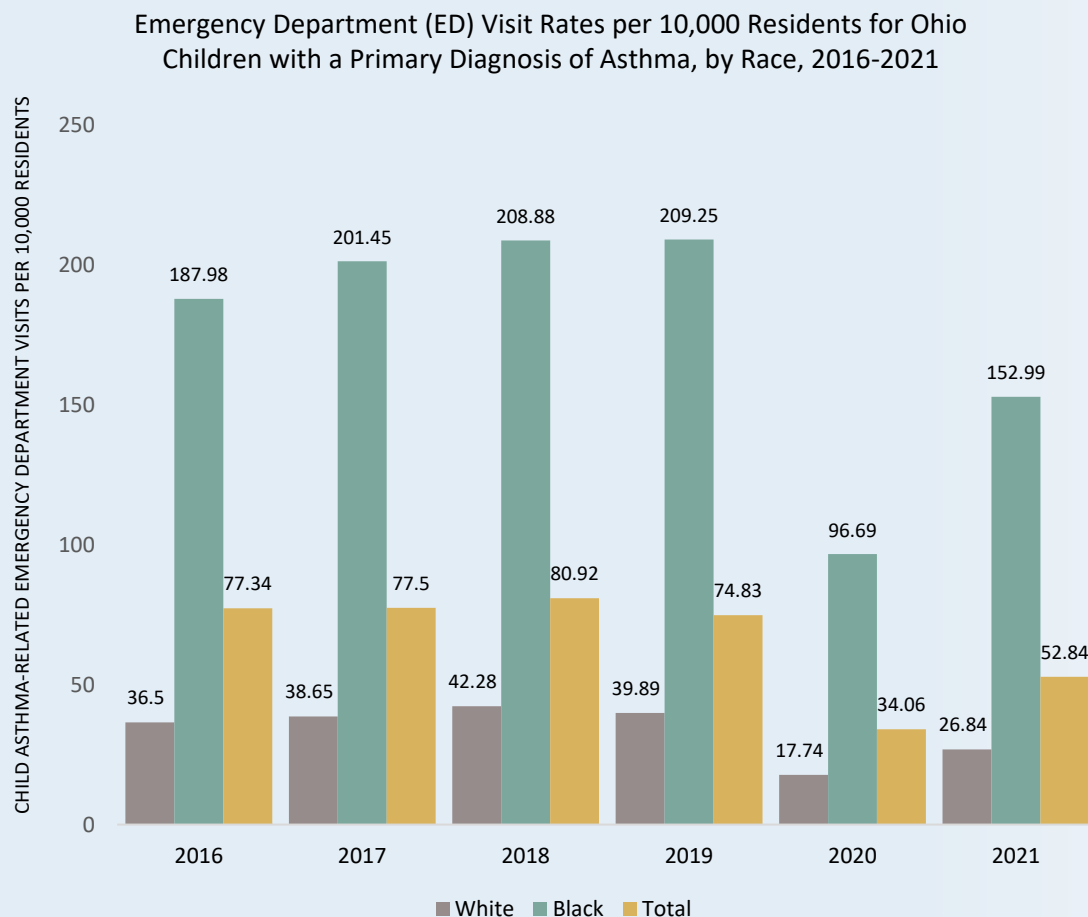


Unlike the trends previously observed for adults, female children and adolescents were found to have reported current asthma at a rate lower than male children and adolescents throughout the 2012-2021 surveillance period. In 2013, approximately 12.78% of male children and adolescents reported having current asthma compared to 6.65% of female children and adolescents. In 2021, 6.39% of male children and adolescents reported having current asthma compared to 5.47% of female children and adolescents.

Source: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey (BRFSS) Data, Years 2012-2021

Disparities in Childhood Emergency Department Visit Rates

Figure 10: Race

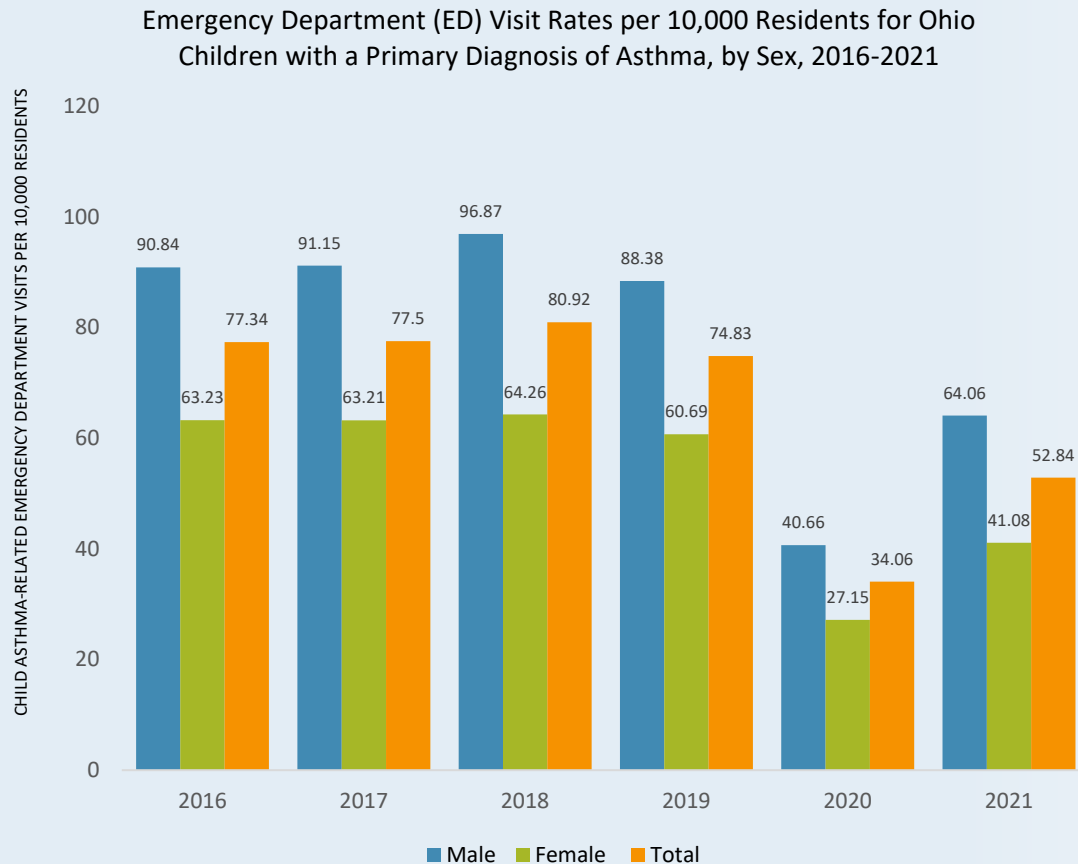


Disparities are evident in childhood asthma-related emergency department visits as well. The asthma-related ED visitation rates for Black children were found to be much higher than that of their White counterparts. In 2021, Black children visited the emergency department for asthma-related complications at a rate close to six times that of their White counterparts.

Source: Ohio Hospital Association Clinical-Financial Data Set, Years 2016-2020 and CDC WONDER On-line Database 1990-2020, Years 2016-2021

Disparities in Childhood Emergency Department Visit Rates

Figure 11: Sex

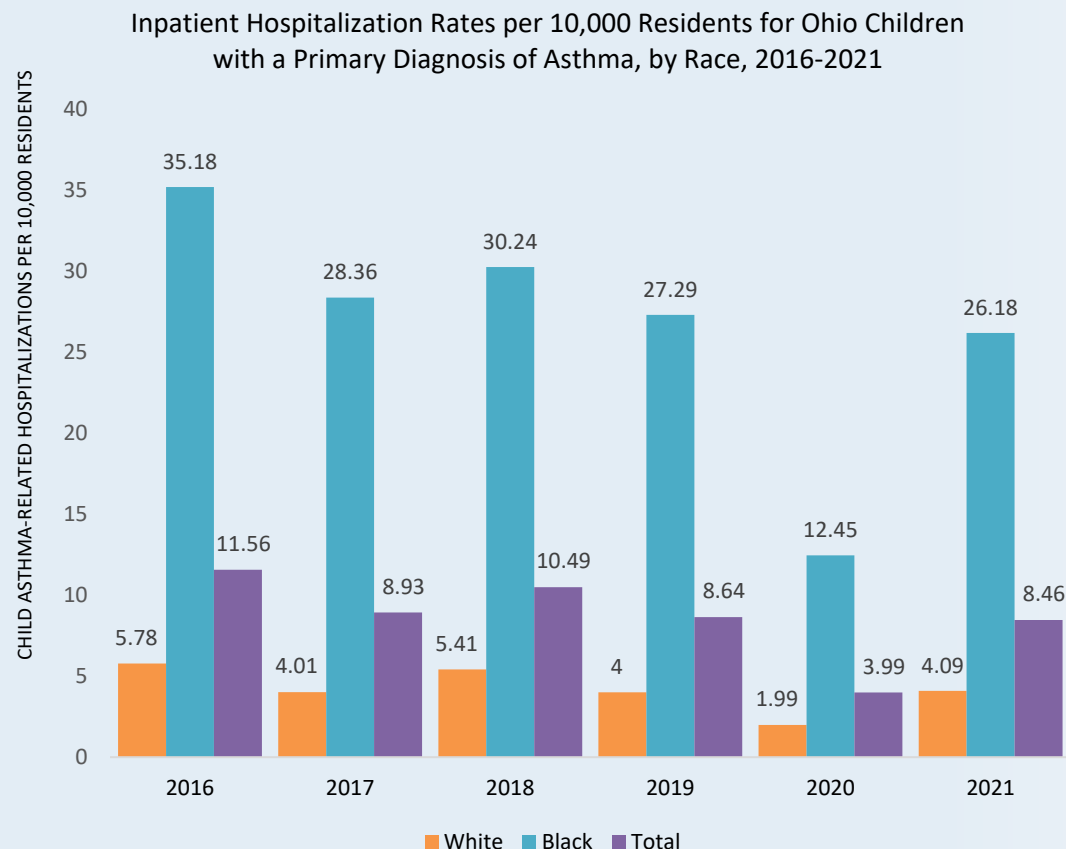


Unlike the trends among males and females, adult trends in childhood disparities between sexes male children were found to have a higher asthma-related emergency room visitation rate when compared to female children and adolescent. Consistently throughout the years of 2016-2020, male children had an asthma-related emergency department visitation rate close to 1.5 times that of female children and adolescent. However, in 2021 males had a rate that was over 1.5 times higher than that of their female counterparts.

Source: Ohio Hospital Association Clinical-Financial Data Set, Years 2016-2020 and CDC WONDER On-line Database 1990-2020, Years 2016-2021

Disparities in Childhood Inpatient Hospitalization Rates

Figure 12: Race



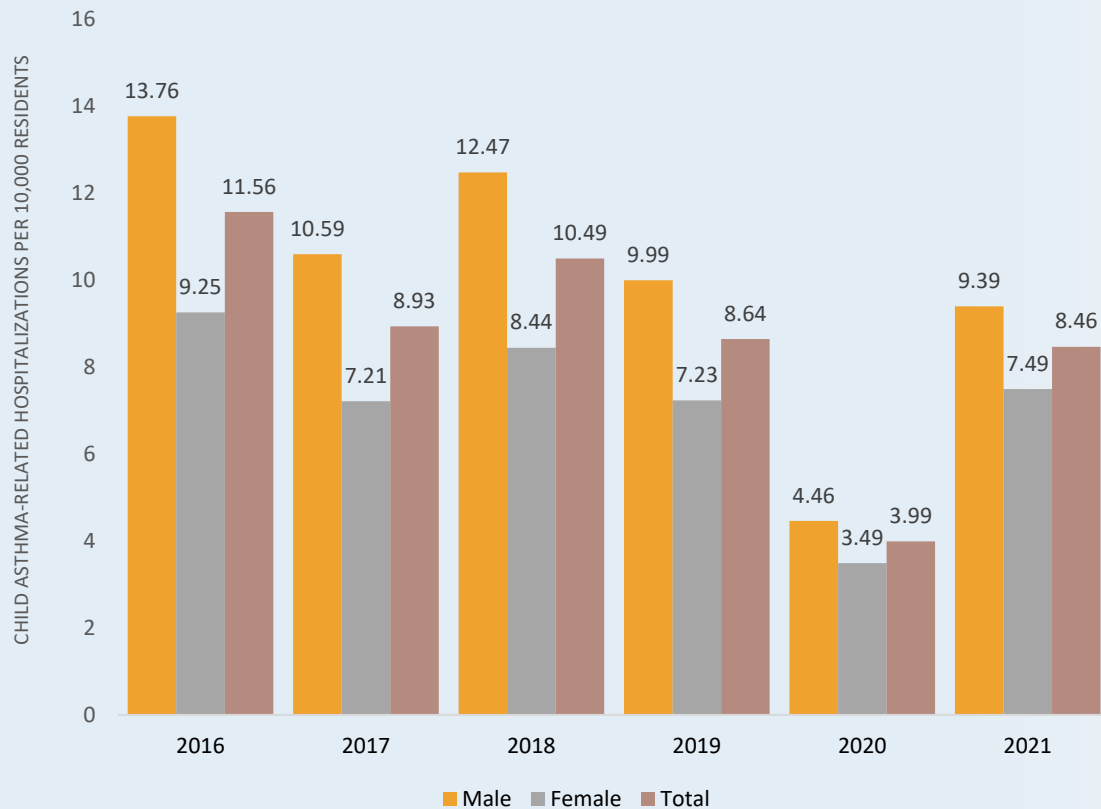
Source: Ohio Hospital Association Clinical-Financial Data Set, Years 2016-2020 and CDC WONDER On-line Database 1990-2020, Years 2016-2021

Disparities continued to exist between races for childhood asthma-related in-patient hospitalizations. In 2021, Black children and adolescents experienced asthma-related hospitalizations at a rate of almost 6.5 times that of White children and adolescents.

Disparities in Childhood Inpatient Hospitalization Rates

Figure 13: Sex

Inpatient Hospitalization Rates per 10,000 Residents for Ohio Children with a Primary Diagnosis of Asthma, by Sex, 2016-2021



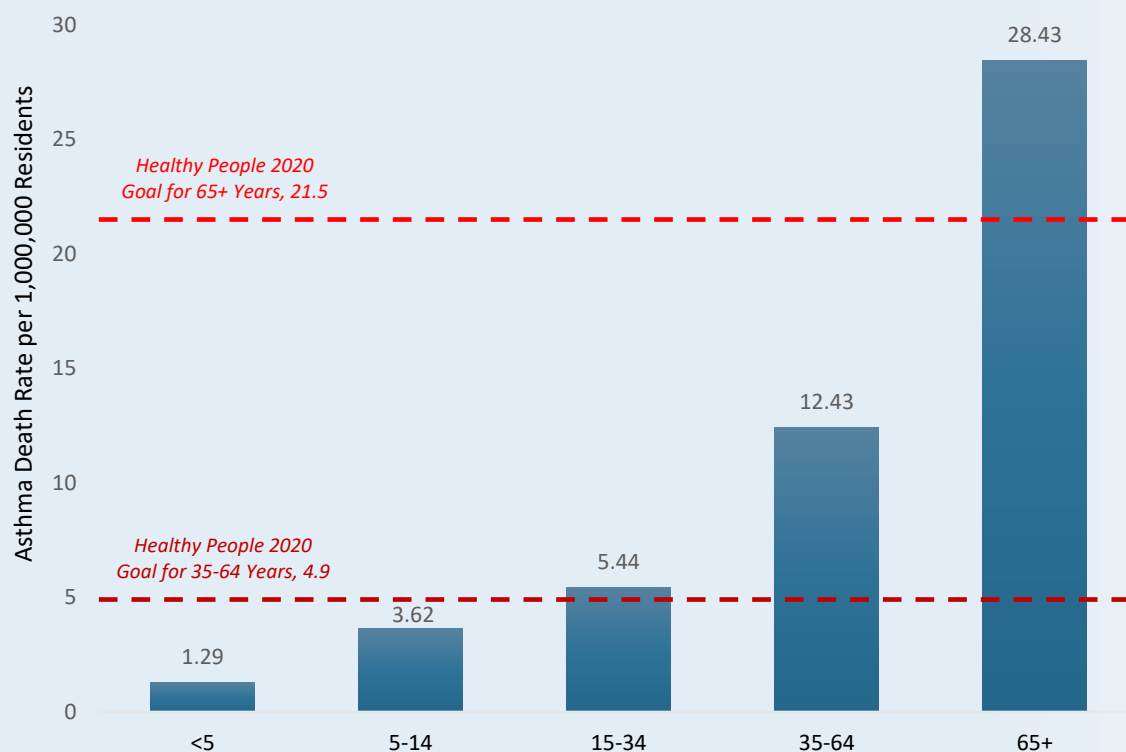
Similar to previous trends noted in childhood emergency department visitation rates, it is evident that male children and adolescents continued to experience higher rates of asthma-related hospitalizations when compared to female children and adolescents. Throughout the years 2016-2021, male children and adolescents experienced asthma-related hospitalizations averaging 1.4 times higher than that of female children and adolescents.

Source: Ohio Hospital Association Clinical-Financial Data Set, Years 2016-2020 and CDC WONDER Online Database 1990-2020, Years 2016-2021

Disparities in Mortality

Figure 14: Age Groups

Asthma Death Rates by Age Group, Ohio, 2012-2021 Annual Averages



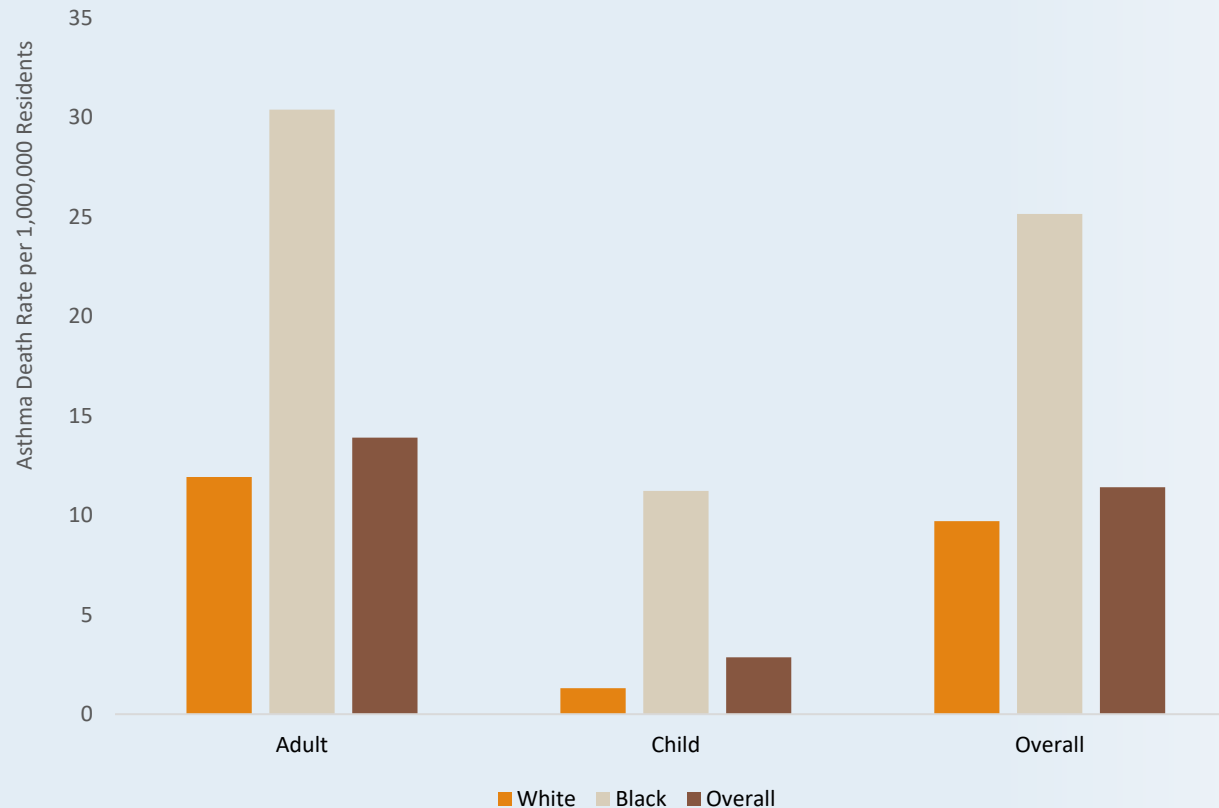
During the 2012-2021 surveillance period for Ohio, trends show that as age increased, the asthma death rate also increased. Ohio did not meet the national Healthy People 2020 death rate goal of 21.5 per million residents for adults aged 65+ during the surveillance period, nor the goal of 4.9 per million residents for adults between the ages of 35-64.

Source: Ohio Department of Health, Bureau of Vital and Health Statistics and CDC WONDER On-line Database 1990-2021, Years 2012-2021

Disparities in Mortality

Figure 15: Race

Asthma Death Rates Among Ohio Adults and Children by Race, 2012-2021 Annual Averages

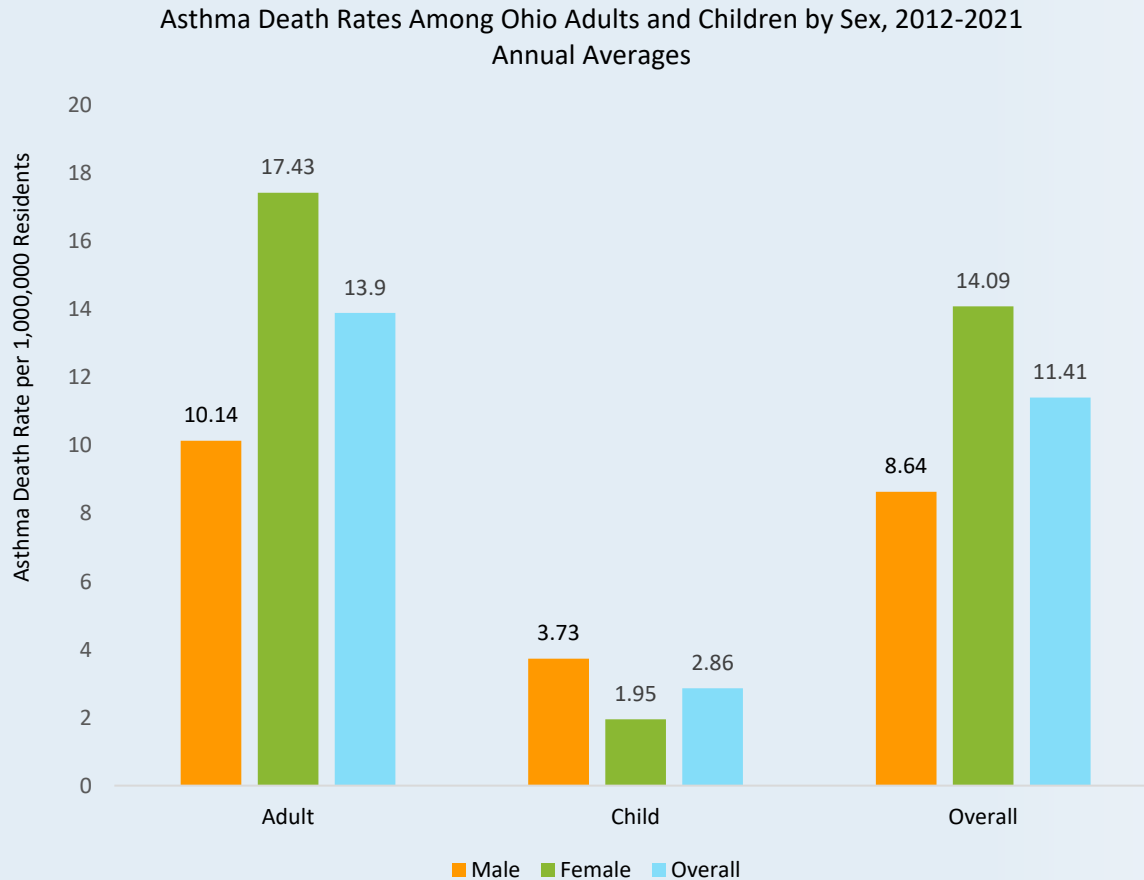


Source: Ohio Department of Health, Bureau of Vital and Health Statistics and CDC WONDER On-line Database 1990-2021, Years 2012-2021

Black Ohio residents were more likely to die from asthma than White residents during the 2012-2021 surveillance period. Black residents experienced an asthma death rate of 25.15 deaths per million residents, more than double that of White residents who experienced a death rate of 9.7 deaths per million residents. Ohio adults experienced an asthma death rate of 13.9 deaths per million residents, a rate nearly five times that of Ohio children who experienced an asthma death rate of 2.86 deaths per million residents. Black adults experienced an asthma death rate of 30.39 deaths per million residents, more than double the rate of 11.92 deaths per million residents experienced by White adults. Black children and adolescents in Ohio experienced an asthma death rate of 11.22 deaths per million residents, more than eight times the rate of 1.3 deaths per million residents experienced by White children and adolescents in Ohio.

Disparities in Mortality

Figure 16: Sex



Overall, females in Ohio were more likely to die from asthma compared to males during the 2012-2021 surveillance period. Females experienced an asthma death rate of 14.09 deaths per million residents, a rate more than 1.5 times that experienced by male residents who experienced a death rate of 8.64 deaths per million residents. Adults in Ohio followed a similar trend in which females were found to experience an asthma death rate higher than males (17.43 and 10.14 deaths per million residents respectively). However, for children, males were found to have experienced a higher death rate when compared to their female counterparts (3.73 and 1.95 deaths per million residents respectively).

Source: Ohio Department of Health, Bureau of Vital and Health Statistics and CDC WONDER On-line Database 1990-2021, Years 2012-2021

Summary

- Over the course of the 2012-2021 surveillance period, asthma has been found to disproportionally impact different racial and gender populations in Ohio.
- Black adults reported having current asthma at an average rate of nearly 1.5 times that of White adults, and black children and adolescents reported current asthma at an average rate of nearly double that of White children and adolescents.
- Black adults and children and adolescents were also found to have significantly higher in-patient hospitalization and asthma-related emergency department visits when compared to their White counterparts.
- Females were found to have higher rates of asthma prevalence, asthma-related emergency department visit, asthma-related inpatient hospitalizations, and asthma-related deaths when compared to adult males.

Data Sources

1. Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey (BRFSS) Data, Years 2012-2021
2. Ohio Department of Health, Bureau of Vital and Health Statistics, Years 2012-2021
3. Ohio Hospital Association Clinical-Financial Data Set, Years 2016-2021
4. CDC WONDER On-line Database 1990-2021

Contact Information

Email: Asthma@odh.ohio.gov

Website: <https://odh.ohio.gov/know-our-programs/asthma-program>