

Asthma Surveillance in the United States, 2001–2021

Asthma Surveillance Team

Asthma and Community Health Branch (ACHB)

CDC's National Asthma Control Program (NACP)

CDC's National Asthma Control Program (NACP) was created in 1999 to help the millions of people with asthma in the United States gain control over their disease. The NACP conducts national asthma surveillance and funds states to help improve asthma surveillance and to focus efforts and resources where needed.

Introduction (slide 1 of 4)

Asthma

- **Asthma is a chronic disease of the lungs.**
- **It affects all ages (adults and children).**
- **And it is characterized by repeated episodes of wheezing, breathlessness, chest tightness, and nighttime or early morning coughing.**

Introduction (slide 2 of 4)

- **In most cases, we don't know the exact causes of asthma and we have no cure for it.**
- **Most people with asthma can control their symptoms by**
 - **avoiding things that trigger an asthma attack and**
 - **receiving appropriate medical care.**
- **Without proper management, asthma can result in frequent emergency department (ED) visits, hospitalizations, and premature deaths.**

Introduction (slide 3 of 4)

Asthma

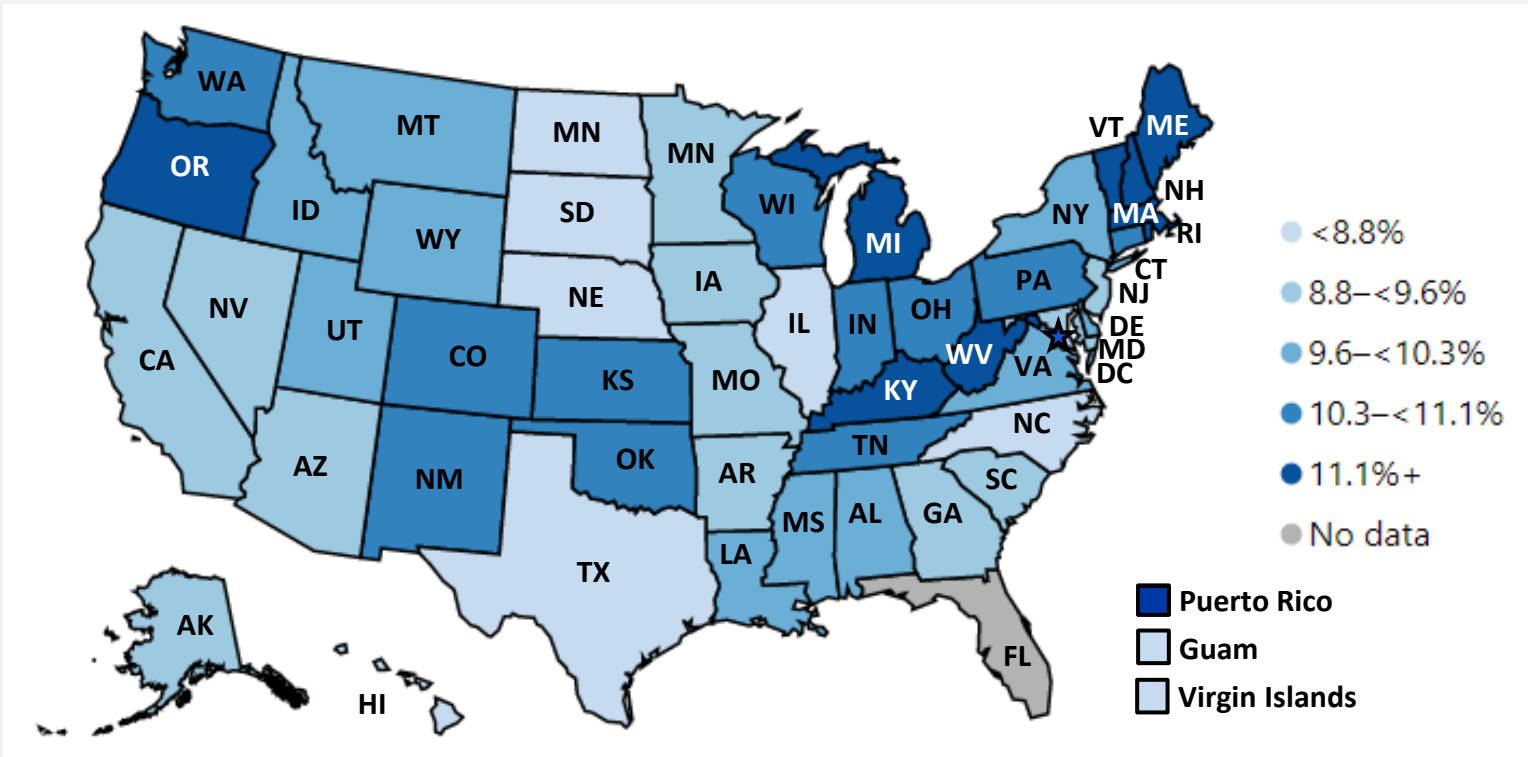
- **Asthma affects approximately 25 million people, including over 4.6 million children under the age of 18.**
- **It is a significant health and economic burden to patients, their families, and society.**
 - **In 2020, nearly 1 million people visited an ED for asthma-related care, and in 2020, a total of 94,560 people were hospitalized because of asthma.**

Introduction (slide 4 of 4)

Asthma prevalence estimates help us understand the burden of asthma on the nation.

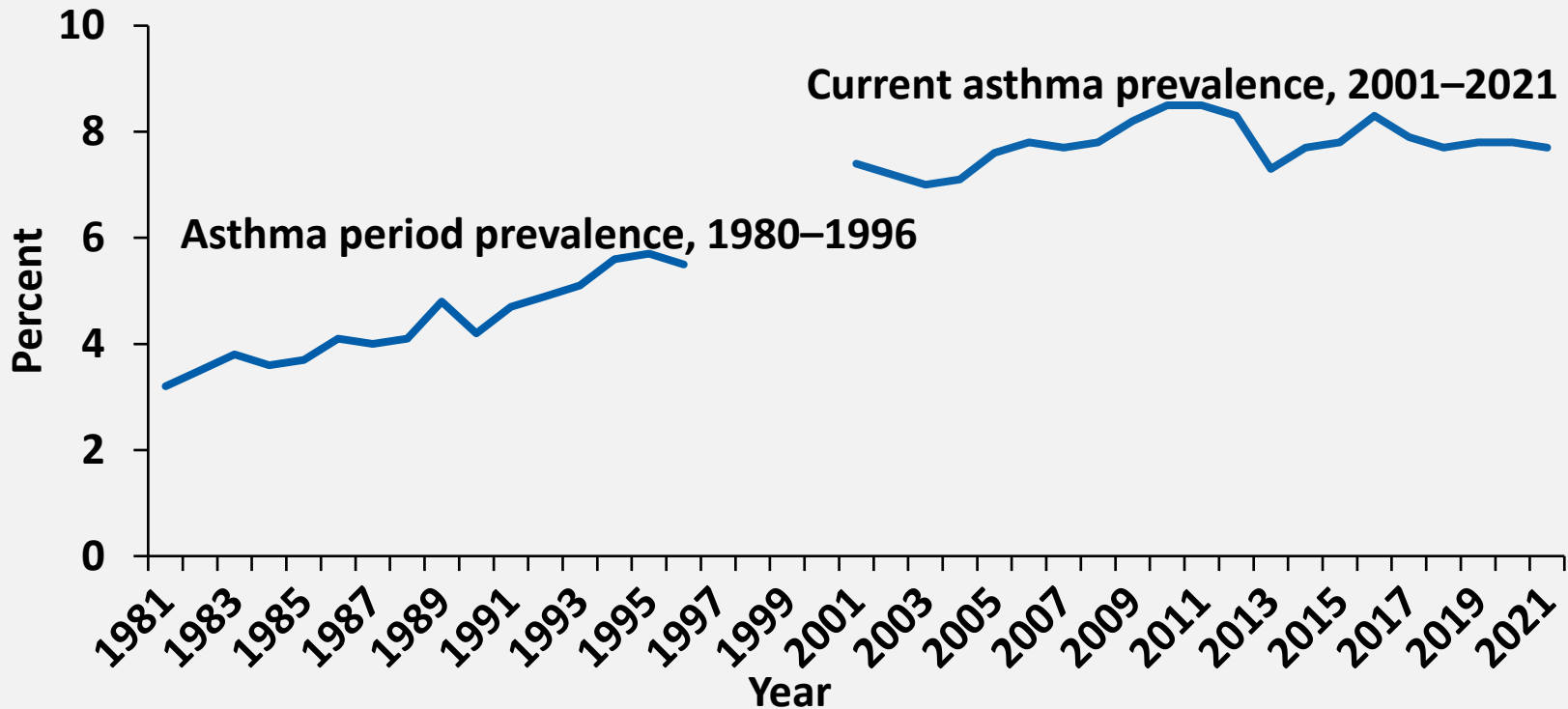
- Asthma “period prevalence” was the original prevalence measure (1980–1996).
- Asthma “period prevalence” is the percentage of the U.S. population that had asthma in the previous 12 months.
- The survey was redesigned in 1997, and this measure was replaced by lifetime prevalence (not presented in slides) and asthma episode or attack in the past 12 months. In 2001, another measure was added to assess current asthma prevalence.
- Since 2001, current asthma prevalence has been used to define the burden of asthma.
- Current asthma prevalence percent is the percentage of the U.S. population with “Yes” responses to survey questions: “Have you ever been told by a doctor, nurse, or other health professional that you (the child) had asthma?” and “Do you (the child) still have asthma?”

Adult Current Asthma Prevalence (%) by State or Territory, 2021



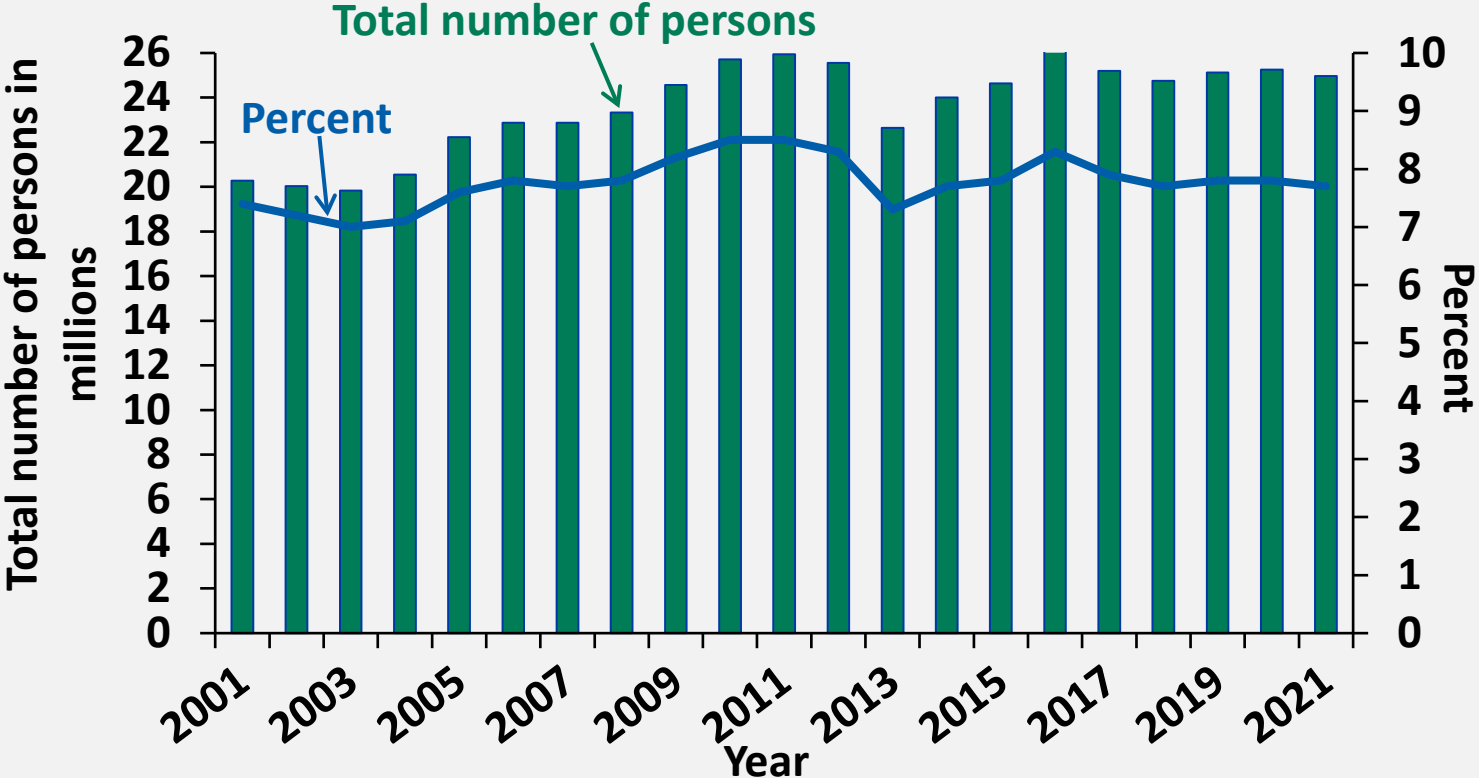
Current asthma prevalence among adults varies in the states, Guam, Puerto Rico, and Virgin Islands ranging from 4.7% in Guam to 12.6% in Rhode Island. The median current asthma prevalence estimate across all states, Guam, Puerto Rico, and Virgin Islands was 9.8%.

Asthma Period Prevalence and Current Asthma Prevalence: United States, 1980–2021



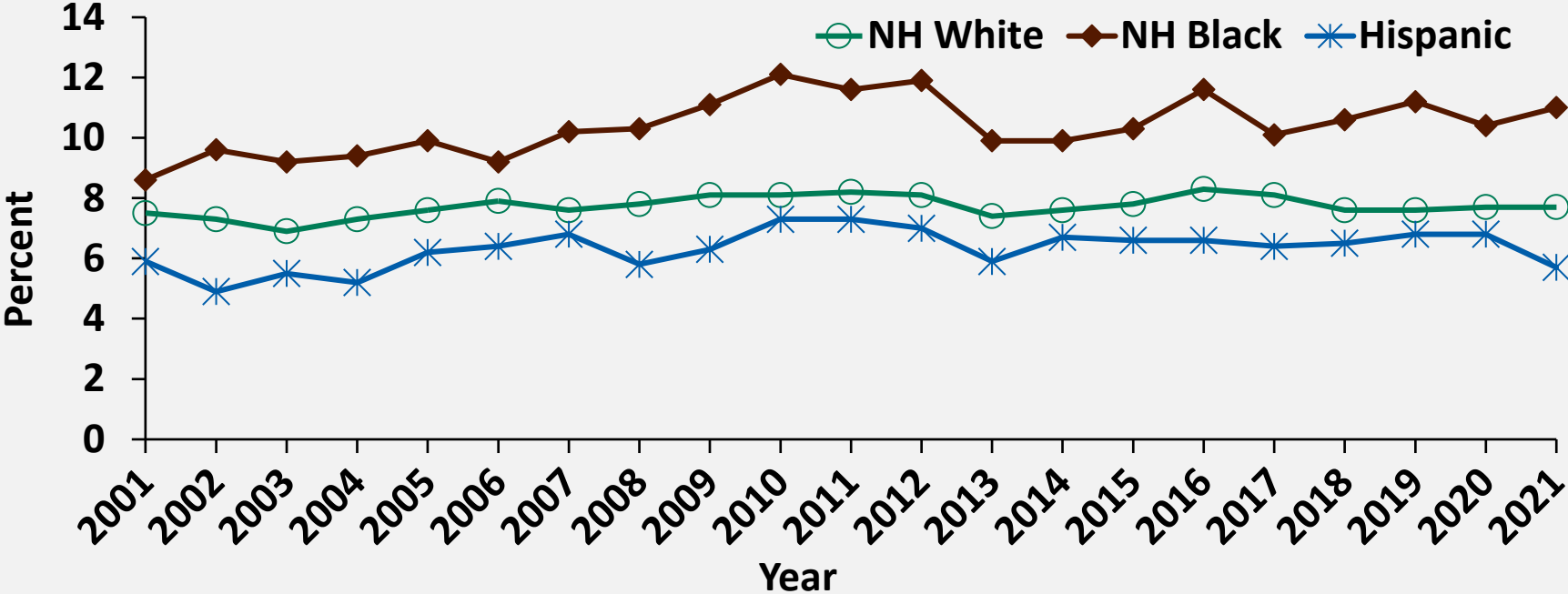
The percentage of the U.S. population with current asthma increased over time. Current asthma prevalence increased from 7.4% in 2001 to 7.7% in 2021.

Current Asthma Prevalence: United States, 2001–2021



Overall, about 25 million (7.7% of the U.S. population) had asthma in 2021, an increase from 20.3 million, or 7.4% who had asthma in 2001 among all ages.

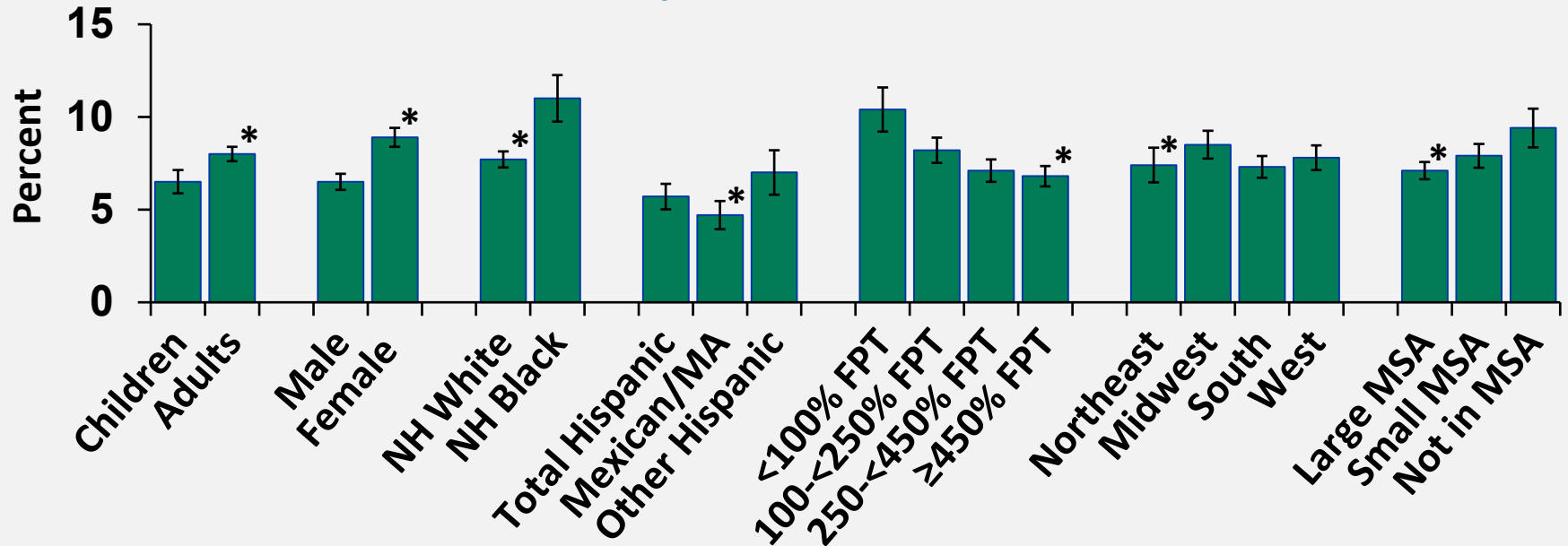
Current Asthma Prevalence by Race and Ethnicity: United States, 2001–2021



Asthma is more common among non-Hispanic (NH) Black persons compared with NH White persons and Hispanic persons.

Percent of current asthma increased from 2001 through 2021 among NH White persons, NH Black persons, and Hispanic persons.

Current Asthma Prevalence by Select Characteristics: United States, 2021

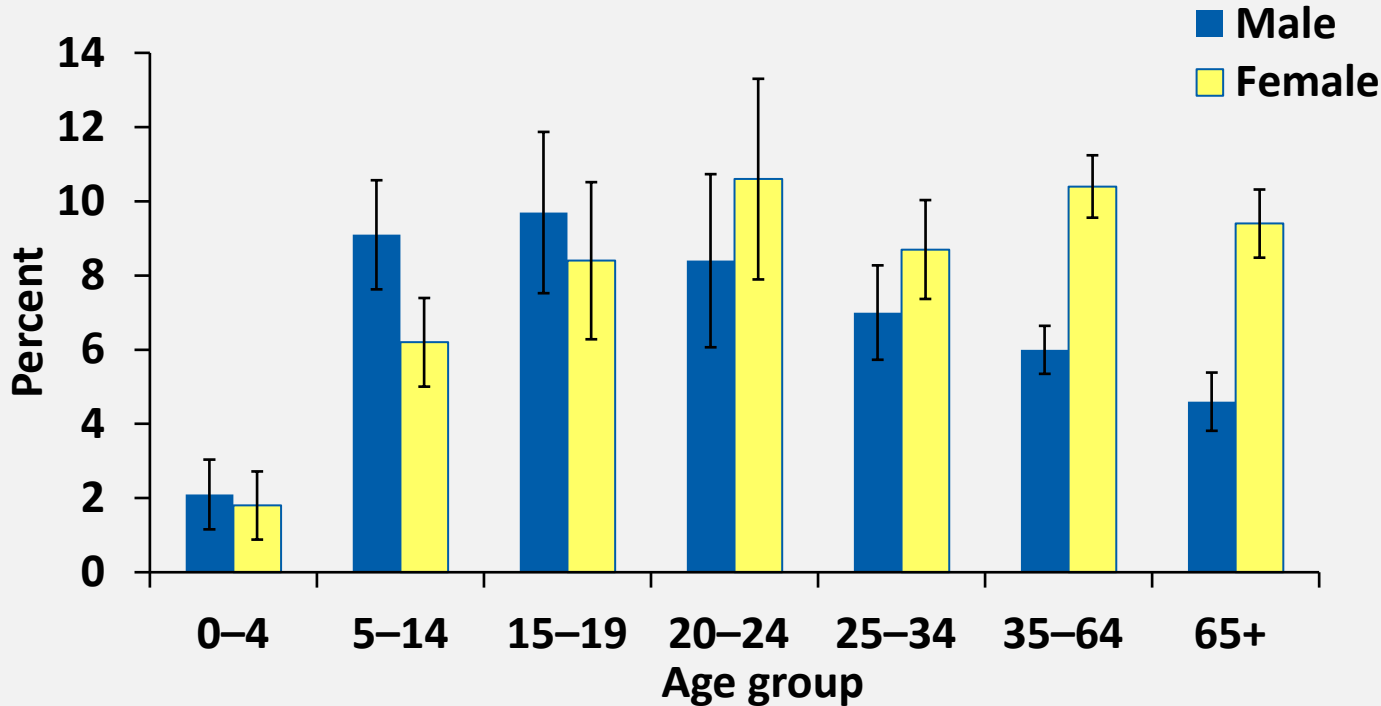


Current asthma prevalence was higher among adults, females, NH Black persons, other Hispanic persons, household income <100% FPT or 100–<250% FPT, and persons living in small MSA and not in MSAs compared with the corresponding reference groups. Current asthma prevalence did not differ by region.

MA = Mexican-American; NH = non-Hispanic; FPT = federal poverty threshold;
MSA = metropolitan statistical area.

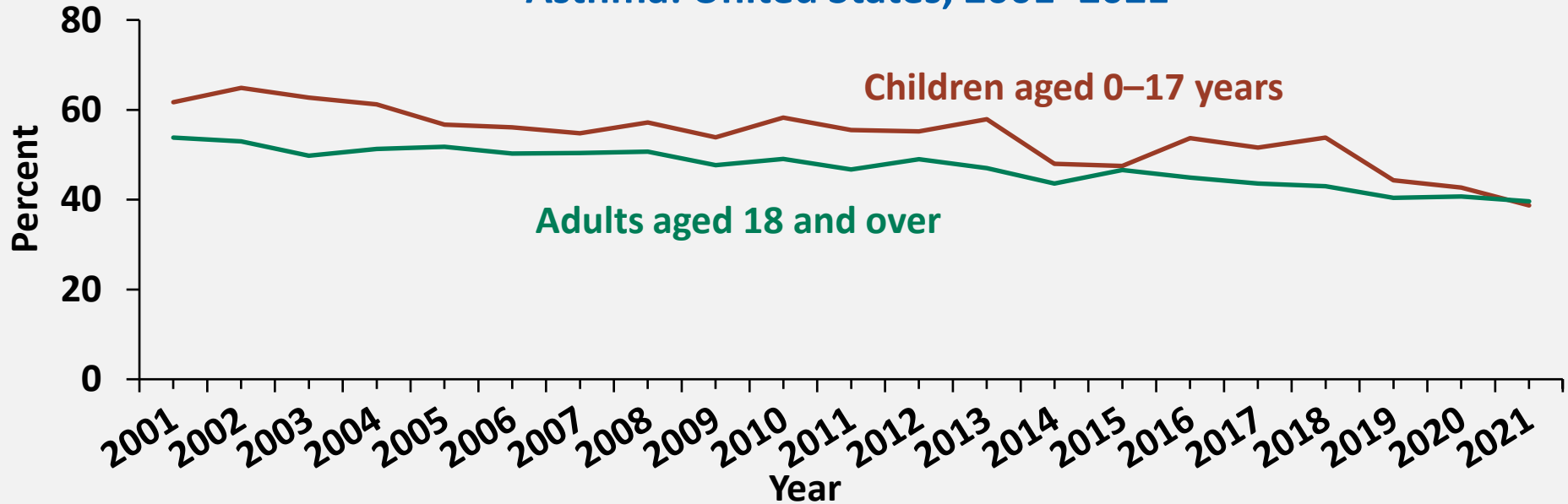
*Reference group

Child and Adult Current Asthma Prevalence by Age and Sex: United States, 2021



Current asthma prevalence for children aged 5–14 years was higher for males than for females. Among adults 35 years and older, current asthma prevalence was higher for females than males.

Asthma Attack Prevalence Among Children and Adults With Current Asthma: United States, 2001–2021

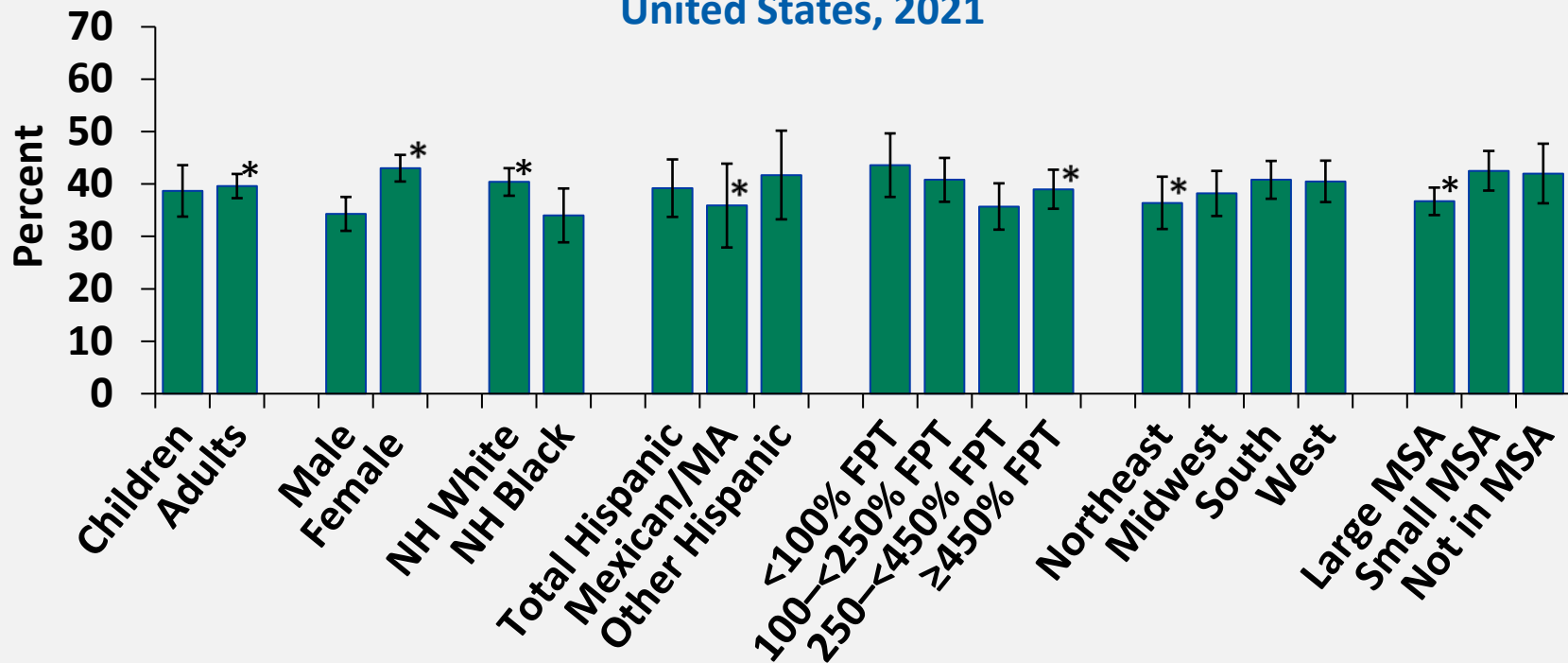


From 2001 to 2021, the percent of children and adults with current asthma who had at least one asthma attack in the previous 12 months declined.

For children, asthma attacks declined from 61.7% of children with asthma in 2001 to 38.7% in 2021.

For adults, asthma attacks declined from 53.8% of adults with asthma in 2001 to 39.6% in 2021.

Asthma Attack Prevalence Among Persons With Current Asthma by Select Characteristics: United States, 2021

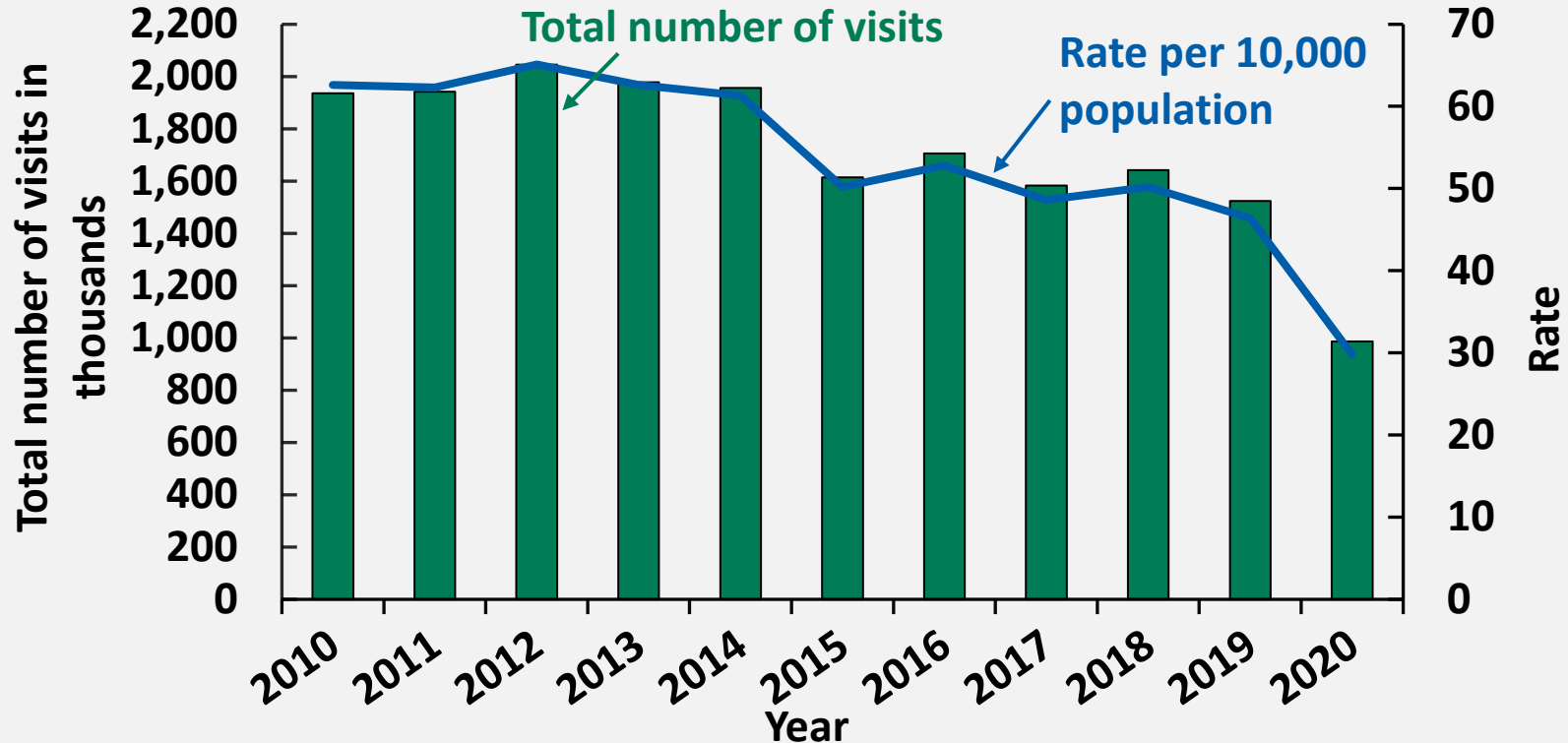


In 2021, the prevalence of asthma attacks was higher among females, NH White persons, and small MSAs compared with corresponding reference groups. Asthma attack prevalence did not differ by age group, family income, or region.

MA = Mexican-American; NH = non-Hispanic; FPT = federal poverty threshold *Reference group

Asthma Emergency Department Visits: United States, 2001–2020

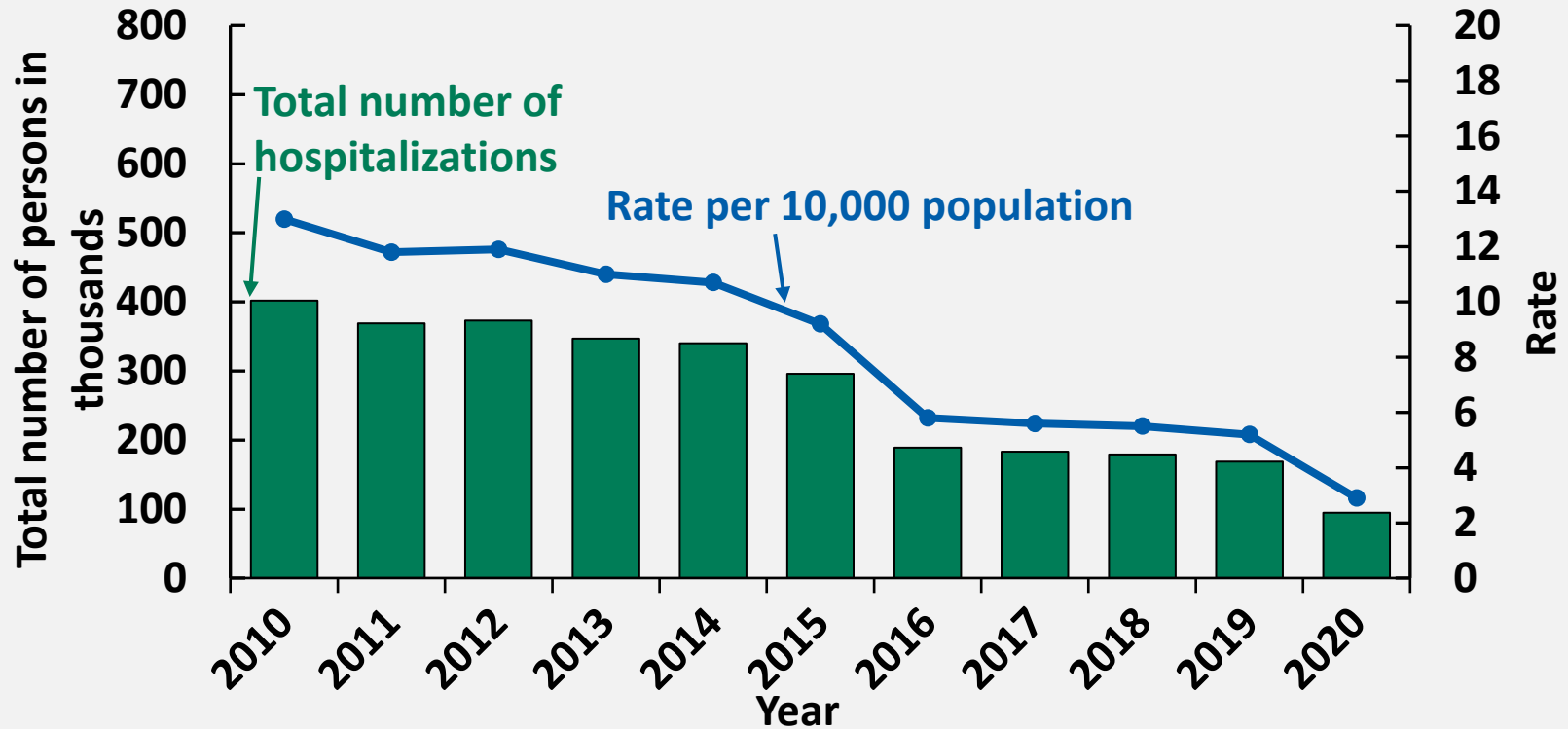
Note: In October 2015, transitioned from ICD-9-CM code to ICD-10-CM code



The rate of asthma-related emergency department visits declined from 62.6 per 10,000 in 2001 to 29.8 per 10,000 in 2020.

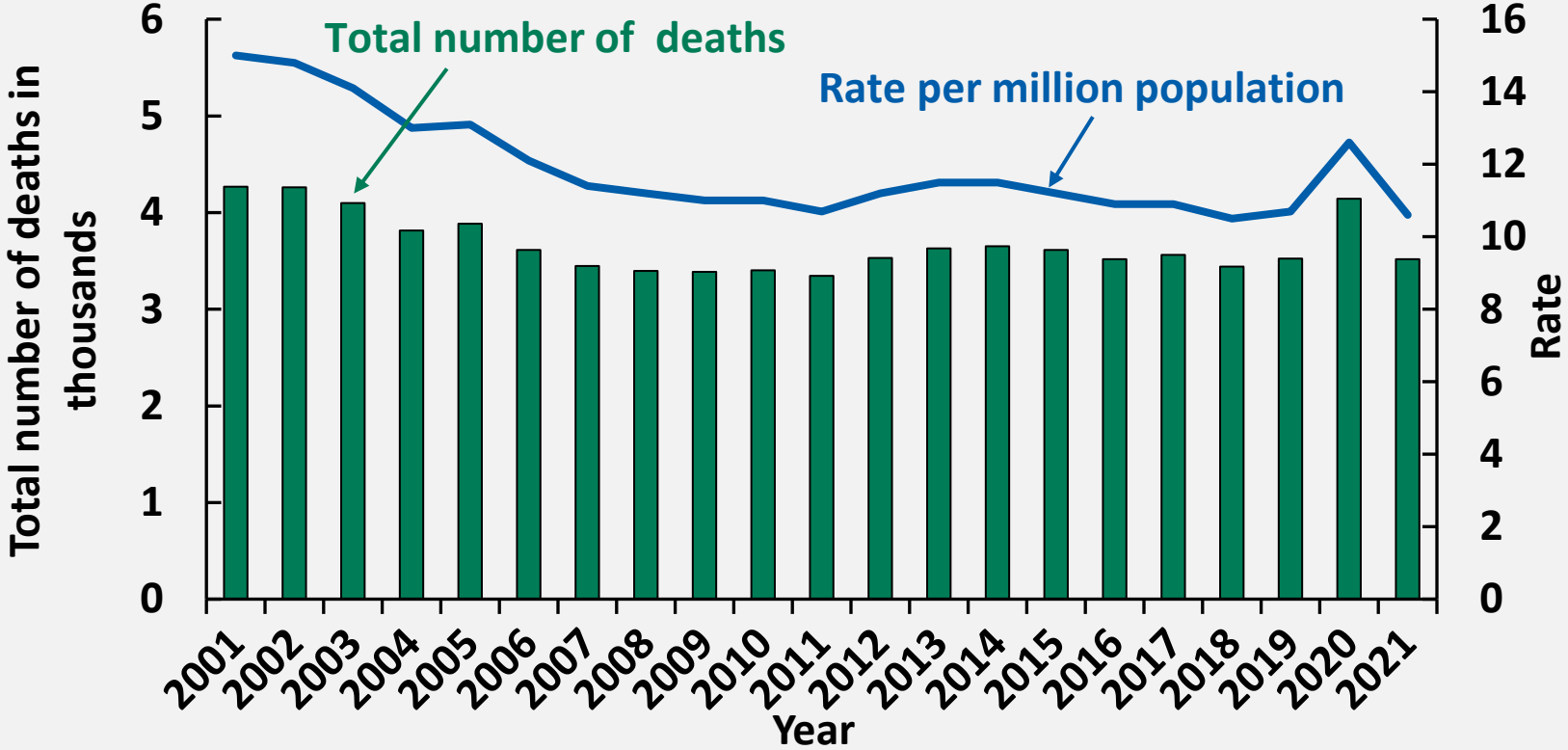
Asthma Hospitalizations: United States, 2010–2020

Note: In October 2015, transitioned from ICD-9-CM code to ICD-10-CM code



The rate of asthma-related hospitalization declined from 13.0 per 10,000 in 2010 to 2.9 per 10,000 in 2020.

Asthma Deaths: United States, 2001–2021



The rate of asthma deaths declined from 15.0 per million population in 2001 to 10.6 deaths per million population in 2021.

Technical Notes

- Trends across years were evaluated using Joinpoint regression software version 5.0.1. Annual Percent Change (APC) and corresponding p-value were calculated for Joinpoint segments.
- Differences between subgroups were assessed using 2-tailed z-tests, calculated from point estimates and their standard errors.

Asthma Period Prevalence and Current Asthma Prevalence

Estimates of asthma prevalence indicate the percentage of the population with asthma at a given point in time and represent the burden on the U.S. population. Asthma prevalence data are self-reported by respondents to the National Health Interview Survey (NHIS). Asthma period prevalence was the original measure (1980–1996) of U.S. asthma prevalence and estimated the percentage of the population that had asthma in the previous 12 months. From 1997–2000, a redesign of the NHIS questions resulted in a break in the trend data as the new questions were not fully comparable to the previous questions. Beginning in 2001, current asthma prevalence (measured by the question, “Do you still have asthma?” for those with an asthma diagnosis) was introduced to identify all persons with asthma. Current asthma prevalence estimates from 2001 onward are point prevalence (previous 12 months) estimates and therefore are not directly comparable with asthma period prevalence estimates from 1980 to 1996.

Technical Notes (continued)

Behavioral Risk Factor Surveillance System (BRFSS):

State asthma prevalence rates on the map come from the BRFSS. The BRFSS is a state-based, random-digit-dialed telephone survey of the noninstitutionalized civilian population 18 years of age and older. It monitors the prevalence of the major behavioral risks among adults associated with premature illness and death. Information from the survey is used to improve the health of the American people. More information about BRFSS can be found at the [BRFSS Homepage](#).

Sources

CDC National Center for Health Statistics, National Health Interview Survey (NHIS). National Surveillance of Asthma: United States, 2001–2021

Moorman JE, Akinbami LJ, Bailey CM, et al. National Surveillance of Asthma: United States, 2001–2010. National Center for Health Statistics. Vital Health Stat 3 (35). 2012.

- Asthma Period Prevalence (1980–1996)
 - Percentages were adjusted by age using the 2000 U.S. Census standard population.
- Asthma Attack Prevalence (2001–2010): United States

NHIS Asthma Data Tables: [NHIS Homepage](#)

- Current Asthma and Asthma Attack Prevalence (2001–2021): United States

Notes:

- "I" represents a 95% confidence interval.
- Race categories "NH White" and "NH Black" include only persons with a single race who are non-Hispanic. Persons of Hispanic origin may be of any race.
- The categories "Mexican/Mexican–American" and "Other Hispanic" are subcategories of Hispanic.

Sources, continued

CDC Behavioral Risk Factor Surveillance System (BRFSS)

- Adult Current Asthma Prevalence by State or U.S. Territory, 2021

Healthcare Cost and Utilization Project (HCUP)

- HCUP data are used for asthma emergency department visits and asthma hospital inpatient short stays.
- Total number and rate (per 10,000 population) of asthma emergency department visits, 2010–2020
 - Note: due to the transition from ICD-9-CM to ICD-10-CM in October 2015, an asthma ED visit was defined as an ED visit with asthma as the primary diagnosis using an ICD-9-CM diagnosis code of 493 for quarters 1–3 and ICD-10-CM diagnosis code of J45 for quarter 4.

Sources, continued (2)

- Total number and rate (per 10,000 population) of asthma hospitalizations (hospital discharges), 2010–2020
 - Note: due to the transition from ICD-9-CM to ICD-10-CM in October 2015, an asthma hospital inpatient stay was defined as a hospital inpatient stay with asthma as the primary diagnosis using an ICD-9-CM diagnosis code of 493 for quarters 1–3 and ICD-10-CM diagnosis code of J45 for quarter 4.
- Source is HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality, Rockville, MD. For more information about HCUP data see [HCUP Homepage](#).

National Vital Statistics System (NVSS) – CDC Wonder Website: [CDC Wonder Homepage](#)

- Number and crude asthma mortality rate (per million), 2001–2021: United States
- Mortality rates were calculated using records for which asthma was coded as the underlying causes of death, using ICD-10 codes J45 and J46.

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