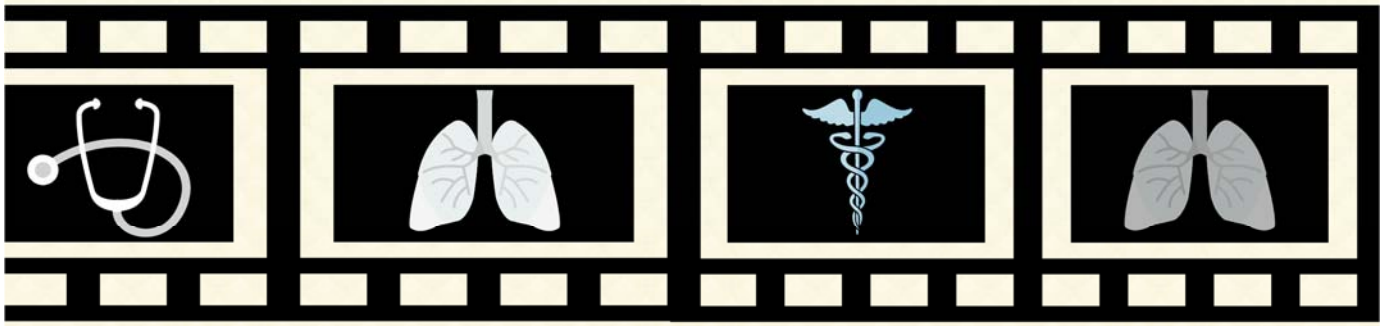

The Burden of Asthma in Maine

2006-2010

Division of Disease Prevention
Maine Center for Disease Control and Prevention
Maine Department of Health and Human Services

Maine Center for
Disease Control and Prevention
An Office of the
Department of Health and Human Services
Paul R. LePage, Governor
Ricker Hamilton, Commissioner

The Burden of Asthma in Maine
2006-2010

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Release Date: January 2018

Suggested Citation: Yob D, Huston SL, Teach F, Braddick J, Severson D. *The Burden of Asthma in Maine: 2006-2010*. Augusta, ME: Maine Center for Disease Control and Prevention; 2018.

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This publication was supported by the U.S. Centers for Disease Control and Prevention (U.S. CDC), National Asthma Control Program, Cooperative Agreement Number 5U59EH000496-07. Contents of this publication are solely the responsibility of the authors and do not necessarily represent the official view of the U.S. CDC.

Table of Contents

Executive Summary

This report includes asthma surveillance activities of the Maine Center for Disease Control and Prevention (Maine CDC) Chronic Disease Prevention and Control Program. State and national data were analyzed and compared to understand the burden of asthma in Maine. This report provides information on asthma prevalence, management and quality of life, asthma healthcare utilization, asthma deaths and asthma costs. Key findings of this report are provided below.

Key Findings

Asthma Prevalence (Chapter 2)

The prevalence of current asthma is significantly higher among Maine adults than U.S. adults (10.0 percent vs. 8.6 percent), while the prevalence among Maine children is similar to that of U.S. children (8.5 percent vs. 8.4 percent). Current prevalence among Maine adults and children has not changed significantly during the decade of the 2000s (2000-2010).

Children (2010)

- Estimated number of Maine children who have current asthma: 22,482.
- Percent of Maine children who have current asthma: 8.5 percent.

Adults (2010)

- Estimated number of Maine adults who have current asthma: 103,702.
- Percent of Maine adults who have current asthma: 10.0 percent.

The prevalence of current asthma in Maine is highest among:

- Adult women (13.0 percent) and male children (10.1 percent),
- Older children (ages 12-17: 10.8 percent) and younger adults (ages 18-24: 12.7 percent; ages 25-34: 11.2 percent),
- Adults with less than a high school education (16.9 percent),
- Adults and children with an annual household income less than $25,000 (14.3 percent and 11.8 percent, respectively),
- Adults with MaineCare, Maine's Medicaid program (17.4 percent),
- Adults living in Penquis Public Health District (12.8 percent),
- Adults and children who are Hispanic or a race other than White (Adults: 14.4 percent and Children: 13.1 percent).

Maine's Tribal Population:

- The Waponahki Tribal Health Assessment found a lifetime asthma prevalence rate of 22.5 percent among Maine's adult tribal members, indicating a high asthma burden among Maine's tribal population.

Asthma Management and Quality of Life (Chapter 3)

In Maine, one in two adults and one in four children with asthma has asthma that is very poorly or not well controlled. Many Mainers with asthma are not receiving routine medical care consistent with the National Heart, Lung and Blood Institute (NHLBI) guidelines, do not have an asthma action plan, and have not reduced exposures to asthma triggers, particularly smoking and second-hand smoke.

Asthma Control among Maine Children (2006-2009):

- Percent of Maine children whose asthma is very poorly or not well controlled: 28.8 percent.
- More than one in three (39.6 percent) Maine school-aged children with asthma missed one or more school days due to asthma in the previous 12 months.
- Nearly six in ten children with asthma (58.9 percent) have an asthma action plan.
- Only three in ten Maine children with asthma (30.5 percent) saw their doctor for a routine asthma visit at least twice in the past year.
- Less than half (48.0 percent) of Maine children with current or active asthma received a flu shot in the past 12 months.

Asthma Control among Adults (2006-2010):

- Percent of Maine adults whose asthma is very poorly or not well controlled: 49.7 percent.
- Only one in three adults with asthma (31.3 percent) has an asthma action plan
- More than two in ten employed adults with asthma (21.9 percent) reported being unable to work or carry out usual activities for one or more days in the past year because of their asthma.
- Only one in three Maine adults with asthma (29.0 percent) saw their doctor for a routine asthma visit at least twice in the past year.

- Only half (52.6 percent) of Maine adults with current or active asthma received a flu shot in the past 12 months.
- More than two in ten Maine adults with asthma (21.5 percent) are current smokers, significantly higher than the 18.6 percent of Maine adults who are current smokers.
- Nearly two in ten (18.0 percent) Maine adults with asthma live in homes in which someone has smoked indoors within the past week.

Asthma Healthcare Utilization (Chapter 4)

Asthma imposes a significant burden to Mainers as seen in asthma healthcare utilization rates. This burden is greater among women, the very young and older Mainers, and in some public health districts and counties.

Asthma Emergency Department (ED) Visits (2007-2009):

- Poorly controlled asthma contributes to roughly 8,500 ED visits per year.
- There are significant differences in asthma ED visit rates across public health districts in the state and by sex and age.

Asthma Hospital Discharges (2007-2009)

- Poorly controlled asthma leads to approximately 1,200 hospitalizations in Maine per year.
- There are significant differences in asthma hospital discharge rates across public health districts in the state and by sex and age.

Asthma Deaths (Chapter 5)

Asthma death rates have declined in both the U.S. and Maine since the late-1990s.

- During the 2000s, between 10 and 20 Mainers died due to asthma each year.
- Females account for 71 percent of the asthma deaths in Maine.

Asthma Costs (Chapter 6)

Asthma imposes a significant economic burden to Maine and has an impact on medical spending and business costs.

- Asthma's estimated total cost in Maine was $179,000,000 ($160 million in direct costs plus $19 million in absenteeism costs) in 2010. Direct costs are estimated to increase 60 percent by the year 2020.
- Asthma results in an estimated 99,000 lost work days each year in Maine.

Chapter 1: Introduction

Asthma Overview

What is asthma?

Asthma is a chronic inflammatory disorder of the airways and has no known cure. Common symptoms of inflammation include recurring periods of wheezing, chest tightness, shortness of breath and coughing.[1] The disease most often begins in childhood. A person with asthma may experience varying symptoms and severity over time. Symptoms may be mild and fade without treatment or after minimal treatment with asthma medicine. Other times, especially without effective treatment, symptoms may continue to get worse and in severe cases, asthma can result in death.

What causes asthma?

There is no known exact cause of asthma, although it is likely due to an interaction of genetic and environmental influences.[2] A number of factors may increase the chances that someone will develop asthma, such as having a parent with asthma, atopy (an inherited tendency to develop allergies), particular respiratory infections during childhood, and infant or early childhood exposure to certain airborne allergens or viral infections. Since it is not clear what causes asthma, there is no cure, though some persons with asthma may experience long term remission of their symptoms.

What are asthma triggers?

Asthma triggers are substances or conditions that worsen a person's asthma symptoms. Common triggers include exposure to an allergen, such as pollen, pet hair, or dust mites; and exposure to environmental irritants such as air pollution, smoke, chemical fumes and extreme weather conditions. In addition, exercise and certain illnesses such as the flu may prompt asthma symptoms.[3] The onset of significant asthma symptoms is called an asthma "flare" or "attack."

How is asthma treated?

Asthma has no known cure and the goal of treatment is to achieve good asthma control. Evidence-based medical care combined with effective patient self-management can largely prevent complications such as asthma attacks, activity limitations, emergency department visits, hospitalizations and mortality.

In 2007, the National Heart, Lung and Blood Institute (NHLBI), part of the National Institutes of Health, issued "Guidelines for the Diagnosis and Management of Asthma."[4] These guidelines contain the most comprehensive and well researched methods for treating asthma.

Asthma is treated with two types of medicines: long-term control and quick-relief medicines. Long-term control medicines help reduce airway inflammation and prevent asthma symptoms. Quick-relief, or "rescue," medicines relieve asthma symptoms that flare up, especially when patients are exposed to an asthma trigger.

Other important treatment components include:

1. Using a written asthma action plan for patient self -management and to assist patient care providers.
2. Scheduled medical follow-up visits (2 times/year) to ensure asthma is well controlled.
3. Patient control of environmental exposures to triggers to avoid asthma flares or attacks.

The 2007 NHLBI guidelines emphasize a partnership between individuals with asthma and their healthcare providers to create a management strategy to suit individual characteristics. Research suggests that following a written asthma action plan can lead to fewer asthma attacks and better asthma management.[4,5] Asthma management plans are created by providers with their patient and are usually updated once a year. These plans, otherwise called "asthma action plans" or "action management plans" are forms used to summarize actions to take if the individual is having an asthma attack. The Maine CDC asthma website provides links to several versions, including the Maine School Asthma Plan, the Maine Asthma Action Plan and the Pre-School Action Plan.[6]

Asthma in Maine

Maine CDC Asthma is within the Maine CDC Chronic Disease Prevention and Control Program and addresses issues surrounding asthma in Maine and provides leadership and coordination for asthma prevention and intervention activities statewide. Maine CDC Asthma has compiled general asthma information and resources tailored for key groups that may be concerned with asthma in Maine, including schools, parents, clinicians, landlords, employers and coaches.[7] Organizations such as the American Lung Association,[8] the National Heart, Lung, and Blood Institute,[9] and the U.S. Centers for Disease Control and Prevention[10] provide detailed information about asthma and its causes, treatment and management with content targeted to health professionals, patients and the general public. Readers are encouraged to explore these resources to learn more about asthma and guidelines for care.

Public Health Surveillance of Asthma in Maine

Public health surveillance is defined as "the ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health."[11] Maine's asthma surveillance system was designed to provide a comprehensive perspective of the burden of asthma in the state and to provide information useful in planning and evaluating asthma interventions. The goal of the Maine Asthma Surveillance System is to prepare asthma data and materials that will best support the asthma efforts of the Maine CDC Chronic Disease Control and Prevention Program and key stakeholders. The surveillance system in Maine is designed to measure the following: 1) the prevalence of asthma among adults and children; 2) the burden of asthma as measured by mortality, hospitalization and emergency department visits; 3) asthma management; 4) risk factors and irritants; 5) asthma-related quality of life; and 6) access to care.

The primary datasets used by the Maine Asthma surveillance system include the Behavioral Risk Factor Surveillance System (BRFSS), Vital Statistics, Maine Hospital Discharges, Maine Emergency Department Visits, and the Maine Adult and Child Asthma Call-back Surveys (ACBS). The primary data period used in the analyses that informed this report is 2006 through 2010. For more information about the data sources used in this report, please see the Technical Notes section in Appendix 2. Generally there is a lag of several years from the collection of data and the availability of datasets. For Maine asthma surveillance activities, multiple years of data are often needed to provide statistically reliable estimates because of Maine's relatively small population. Additional data concerning asthma in Maine can be found on the Maine CDC Asthma website.[12]

Chapter 2: Asthma Prevalence

About Asthma Prevalence

This chapter presents data on the prevalence of asthma among adults and children in Maine. "Prevalence" refers to the percent or proportion of the population that has a disease or condition at a specific point or period in time.

For this report, prevalence was estimated based on survey responses—self-reports (or parental/guardian reports for the data on children) of having received a diagnosis of asthma—and was not determined through direct clinical assessment.

About the Data

Data from the Maine Behavioral Risk Factor Surveillance System (BRFSS), a random-digit-dialed telephone survey of non-institutionalized adults ages 18 years and older was used to estimate the prevalence of asthma among Maine adults and children. Child (0-17 years) asthma prevalence data is based on information provided by the adult respondent about a randomly selected child living in the household. If either the adult or randomly selected child in the household has asthma, permission is sought to call back approximately two weeks later to conduct the Asthma Call-Back Survey (ACBS), an in-depth survey about asthma. For children with asthma, the ACBS interviews the adult in the household who is most knowledgeable about the health of the child.

About 800-1,000 adults and 100-250 children with lifetime asthma are in the Maine BRFSS and ACBS each year. Due to these relatively small sample sizes of people with asthma in the BRFSS and ACBS each year, descriptive information regarding children and sub-groups of adults is limited. In some analyses, multiple years of data have been combined to produce estimates. For more information about the BRFSS or ACBS, see the Technical Notes section in Appendix 2.

About the Measures

Two main measures of asthma prevalence are presented here: lifetime asthma and current asthma. An individual will be included in the lifetime category if they have ever been diagnosed with asthma and will be included in the current asthma group if they still have asthma at the time of the survey. An additional measure, active asthma, is available from the ACBS data only and includes those who may say they do not still have asthma, but took asthma medications, experienced asthma symptoms, or talked to a doctor about their asthma in the past year.

For adults, lifetime asthma is defined as an affirmative response to the question "Have you ever been told by a doctor, nurse, or other health professional that you have asthma?" Current asthma prevalence estimates indicate the percentage of people who answered "yes" to that question and also answered "yes" to the question "Do you still have asthma?"

For children, lifetime asthma is defined as an affirmative response to the question "Has a doctor, nurse or other health professional EVER said that the child has asthma?" Current asthma is defined as a "yes" response to both that question and to the question "Does the child still have asthma?"

The analysis at the end of the chapter on age and time since diagnosis is based on ACBS data and includes adult and children who had either current asthma (as defined above) or active asthma at the time of the ACBS. Active asthma includes those who have talked to a doctor about their/the child's asthma within past year OR took asthma medications within past year OR experienced asthma symptoms within past year, whether or not they responded that they/the child still had asthma.

About Analysis by Race and Ethnicity

Maine is less racially and ethnically diverse than the United States as a whole, but diversity is gradually increasing. In 2010, Maine had the smallest minority population of any state in the country; only 5.6 percent of Mainers reported their race and ethnicity as something other than non-Hispanic White, up from 3.5 percent in 2000. The comparable figure for the United States in 2010 was 36.3 percent.[13] In Maine, because non-White groups make up a relatively small proportion of the population, for this analysis we combined Mainers who are Hispanic and Mainers who are a race other than White into one category ("Other Race or Hispanic") and grouped Mainers who are non-Hispanic and White into a second category ("non-Hispanic White") in order to have adequate sample sizes to produce reliable estimates from survey data. We recognize that this obscures meaningful differences among racial/ethnic populations and makes comparisons to national data difficult, but allows some basic examination of asthma rates by race/ethnicity.

Asthma Prevalence in Maine

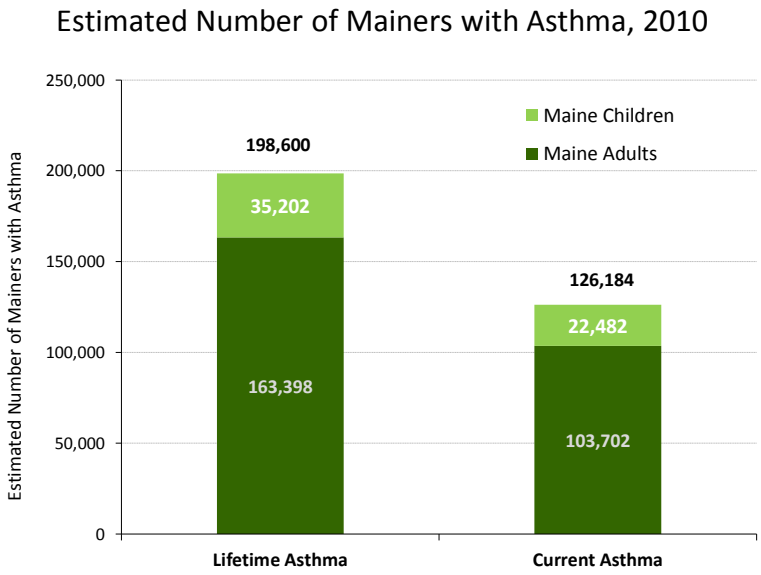
How many Mainers have asthma?

One in ten Mainers, more than 126,000 people, currently has asthma.

- In 2010, the estimated number of Mainers with current asthma was 126,184. This number includes 103,702 adults and 22,482 children (Table 2.1, Table 2.2, Figure 2.1).
- The prevalence of current asthma in 2010 was 10.0 percent among Maine's adults and 8.5 percent among children under the age of 18 (Table 2.1, Table 2.2).

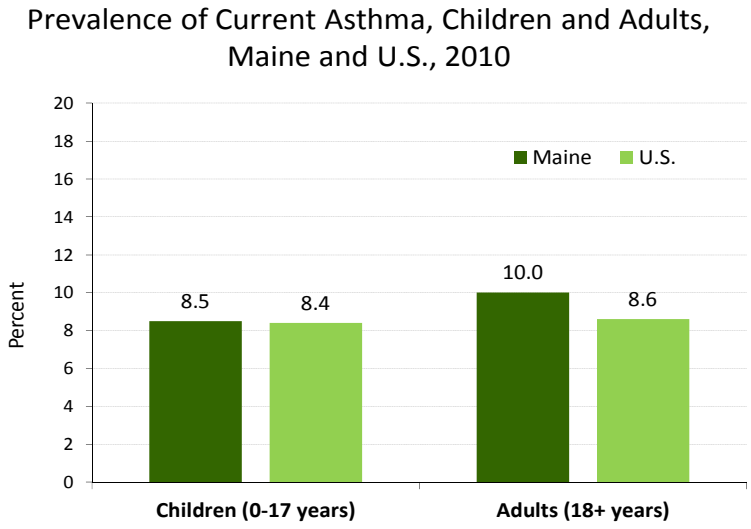
- In 2010, the number of Mainers who had ever received a diagnosis of asthma was approximately 198,600 people. This number includes an estimated 163,398 adults and 35,202 children (Table 2.1, Table 2.2, Figure 2.1).
- Lifetime prevalence, or the percent of the population ever diagnosed with asthma, was 15.7 percent among Maine's adults and 13.2 percent among children under the age of 18 (Table 2.1, Table 2.2, Figure 2.3).
- Of those Maine adults and children with lifetime asthma, approximately 63 percent reported current asthma.

Figure 2.1. Asthma Prevalence among Adults and Children, Current and Lifetime, Maine, 2010



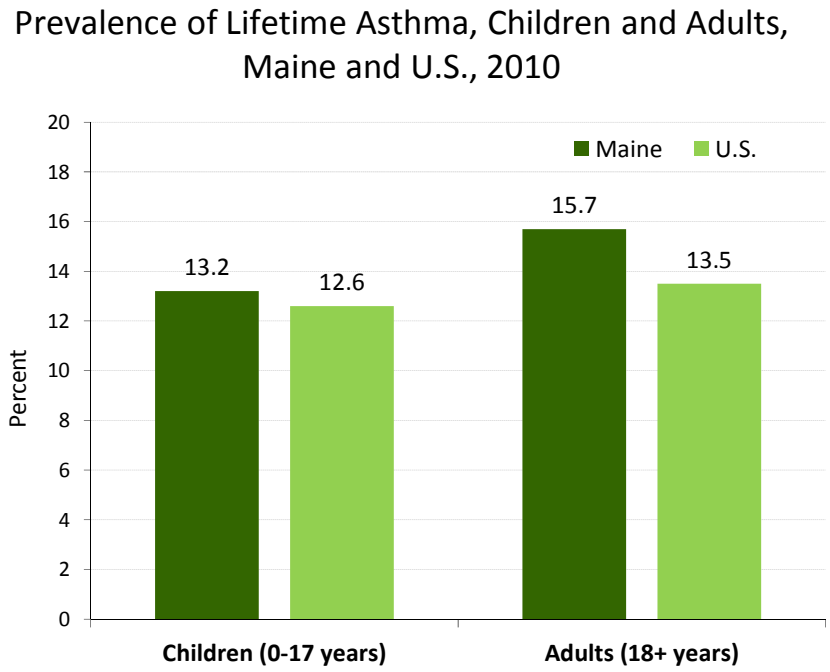
Data Source: Behavioral Risk Factor Surveillance System.

Figure 2.2. Current Asthma Prevalence Rates among Adults and Children, Maine and U.S., 2010



Data Source: Behavioral Risk Factor Surveillance System.

Figure 2.3. Lifetime Asthma Prevalence Rates among Adults and Children, Maine and U.S., 2010

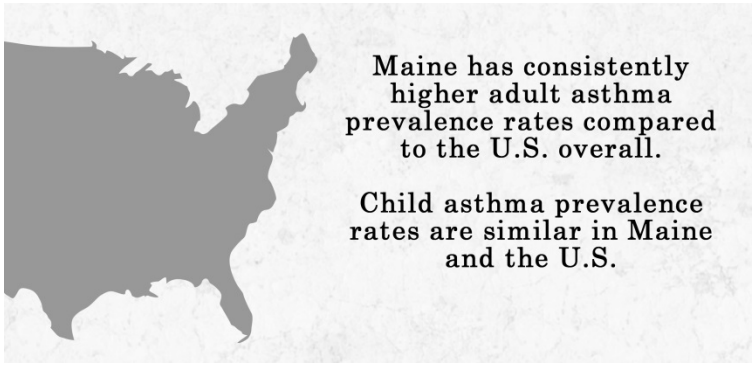


Data Source: Behavioral Risk Factor Surveillance System.

How do asthma prevalence rates in Maine compare to those in the U.S.?

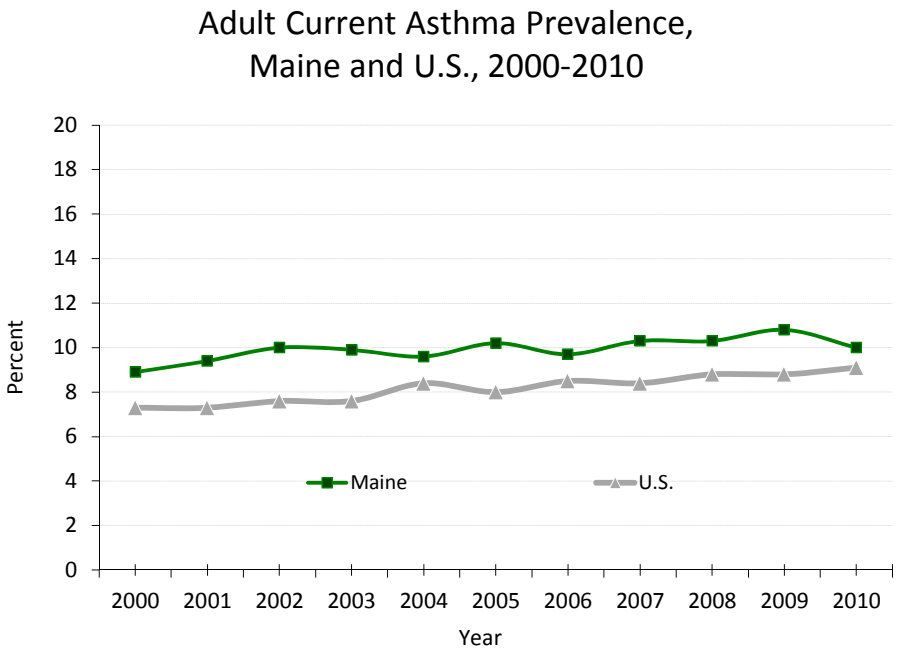
Maine has consistently higher adult asthma prevalence rates compared to the U.S. overall, while child asthma prevalence rates are similar to the U.S.

- In 2010, Maine had the ninth highest adult current asthma prevalence and the 23rd highest child current asthma prevalence among U.S. states and the District of Columbia.[14,15]
- The percentage of Maine adults with current asthma (10.0 percent) was significantly higher than the percentage among U.S. adults (8.6 percent) in 2010. This pattern was observed in all years between 2000 and 2010 (Table 2.1, Figure 2.4).



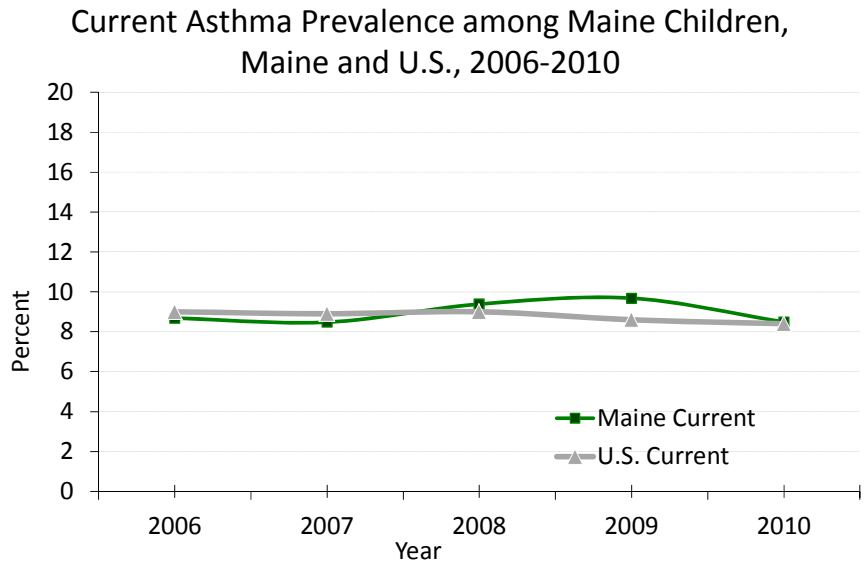
- The percentage of Maine children with current asthma (8.5 percent) was similar to the percentage among U.S. children (8.4 percent) in the 38 states and District of Columbia conducting the child survey questions in 2010 (Table 2.2, Figure 2.5).
- The percentage of Maine adults with lifetime asthma (15.7 percent) was significantly higher than the percentage among U.S. adults (13.5 percent) in 2010. This pattern was observed in seven of the 11 years between 2000 and 2010 (Table 2.1, Figure 2.6).
- The percentage of Maine children with lifetime asthma (13.2 percent) was similar to the percentage among U.S. children (12.6 percent) in the 38 states and District of Columbia conducting the child survey questions in 2010 (Table 2.2, Figure 2.7).

Figure 2.4. Current Asthma Prevalence Rates among Adults, Maine and U.S., 2000-2010



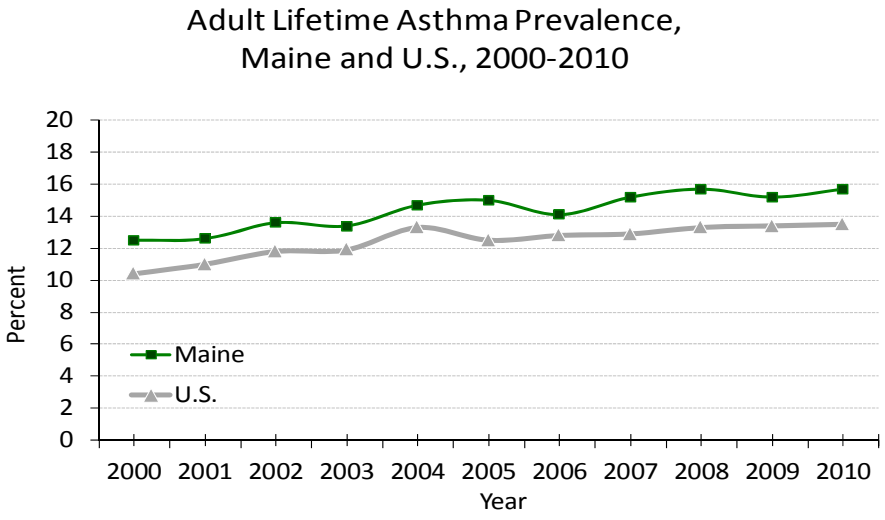
Data Source: Maine Behavioral Risk Factor Surveillance System.
Adults = ages 18+ years

Figure 2.5. Current Asthma Prevalence Rates among Children, Maine and U.S., 2006-2010



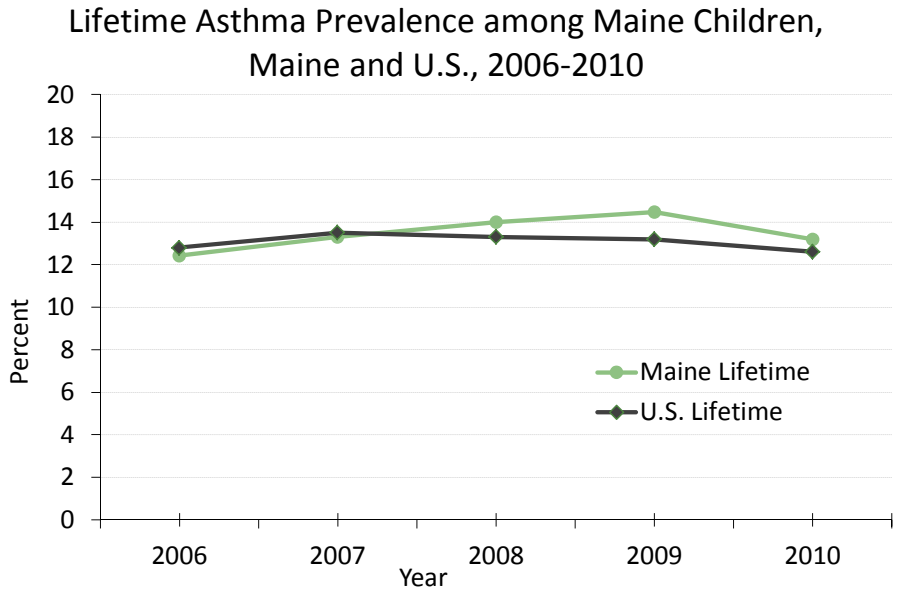
ME Data Source: Maine Behavioral Risk Factor Surveillance System.
US Data Source: BRFSS Childhood Asthma Prevalence optional module; U.S. total excludes the territory, Puerto Rico in all reported years and includes 33 states plus the District of Columbia in 2006 and 2007, 37 states plus the District of Columbia in 2008, 35 states plus the District of Columbia in 2009, and 38 states plus the District of Columbia in 2010.
Children= ages less than 18 years.

Figure 2.6. Lifetime Asthma Prevalence Rates among Adults, Maine and U.S., 2000-2010



ME Data Source: Maine Behavioral Risk Factor Surveillance System.
US Data Source: BRFSS Childhood Asthma Prevalence optional module; U.S. total excludes the territory Puerto Rico in all reported years and includes 33 states plus the District of Columbia in 2006 and 2007, 37 states plus the District of Columbia in 2008, 35 states plus the District of Columbia in 2009, and 38 states plus the District of Columbia in 2010.
Adults = ages 18+ years

Figure 2.7. Lifetime Asthma Prevalence Rates among Children, Maine and U.S., 2006-2010



Data Source: Maine Behavioral Risk Factor Surveillance System.
US Data Source: BRFSS Childhood Asthma Prevalence optional module; U.S. total excludes the territory Puerto Rico in all reported years and includes 33 states plus the District of Columbia in 2006 and 2007, 37 states plus the District of Columbia in 2008, 35 states plus the District of Columbia in 2009, and 38 states plus the District of Columbia in 2010.
Children= ages less than 18 years.

What are the trends over time in asthma prevalence rates in Maine?

During the decade of the 2000s, Maine's adult lifetime asthma prevalence rates have increased significantly, while prevalence rates of adult current asthma have not changed significantly over that period. Child lifetime and current asthma prevalence rates have not changed significantly over the past five years.

- The prevalence of lifetime asthma among Maine adults was significantly higher in the later part of the 2000s, similar to the trend observed among U.S. adults in this period. The percentage of Maine adults with lifetime asthma increased from 12.5 percent in 2000 to 15.7 percent in 2010 and was a statistically significant increase of 25.6 percent (Table 2.1, Figure 2.6).
- The prevalence of current asthma among Maine adults did not change significantly over the 2000s. The percentage of Maine adults with current asthma was 10.0 percent in 2010 and was 8.9 percent in 2000. In contrast, the percentage of U.S. adults with current asthma was significantly higher in 2010 than earlier in the decade (Table 2.1, Figure 2.6).

- No significant trend was observed in lifetime and current prevalence among Maine children aged 17 years and younger over the past five years, similar to the lack of change over time observed among U.S. children (Table 2.2, Figure 2.5, Figure 2.7).

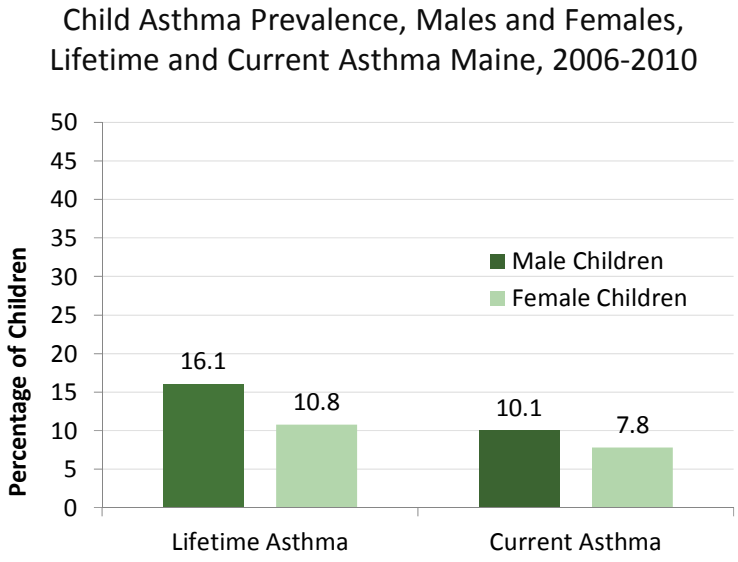
Are there differences by sex in asthma prevalence rates in Maine?

Females are disproportionately affected with higher asthma prevalence rates compared to males in adulthood, but males are disproportionately affected in childhood. Both nationally and in Maine, adult women had higher lifetime and current asthma prevalence rates than adult men. Among children under the age of 18, the pattern was reversed and lifetime and current prevalence rates were significantly higher among boys than girls in Maine and the U.S.

- From 2006 through 2010, the five-year average prevalence rate of lifetime asthma was 16.1 percent among Maine boys under the age of 18 compared to 10.8 percent among Maine girls under the age of 18. In this same period, the five-year average annual prevalence rate of current asthma was 10.1 percent among Maine boys under the age of 18 compared to 7.8 percent among Maine girls under the age of 18 (Table 2.3). A similar pattern was observed among U.S. children[15] (Figure 2.8).
- In 2010, 18.2 percent of adult women in Maine reported lifetime asthma compared to 13.0 percent of adult Maine men and 13.0 percent of Maine women reported current asthma compared to 6.8 percent of Maine men. These differences are statistically significant (Table 2.4, Table 2.5, Figure 2.9, Figure 2.10).
- In 2010, adult women in Maine had significantly higher lifetime (18.2 percent) and current (13.0 percent) asthma prevalence rates than adult women in the U.S. (15.1 percent and 11.7 percent, respectively), while lifetime and current prevalence among adult Maine men (13.0 percent and 6.8 percent, respectively) was similar to U.S. adult men (11.7 percent and 6.5 percent, respectively; Table 2.4, Table 2.5, Figure 2.9, Figure 2.10).
- Current asthma prevalence among adult Maine men has not changed significantly over the 2000s, while a significant increase in current asthma prevalence has been observed among adult U.S. men during this period. Lifetime asthma prevalence has increased somewhat, though not significantly, among adult Maine men over the decade of the 2000s; lifetime asthma prevalence increased significantly among U.S. men during this period (Table 2.4, Table 2.5, Figure 2.9, Figure 2.10).

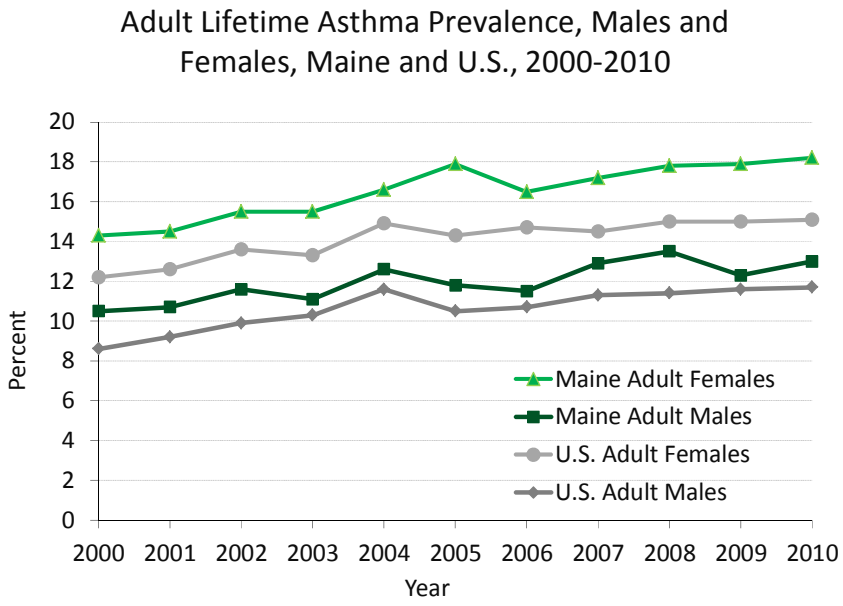
- Lifetime asthma prevalence increased significantly among adult Maine and U.S. women during the 2000s. Current asthma prevalence increased somewhat, though not quite significantly, among adult Maine women over the 2000s; current asthma prevalence increased significantly among U.S. women during this period (Table 2.4, Table 2.5, Figure 2.9, Figure 2.10).

Figure 2.8. Lifetime and Current Asthma Prevalence Rates among Male and Female Children, Maine, 2006-2010



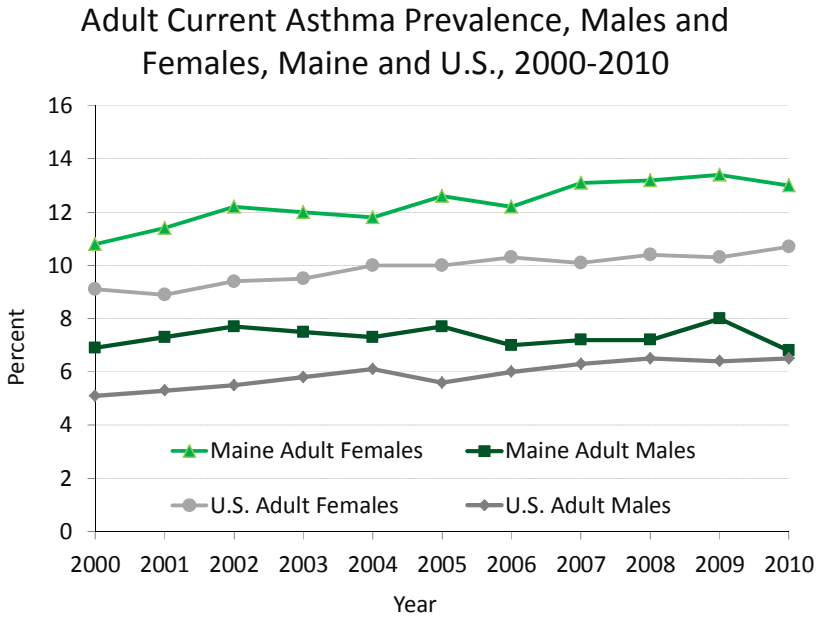
Data Source: Behavioral Risk Factor Surveillance System.
Children= ages less than 18 years.

Figure 2.9. Lifetime Asthma Prevalence Rates among Adult Males and Females, Maine and U.S., 2000-2010



Data Source: Behavioral Risk Factor Surveillance System.
Adults = ages 18+ years

Figure 2.10. Current Asthma Prevalence Rates among Adult Males and Females, Maine and U.S., 2000-2010



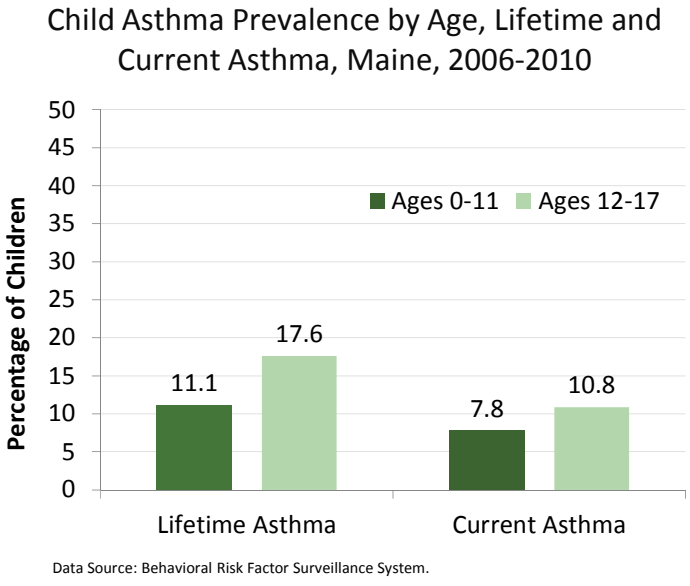
Data Source: Behavioral Risk Factor Surveillance System.
Adults = ages 18+ years

Does the burden of asthma differ by age in Maine?

Older children and younger adults are disproportionately affected with higher asthma prevalence rates.

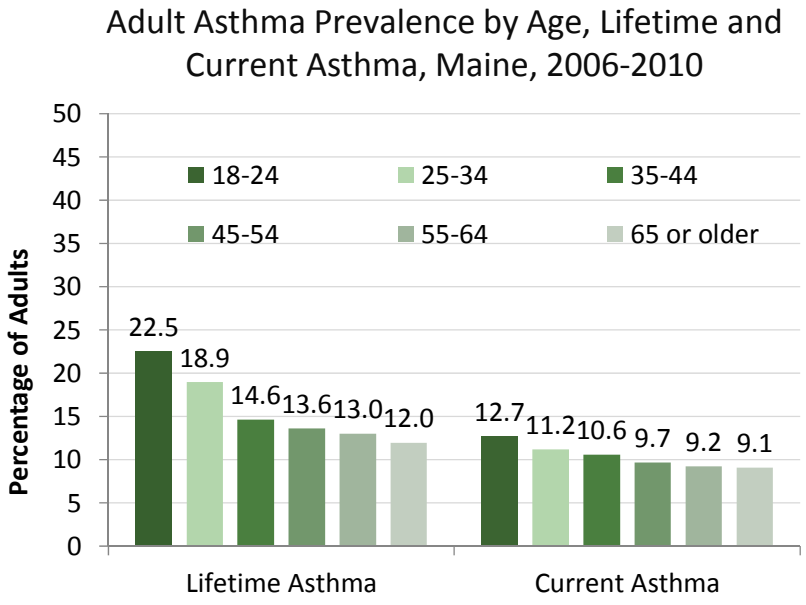
- Lifetime and current asthma prevalence rates were significantly higher among older children than younger children in Maine. In 2006-2010, the five-year average annual prevalence of lifetime asthma was 17.6 percent among Maine children ages 12-17 compared to 11.1 percent among children younger than 12 years. In this same period, the five-year average annual prevalence of current asthma was 10.8 percent among Maine children ages 12-17 compared to 7.8 percent among children younger than 12 years (Table 2.3, Figure 2.11).
- Lifetime and current asthma prevalence rates were significantly higher among younger adults ages 18-34 years than older adults in Maine. In 2006-2010, the five-year average annual prevalence of lifetime asthma was 22.5 percent among Maine adults ages 18-24 and 18.9 percent among adults ages 25-34 compared to 12.0 percent among adults older than 65 years. In this same period, the five-year average annual prevalence of current asthma was 12.7 percent among Maine adults ages 18-24 and 11.2 percent among adults ages 25-34 compared to 9.1 percent among adults older than 65 years (Table 2.6, Figure 2.12).

Figure 2.11. Age-Specific Lifetime and Current Asthma Prevalence among Children, Maine, 2006-2010



Data Source: Behavioral Risk Factor Surveillance System.

Figure 2.12. Age-Specific Lifetime and Current Asthma Prevalence among Adults, Maine, 2006-2010



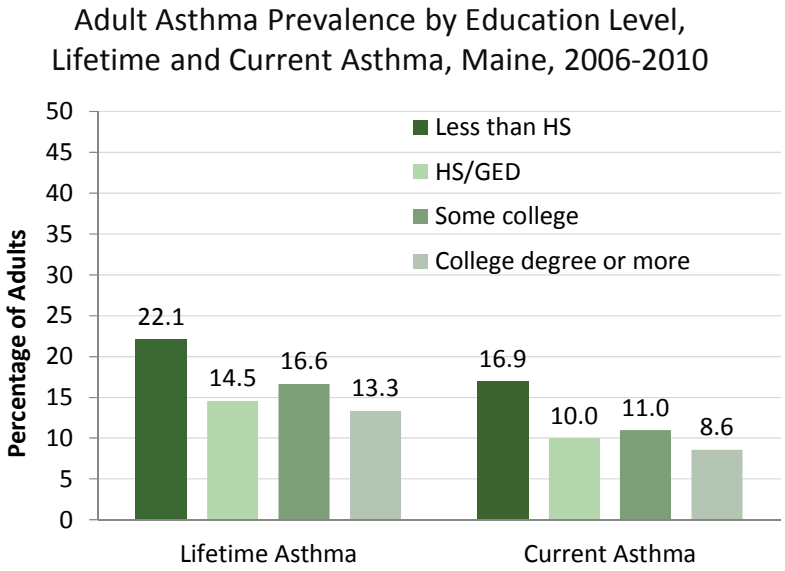
Data Source: Behavioral Risk Factor Surveillance System.

Does the burden of asthma prevalence differ by education level?

Asthma prevalence rates are significantly higher among those with less than a high school education than adults with a high school diploma or more years of education.

- In 2006-2010, the five-year average annual prevalence of lifetime asthma was significantly higher among adults with less than a high school education than adults with more years of education. During this period, 22.1 percent of Maine adults with less than a high school education reported lifetime asthma, compared to 14.5 percent among adults with a high school diploma or GED, 16.6 percent among adults with some college and 13.3 percent among adults with a college degree (Table 2.6, Figure 2.13).
- In 2006-2010, current prevalence was significantly higher among adults with less than a high school education compared to adults with more years of education. In this period, 16.9 percent of Maine adults with less than a high school education reported lifetime asthma, compared to 10.0 percent among adults with a high school diploma or GED, 11.0 percent among adults with some college and 8.6 percent among adults with a college degree (Table 2.6, Figure 2.13).

Figure 2.13. Lifetime and Current Asthma Prevalence among Adults, Education Level, Maine, 2006-2010



Data Source: Behavioral Risk Factor Surveillance System.

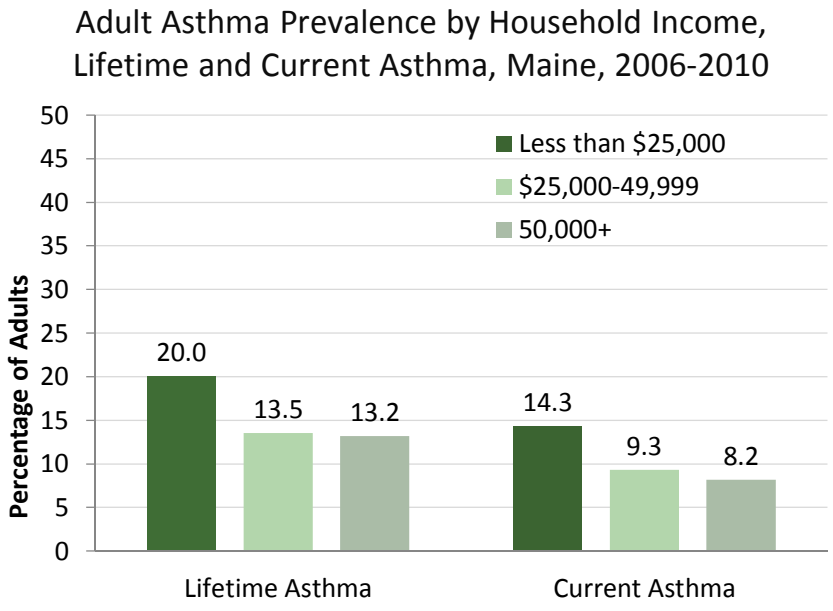
Does the burden of asthma prevalence differ by household income level?

Asthma prevalence rates are significantly higher among adults and children in households with lower household incomes.

- Among Maine adults in 2006-2010, lifetime and current prevalence were significantly higher among adults in households with incomes less than $25,000 compared to those in higher household income groups. In 2006-2010, the five-year average annual prevalence of lifetime asthma was 20.0 percent among Maine adults in households with incomes less than $25,000, compared to 13.5 percent among adults in households with incomes between $25,000 and $50,000 and 13.2 percent among adults with household incomes of $50,000 or more (Table 2.6, Figure 2.14).
- Similarly, among Maine children in 2006-2010, lifetime and current prevalence were significantly higher among children in households with annual incomes less than $25,000 compared to children in the $50,000 and higher income group. In 2006-2010, the five-year average annual prevalence of lifetime asthma was 17.2 percent among Maine children in households with annual incomes less than $25,000 compared to 11.9 percent among children with annual household incomes of $50,000 or more (Table 2.3, Figure 2.15).

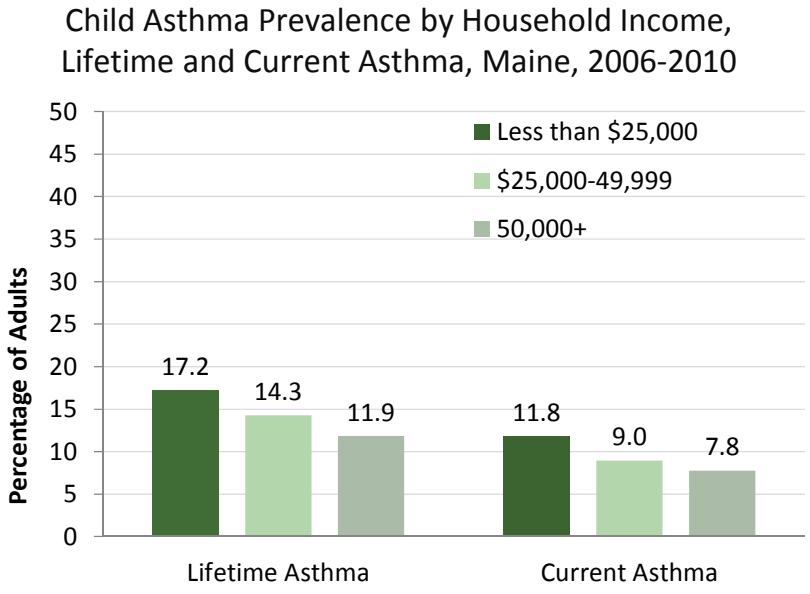
- In 2006-2010, the five-year average annual prevalence of current asthma was 14.3 percent among Maine adults in households with incomes less than $25,000, compared to 9.3 percent among adults in households with incomes between $25,000 and $50,000 and 8.2 percent among adults with household incomes of $50,000 or more (Table 2.6, Figure 2.14).
- Among Maine children in 2006-2010, the five-year average annual prevalence of current asthma was 11.8 percent among Maine children in households with annual incomes less than $25,000, significantly higher than the 7.8 percent among children with household incomes of $50,000 or more (Table 2.3, Figure 2.15).

Figure 2.14. Lifetime and Current Asthma Prevalence among Adults, Household Income, Maine, 2006-2010



Data Source: Behavioral Risk Factor Surveillance System.

Figure 2.15. Lifetime and Current Asthma Prevalence among Children, Household Income, Maine, 2006-2010



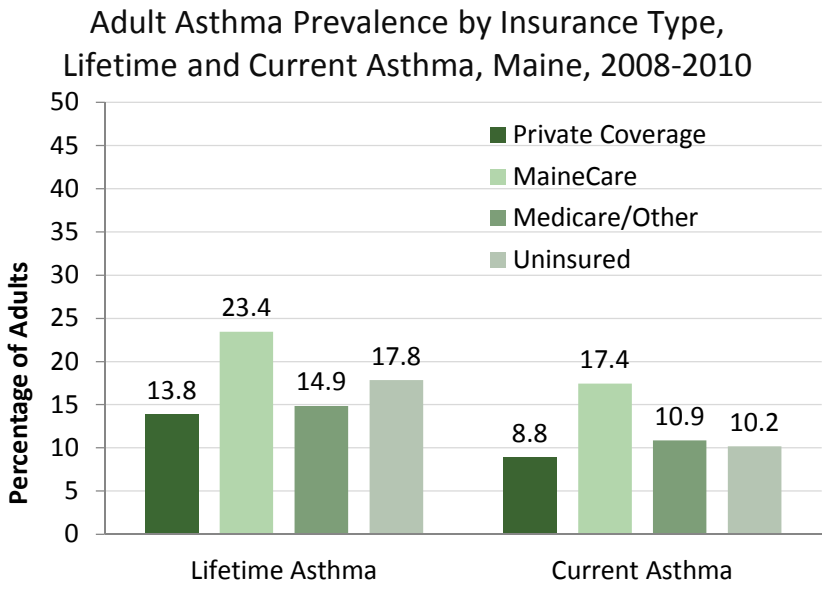
Data Source: Behavioral Risk Factor Surveillance System.

Does the burden of asthma prevalence differ by health insurance status?

Asthma prevalence rates are significantly higher among adults with Medicaid/MaineCare.

- Among Maine adults in 2006-2010, lifetime and current asthma prevalence rates were significantly higher among adults with MaineCare (Maine's Medicaid program) than adults who had private health insurance, Medicare or other insurance, or who were uninsured. In 2008-2010, the three-year average annual prevalence of lifetime asthma in Maine was 23.4 percent among adults with MaineCare, compared to 13.8 percent among adults with private health insurance, 14.9 percent among adults with Medicare or other insurance and 17.8 percent among uninsured adults (Table 2.6, Figure 2.16).
- In 2008-2010, the three-year average annual prevalence of current asthma in Maine was 17.4 percent among adults with MaineCare, compared to 8.8 percent among adults with private health insurance, 10.9 percent among adults with Medicare or other insurance and 10.2 percent among uninsured adults (Table 2.6, Figure 2.16).

Figure 2.16. Lifetime and Current Asthma Prevalence among Adults, Household Income, Maine, 2006-2010



Data Source: Behavioral Risk Factor Surveillance System.

Does the burden of asthma prevalence differ by geographic region in Maine?

There are slight differences in asthma prevalence rates among Maine's Public Health Districts and Counties. Penquis District has significantly higher rates of lifetime and current asthma among adults compared to the rest of the state. District-level child asthma prevalence rates were not significantly different from the state rates.

- In 2006-2010, the five-year average annual prevalence of lifetime asthma in Maine ranged from 13.2 percent among adults in York District to 18.0 percent among adults in Penquis District. The only Public Health District to have a significantly higher rate than Maine overall was Penquis District (Table 2.7, Figure 2.17).
- In 2006-2010, the five-year average annual prevalence of lifetime asthma among children in Maine ranged from 11.4 percent among children in Central District to 15.8 percent among children in Penquis District. Lifetime asthma prevalence was not significantly different in any District compared to Maine children overall (Table 2.8, Figure 2.18).
- In 2006-2010, the five-year average annual prevalence of current asthma in Maine ranged from 8.8 percent among adults in York District to 12.8 percent among adults in

Penquis District. The only Public Health District to have a significantly higher rate than Maine overall was Penquis District (Table 2.7, Figure 2.19).

- In 2006-2010, the five-year average annual prevalence of current asthma among Maine children ranged from 6.5 percent among children in Central District to 11.0 percent among children in Penquis District. Current asthma prevalence was not significantly different in any District compared to Maine children overall (Table 2.8, Figure 2.20).

Figure 2.17. Map of Lifetime Asthma Prevalence among Adults, Public Health District, Maine, 2006-2010

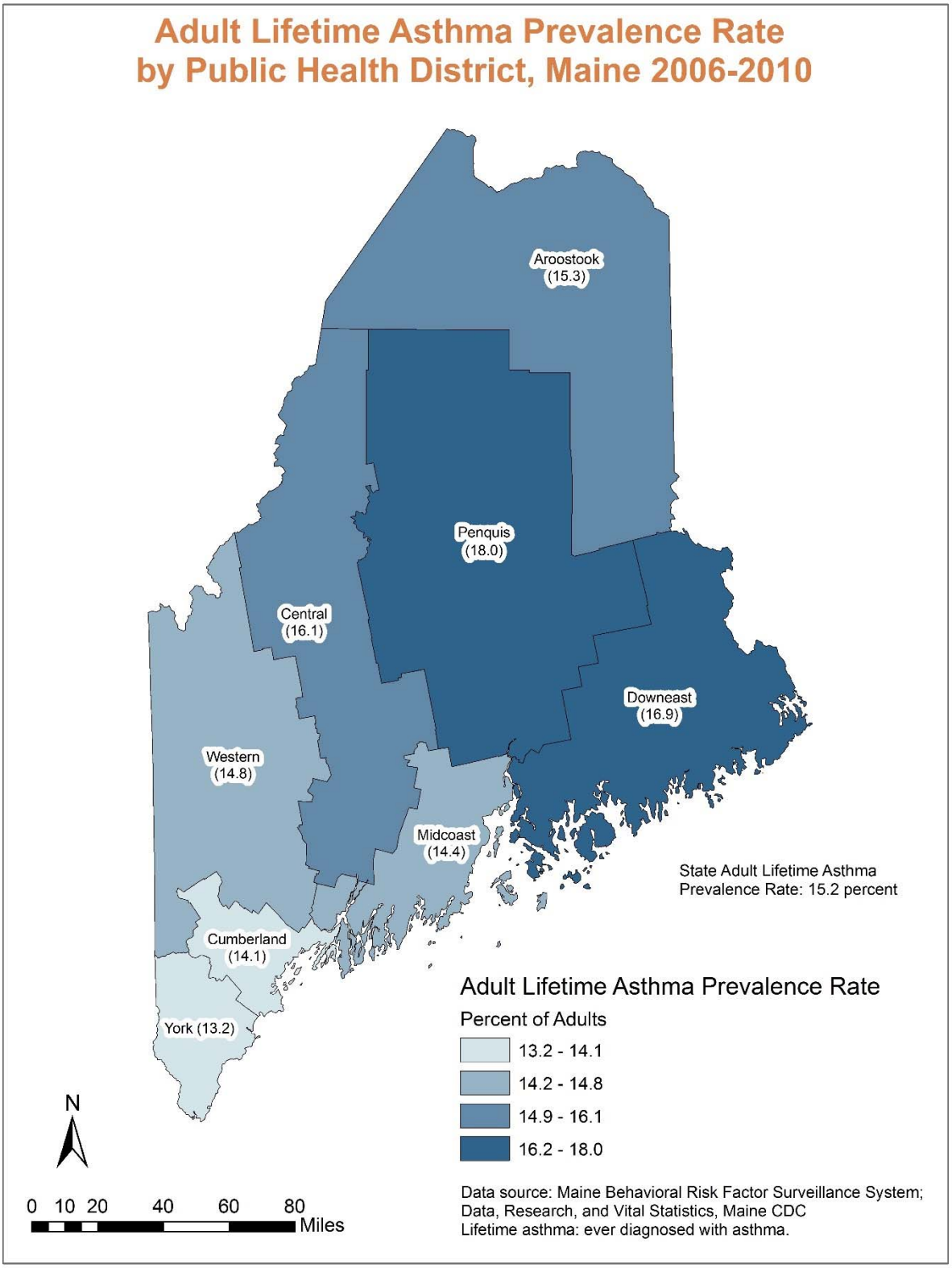


Figure 2.18. Map of Lifetime Asthma Prevalence among Children, Public Health District, Maine, 2006-2010

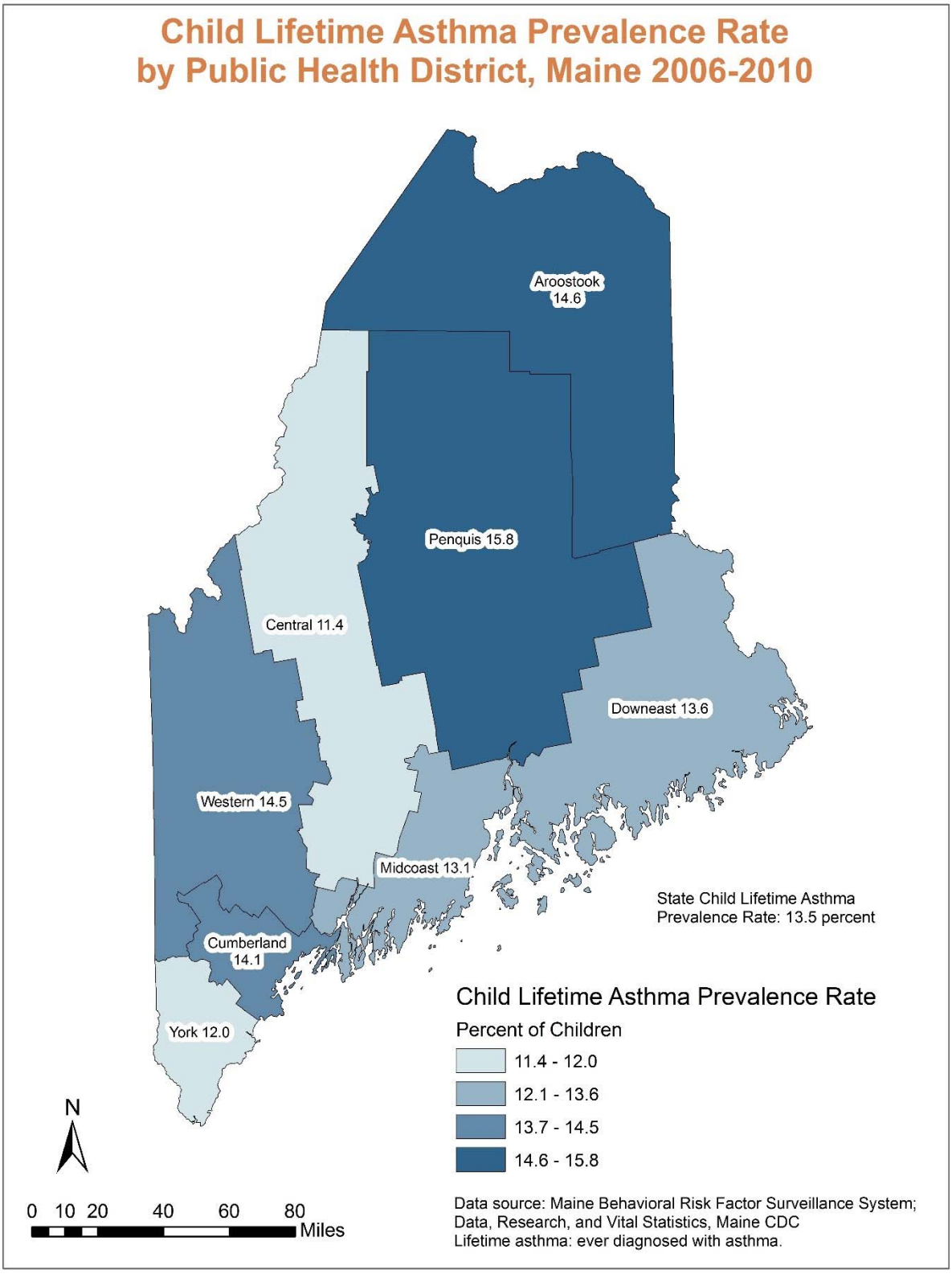


Figure 2.19. Map of Current Asthma Prevalence among Adults, Public Health District, Maine, 2006-2010

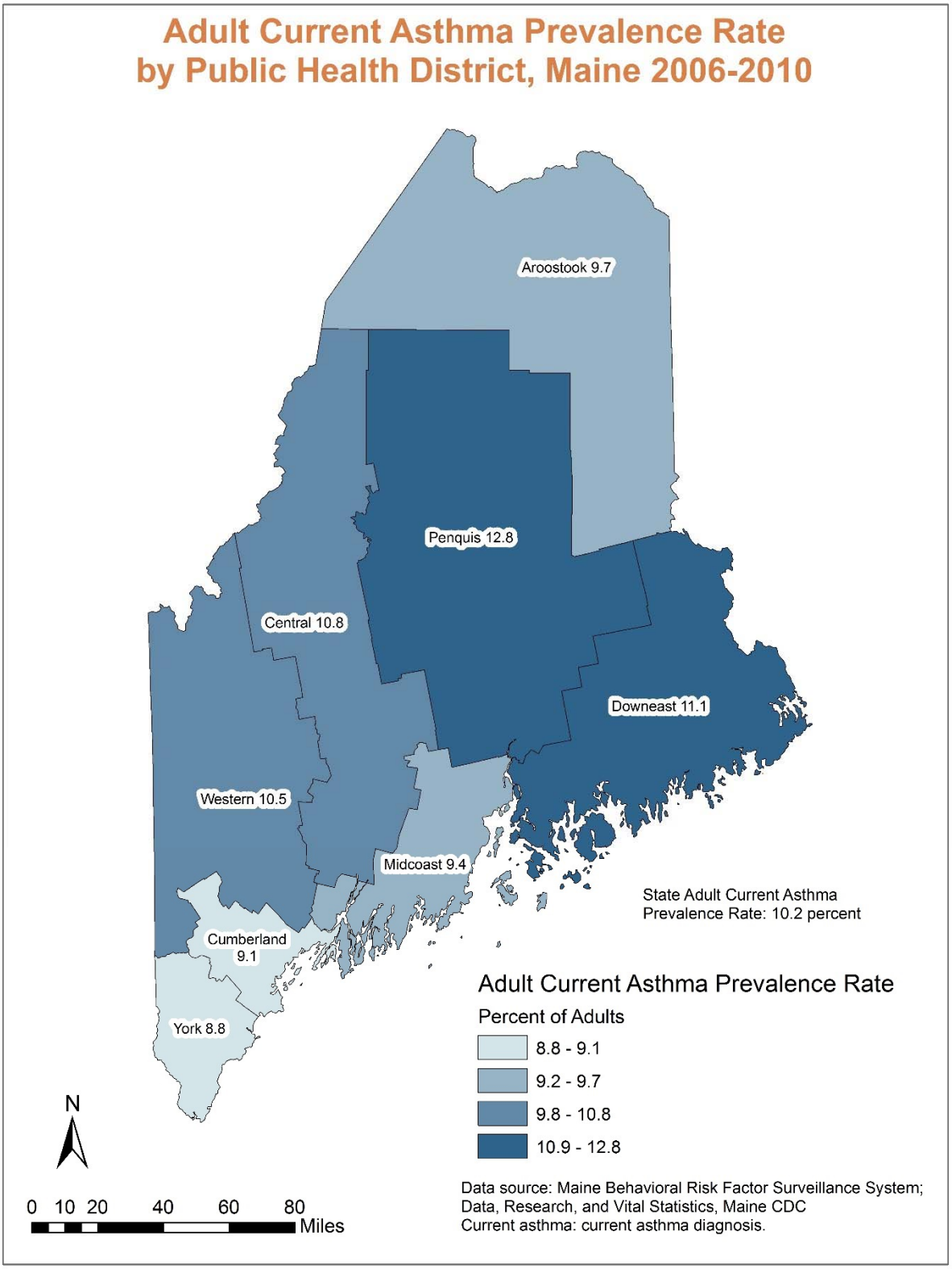
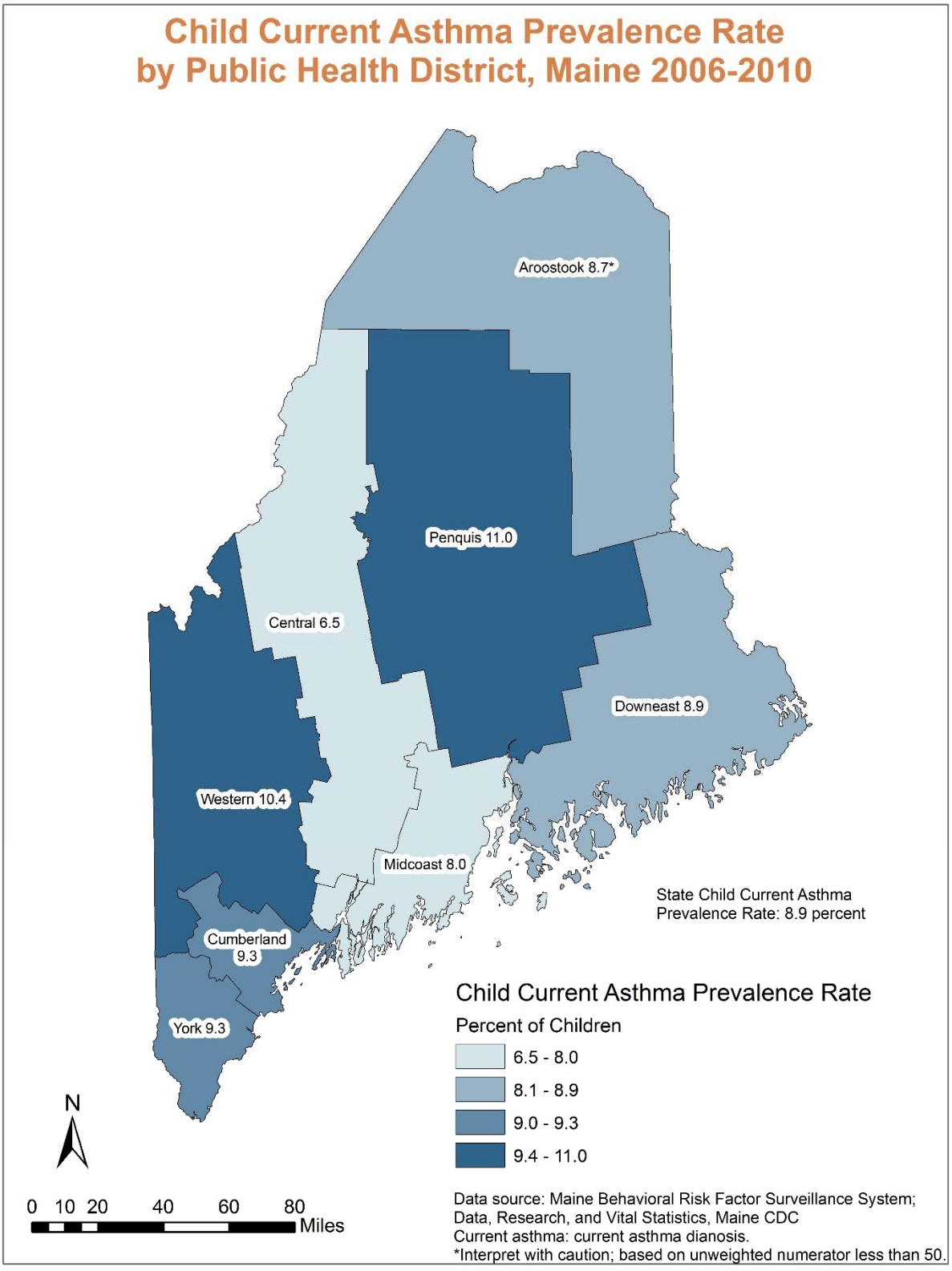


Figure 2.20 Map of Current Asthma Prevalence among Children, Public Health District, Maine, 2006-2010

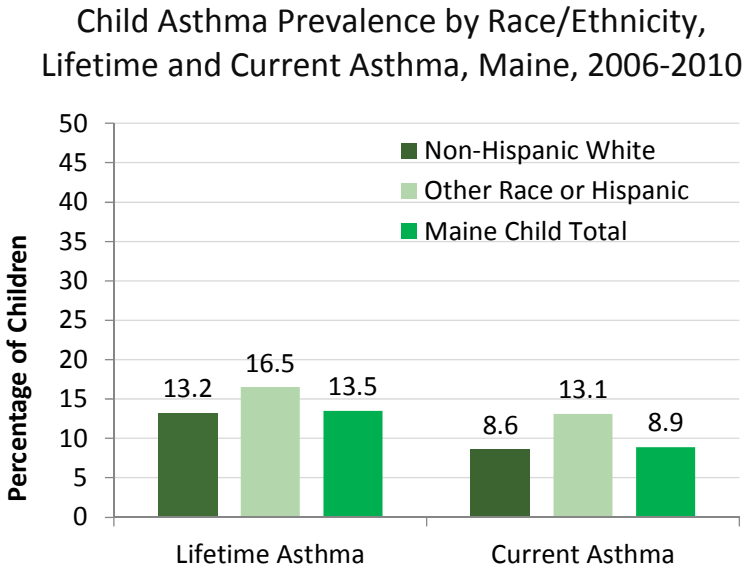


Does the burden of asthma prevalence differ by race or ethnicity?

In Maine, adults who are Hispanic or a race other than White had significantly higher asthma prevalence rates than non-Hispanic White adults, while no statistically significant race/ethnicity differences were observed among children.

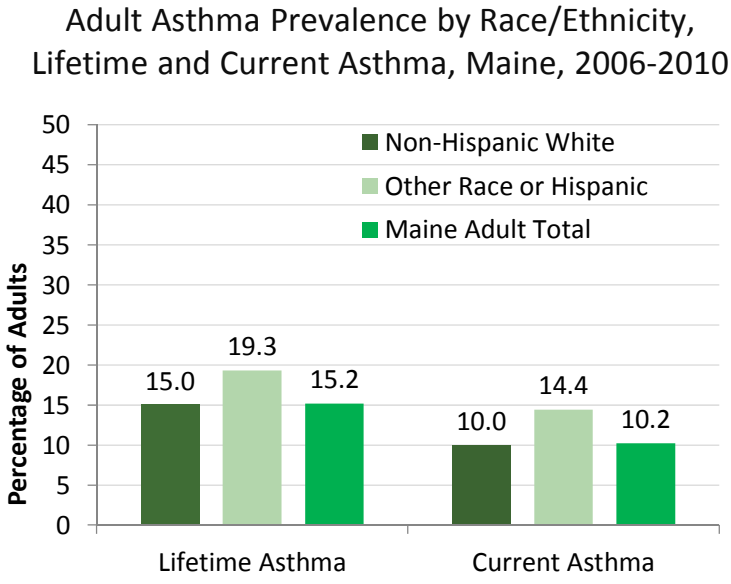
- Among Maine children under the age of 18 in 2006-2010, five-year average annual lifetime and current prevalence were not significantly different among children who are Hispanic or a race other than White than among non-Hispanic White children. In 2006-2010, the five-year average annual prevalence of lifetime asthma was 16.5 percent among Maine children who were Hispanic or a race other than White and 13.2 percent among non-Hispanic White children. In this same period, the five-year average annual prevalence of current asthma was 13.1 percent among Maine children who are Hispanic or a race other than White and 8.6 percent among non-Hispanic White children (Table 2.3, Figure 2.21).
- Among Maine adults in 2006-2010, lifetime and current prevalence were significantly higher among adults who were Hispanic or a race other than White. In 2006-2010, the five-year average annual prevalence of lifetime asthma was 19.3 percent among adults who were Hispanic or a race other than White compared to 15.0 percent among non-Hispanic White adults. In this same period, the five-year average annual prevalence of current asthma was 14.4 percent among adults who were Hispanic or a race other than White compared to 10.0 percent among non-Hispanic White adults (Table 2.6, Figure 2.22).

Figure 2.21. Lifetime and Current Asthma Prevalence among Children, Race/Ethnicity, Maine, 2006-2010



Data Source: Behavioral Risk Factor Surveillance System.

Figure 2.22. Lifetime and Current Asthma Prevalence among Adults, Race/Ethnicity, Maine, 2006-2010



Data Source: Behavioral Risk Factor Surveillance System.

What is the burden of asthma prevalence among Maine's tribal population?

Based upon data from the Waponahki Tribal Health Assessment, the lifetime prevalence of asthma among Maine's adult tribal population is estimated at 22.5 percent, indicating a high burden of asthma.[16]

- Lifetime prevalence, or the percent of the population ever diagnosed with asthma, was 22.5 percent among Maine's adult tribal population in 2010. These data cannot be directly compared with the BRFSS data shown above, as the survey methods are different, but they do indicate a high burden of asthma among Maine's tribal population.
- Of those adults with lifetime asthma, approximately 40.6 percent reported an episode of asthma or an asthma attack in the past 12 months.
- In 2010, 26.5 percent of adult tribal women in Maine reported lifetime asthma compared to 16.5 percent of adult tribal men.
- More information on the Waponahki Tribal Health Assessment is available in the Technical Notes in Appendix 2.

Age at and Time since Asthma Diagnosis

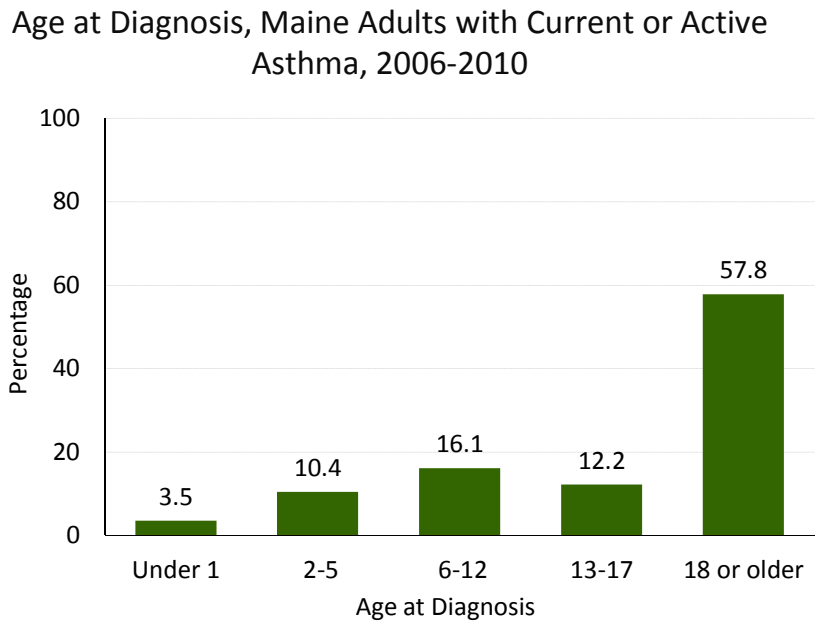
At what age and how long ago were Maine adults and children with asthma diagnosed with their asthma?

Among Maine adults with current or active asthma, more than half had been diagnosed in adulthood and more than 80 percent had been diagnosed more than five years ago. Among Maine children with current or active asthma, three-quarters had been diagnosed at two years of age or older and half had been diagnosed more than five years ago.

- Nearly 60 percent (57.8 percent) of adults with current or active asthma were diagnosed with asthma after age 17 and most (85.4 percent) were diagnosed more than five years ago (Figure 2.23, Table 2.9).
- Among Maine children with current or active asthma, 40.7 percent were diagnosed between two years and five years of age, and one-third (33.3 percent) were diagnosed at six years of age or older. More than half (52.4 percent) of Maine children with asthma were diagnosed more than five years ago (Figure 2.24, Table 2.10).

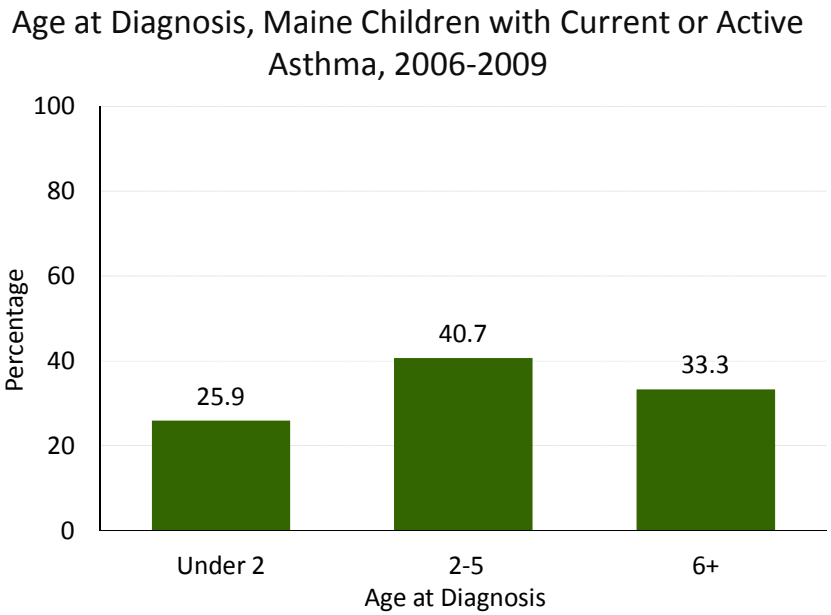
- Based upon data from the Waponahki Tribal Health Assessment, the mean age of diagnosis of asthma among Maine's adult tribal population was 21.8 years, with a range of 10 years to 69 years of age.[16]

Figure 2.23. Age at Diagnosis, Maine Adults with Current or Active Asthma, 2006-2010



Data Source: Maine Asthma Call-Back Survey. Among adults with current or active asthma.

Figure 2.24. Age at Diagnosis, Maine Children with Current or Active Asthma, 2006-2009



Data Source: Maine Asthma Call-Back Survey. Among children with current or active asthma.

Chapter 3: Management and Quality of Life

About Asthma Control and Management

Appropriate asthma medical care, medication use, education and avoidance of triggers can improve asthma control and reduce its impact. Current national guidelines recommend that all people with asthma should receive education on how to avoid triggers and how to recognize and manage asthma attacks; receive a written asthma self-management plan from a health care provider; and have a routine checkup with a health care provider at least every six months.[5]

In this chapter data are presented from the Maine Behavioral Risk Factor Surveillance System (BRFSS) and from the Asthma Call-back Survey (ACBS) that provide information on asthma control and management among Maine adults and children with asthma. To describe how asthma is being managed in Maine, data are presented on asthma control and the impact of poorly controlled asthma; routine medical care, medication use and patient education; management of related health conditions and behaviors; and home, work and school environmental factors. Due to relatively small sample sizes each year, descriptive information regarding children and sub-groups of adults is limited. In most analyses, multiple years of data have been combined to produce reliable estimates.

About the Data

As described in more detail in Chapter 2 and Appendix 2, the BRFSS includes questions regarding lifetime and current asthma for the randomly selected adult and child in the responding household. If that adult or child has ever been diagnosed with asthma, those who give permission are called back to complete the ACBS. In the case of children with asthma, the ACBS interviews the adult in the household who is most knowledgeable about the health of that child. The following analyses include adult and children identified through the BRFSS as ever being diagnosed with asthma who were also part of the ACBS and had either "current" or "active" asthma.

- "Current Asthma" = Told by health professional that they have asthma and says still has asthma at the time of BRFSS interview and Asthma Call-Back Survey interview.
- "Active asthma" = Talked to a doctor about their asthma within past year OR took asthma medications within past year OR experienced asthma symptoms within past year.

In 2006-2009, 376 randomly selected children were identified by the BRFSS as having been diagnosed with asthma. Of these 376 children, 306 were identified by the ACBS as having "current" or "active" asthma and were included in these analyses. Among adults, 1,825 of the total 2,245 BRFSS adult respondents in 2006-2010 who reported ever being diagnosed with asthma also responded to the ACBS, had either "current" or "active" asthma and were included in these analyses. Data are weighted to be representative of Maine adults and children with asthma and to adjust for non-response.

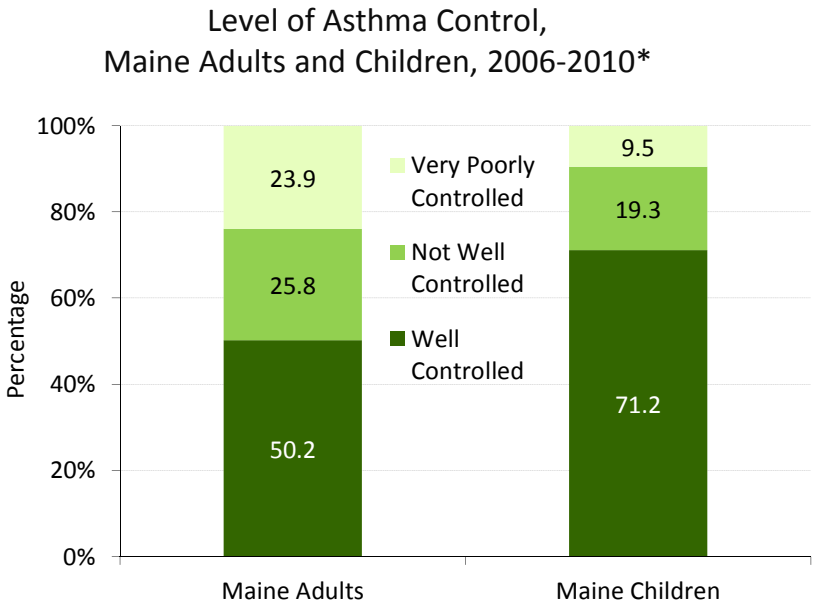
Asthma Control and Its Impact

What percentage of Mainers with asthma have well-controlled asthma?

In Maine, one in two adults and one in four children with asthma has asthma that is very poorly or not well controlled.

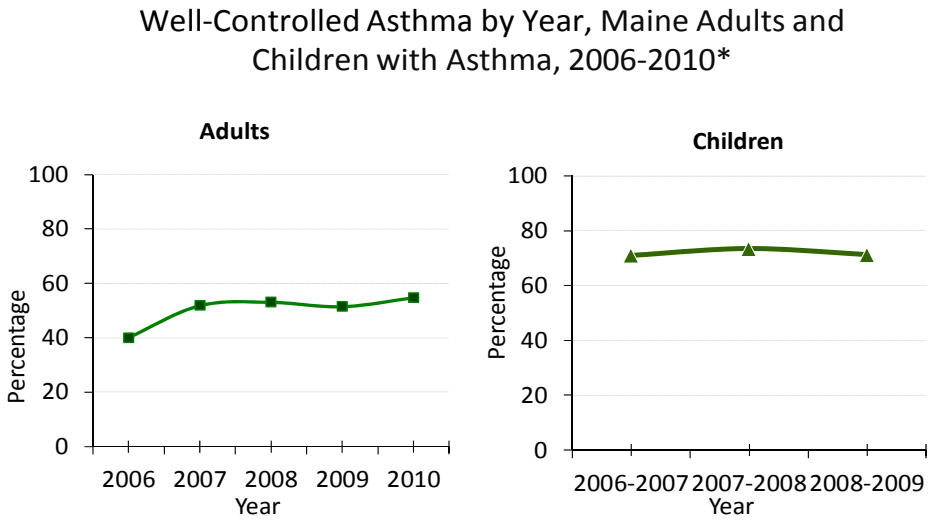
- Among Maine adults and children with asthma, nearly half (49.7 percent) of adults and one in four children (28.8 percent) have asthma that is very poorly or not well controlled based on frequency of asthma symptoms, nighttime awakenings due to asthma and use of rescue medications (Figure 3.1, Tables 3.1 and 3.2).
- Among Maine adults with asthma, the percentage whose asthma is well-controlled appears to have improved somewhat, but not quite significantly, from 40.0 percent in 2006 to 54.7 percent in 2010 (Figure 3.2, Table 3.3).
- Among Maine children with asthma, the percentage whose asthma is well-controlled did not change significantly between 2006 and 2009; relatively small sample sizes make it difficult to assess trend over time (Figure 3.2, Table 3.4).

Figure 3.1. Level of Asthma Control among Maine Adults and Children, 2006-2010*



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System. Among people with current or active asthma.
*Data for children are 2006-2009; data for adults are 2006-2010.

Figure 3.2. Well-Controlled Asthma by Year, Maine Adults and Children with Asthma, 2006-2010*



Data Source: Maine Behavioral Risk Factor Surveillance System. Among people with current or active asthma, percent with asthma defined as "well-controlled".

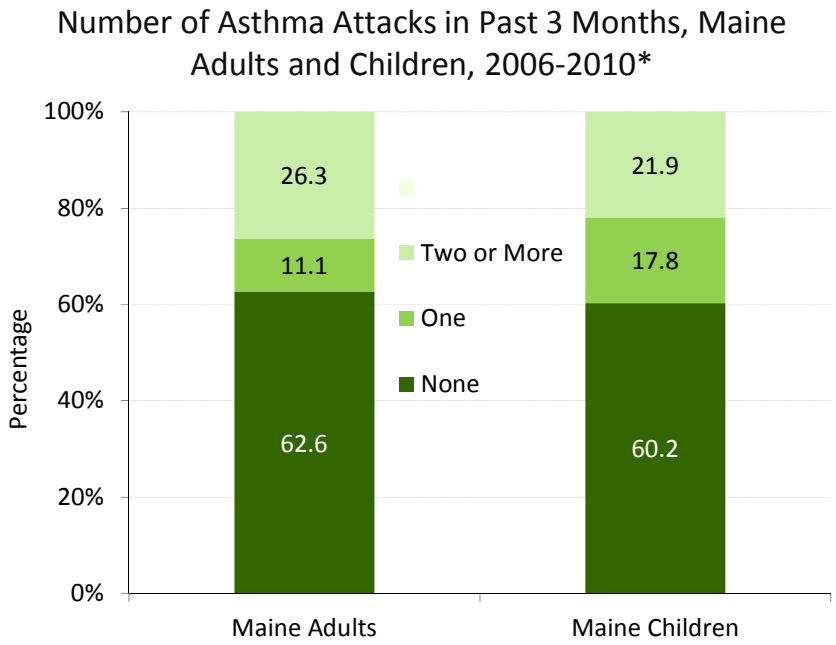
*Data for children are 2006-2009; and are pooled by 2006-07, 2007-08, 2008-09, data for adults are single year periods between 2006-2010.

What percentage of Mainers with asthma have had recent asthma attacks?

Nearly one in four Maine adults and children with asthma had an asthma attack within the past three months. Among those with asthma, nearly 70 percent of Maine adults and 40 percent of Maine children had asthma symptoms within the past month.

- Nearly four in ten Maine adults (37.4 percent) and children (39.7 percent) with asthma reported having had an asthma attack in the last three months (Tables 3.1 and 3.2, Figure 3.3).

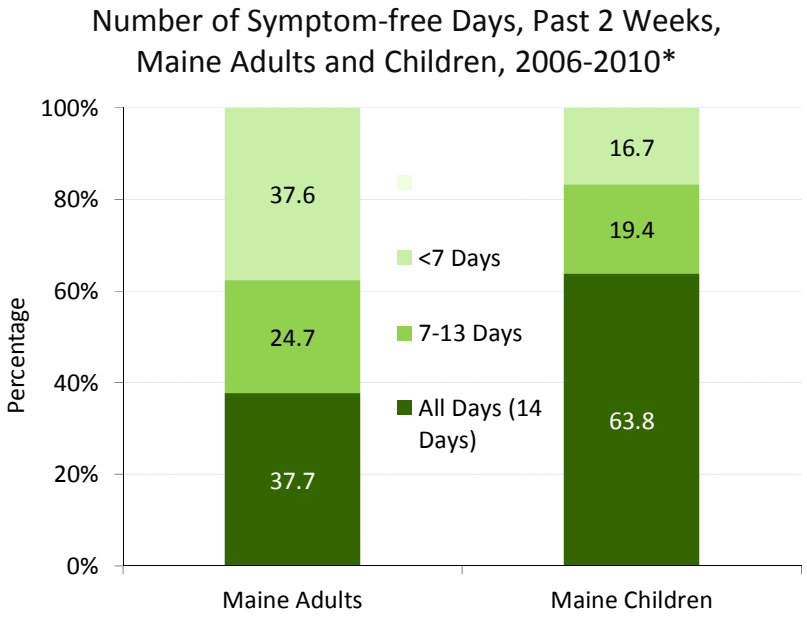
Figure 3.3. Number of Asthma Attacks in Past Three Months, Maine Adults and Children, 2006-2010*



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System. Among people with current or active asthma.
*Data for children are 2006-2009; data for adults are 2006-2010.

- Nearly seven in ten (67.6 percent) Maine adults with asthma reported having asthma symptoms in the past month (Table 3.1).
- Almost 40 percent of children with current or active asthma had asthma symptoms in past month (Figure 3.4, Table 3.2).

Figure 3.4. Number of Symptom-free Days, Past Two Weeks, Maine Adults and Children, 2006-2010*



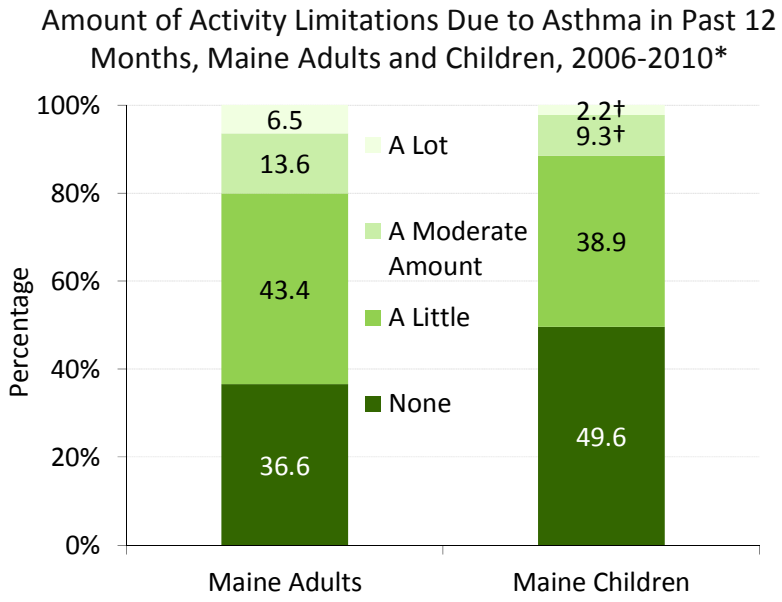
Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System. Among people with current or active asthma.
*Data for children are 2006-2009; data for adults are 2006-2010.

What is asthma's impact on daily activities, work and school?

More than half of Maine adults and children with asthma have activity limitations due to their asthma. Poorly controlled asthma results in a large number of missed work and school days in Maine.

- Nearly two-thirds (63.0 percent) of Maine adults and more than half (50.2 percent) of children with current or active asthma had activity limitations due to asthma in the last 12 months (Tables 3.1 and 3.2).
- Among those with asthma, asthma limited the daily activities "a moderate amount" or "a lot" for 20.0 percent of Maine adults and 11.5 percent of children (Figure 3.5, Tables 3.1 and 3.2).
- More than two in ten (21.9 percent) currently employed Maine adults with asthma reported being unable to work or carry out usual activities for one or more days in the past year because of their asthma (Figure 3.6, Table 3.1).

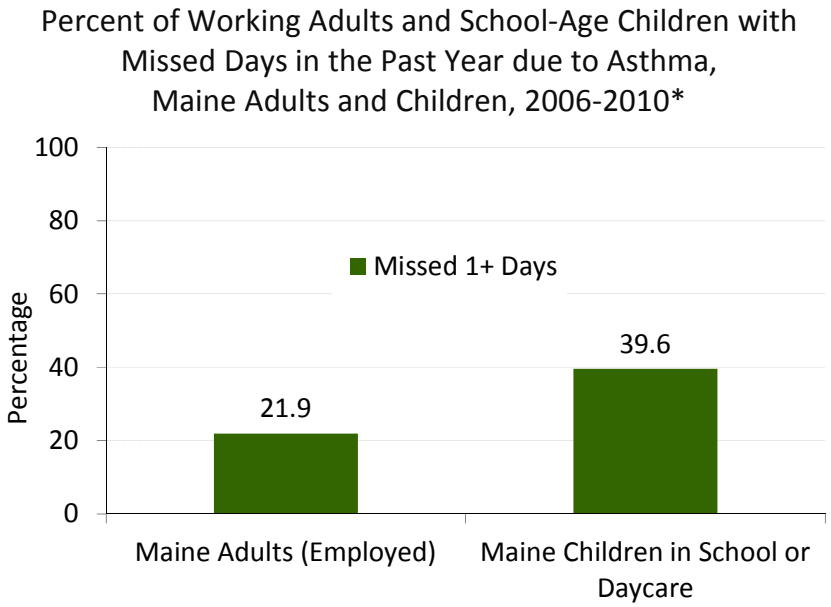
Figure 3.5. Amount of Activity Limitations Due to Asthma in Past 12 Months, Maine Adults and Children, 2006-2010*



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System. Among people with current or active asthma. *Data for children are 2006-2009; data for adults are 2006-2010. †Based on an unweighted numerator less than 50; interpret with caution.

- Among the estimated 65,818 Maine adults with active or current asthma who were currently employed, there was a total of 90,885 missed work or activity days in each year between 2006 and 2010 because of asthma.
- Based upon data from the Waponahki Tribal Health Assessment, the mean number of days adults with current asthma in Maine's tribal population were unable to work or carry out usual activities because of asthma in the past 12 months was 3.9, with a range of 0 to 365 missed activity/work days (Table 3.5).[16]
- More than one-third (39.6 percent) of Maine children with asthma who were in school or daycare missed one or more days of school in the past year because of their asthma (Figure 3.6, Table 3.2).

Figure 3.6. Percent of Working Adults and School-Age Children with Missed Days in the Past Year due to Asthma, Maine Adults and Children, 2006-2010*



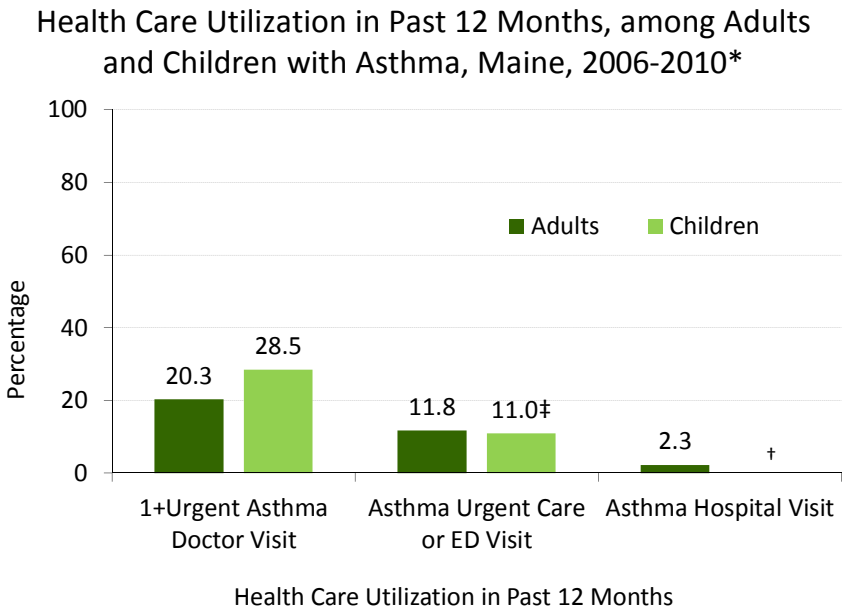
Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System. Among people with current or active asthma. *Data for school-age and daycare aged children with missed past year school/daycare and are from 2006-2009; data for adults are from 2006-2010 and are number with past year missed work or activity days among currently employed adults.

What is asthma's impact on urgent doctor visits and urgent care or emergency department (ED) visits?

Two in ten Maine adults and three in ten Maine children with asthma have had at least one urgent doctor visit for their asthma during the past 12 months. Nearly one in eight Maine adults and children with asthma has had an urgent care or ED visit for asthma during the past 12 months.

- Among Maine adults with asthma, 20.3 percent had one or more urgent doctor visits for asthma in the past 12 months; 6.0 percent had three or more such visits (Figure 3.7, Table 3.1).
- Among Maine adults with asthma, 11.8 percent had an urgent care or ED visit for asthma during the past 12 months and 2.3 percent had a hospitalization due to asthma in the past 12 months (Figure 3.7, Table 3.1).

Figure 3.7. Health Care Utilization in Past 12 Months, among Adults and Children with Asthma, Maine, 2006-2010*



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System, among adults and children with current or active asthma. *Data for adults are 2006-2010; data for children are 2006-2009. ‡ Interpret with caution; based on an unweighted numerator less than 50.
† Hospital visits not asked for children.

- Among Maine children with asthma, 28.5 percent had one or more urgent doctor visits for asthma during the past 12 months; 7.5 percent had three or more such visits (Figure 3.7, Table 3.2).
- Among Maine children with asthma, 11.0 percent had one or more urgent care or ED visits for asthma during the past 12 months (Figure 3.7, Table 3.2).
- Among Maine's adult tribal population with asthma, the mean number of past year healthcare visits for urgent treatment of worsening asthma symptoms was 0.7 with a range of 0-20 visits. The mean number of past year asthma-related emergency room or urgent care center visits was 0.3 with a range of 0-6 visits (Table 3.5).[16] Data is from the Waponahki Tribal Health Assessment.

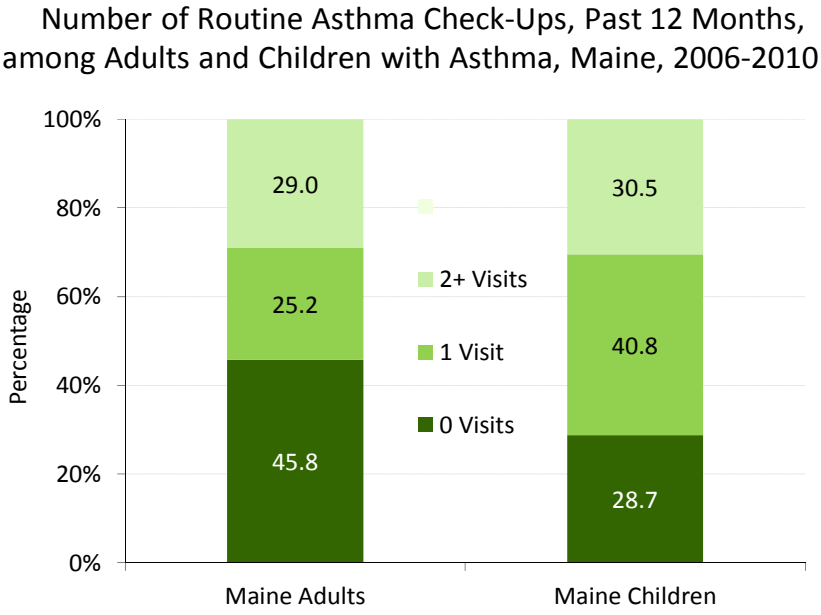
Routine Medical Care, Medication Use and Patient Education

What percentage of Maine adults and children with asthma see their doctors for a routine asthma checkup at least twice per year?

Few Mainers with asthma report seeing their doctors regularly; only three in ten adults and children (29 percent and 31 percent, respectively) with asthma saw their doctor for a routine asthma visit at least twice in the past year. More than 45 percent of Maine adults with current or active asthma had no routine asthma checkup in the past year.

- Among Maine adults with asthma, nearly half (45.8 percent) reported having no routine asthma checkup in the past year, 25.2 percent reported one, and only 29.0 percent reported at least two routine asthma checkups in the past year (Figure 3.8, Table 3.6).
- Among Maine children with asthma, 28.7 percent had no routine asthma checkup in the past year, 40.8 percent had one, and only 30.5 percent had at least two routine asthma checkups during the past 12 months (Figure 3.8, Table 3.7).

Figure 3.8. Number of Routine Asthma Check-Ups, Past 12 Months, among Adults and Children with Asthma, Maine, 2006-2010*



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System. Among people with current or active asthma. *Data for children are 2006-2009; data for adults are 2006-2010.

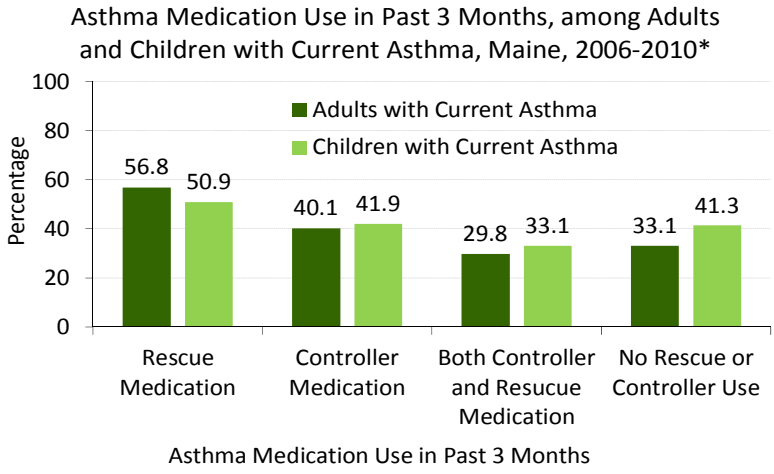
- Based upon data from the Waponahki Tribal Health Assessment, the mean number of visits in the past 12 months to doctor, nurse, or other health professional for a routine checkup for asthma among adults with asthma in Maine's tribal population was 0.8 with a range of 0-12 visits (Table 3.5).[16]

What percentage of Maine adults and children with asthma use asthma controller and rescue medications?

Only four in ten of Maine adults and children with asthma have used an asthma controller medication within the past three months, but more than half have used a rescue inhaler during that time. More than one-third of adults and children with asthma have not taken any medications in the past three months.

- More than one-third of Maine adults (33.1 percent) and children (41.3 percent) with current asthma have not taken any asthma medications in the past three months (Figure 3.9, Tables 3.8 and 3.9).
- Only four in ten Maine adults (40.1 percent) and children (41.9 percent) with current asthma have taken an asthma controller medication in the past three months (Figure 3.9, Tables 3.8 and 3.9).
- More than half of Maine adults (56.8 percent) and children (50.9 percent) with current asthma have used a rescue inhaler in the past three months (Figure 3.9, Tables 3.8 and 3.9).

Figure 3.9. Asthma Medication Use in Past Three Months, among Adults and Children with Current Asthma, Maine, 2006-2010*



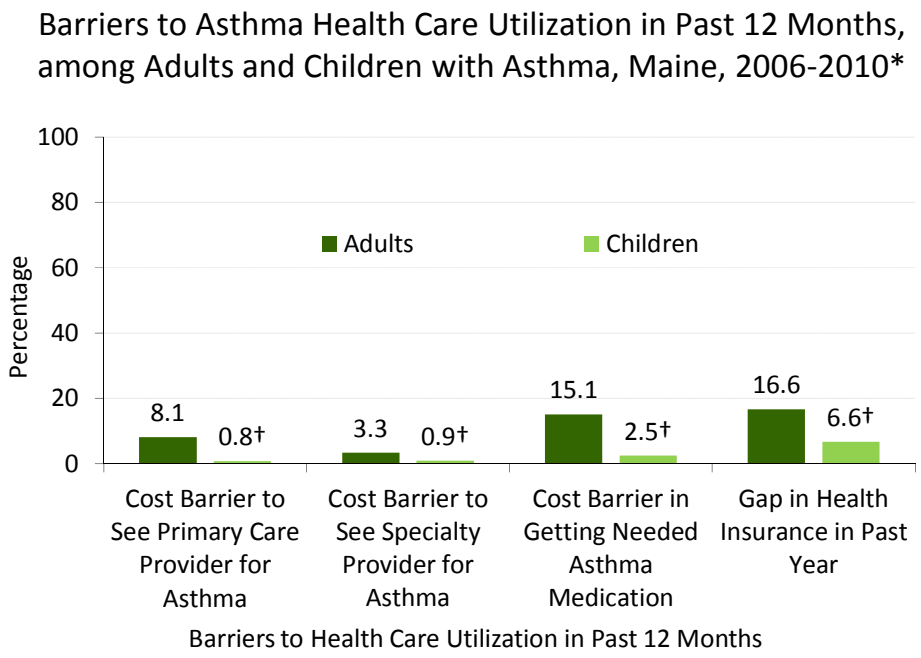
Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System, among adults and children with current or active asthma. *Data for adults are 2006-2010.; data for children are 2006-2009.

Is cost of care and medications a barrier to Maine adults and children with asthma?

Cost is a barrier to care for a portion of adults and children with current asthma. Maine adults with asthma are more likely to face cost barriers to care and medications than Maine children with asthma. More than one in seven Maine adults with asthma was unable to buy needed asthma medications due to cost in the past year.

- One in six (16.3 percent) Maine adults with asthma and less than one in ten (6.6 percent) Maine children with asthma had a gap in their health insurance during the past year (Figure 3.10, Tables 3.6 and 3.7).
- Among Maine adults with asthma, 8.1 percent needed to see a primary care provider and 3.3 percent needed to see a referred specialist but could not due to cost in the past year (Figure 3.10, Table 3.6).
- Among Maine children with asthma, less than 1 percent could not see a primary care physician (0.8 percent) or specialist (0.9 percent) for their asthma during the past year due to cost (Figure 3.10, Table 3.7).

Figure 3.10. Barriers to Asthma Health Care Utilization in Past 12 Months, among Adults and Children with Asthma, Maine, 2006-2010*



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System, among adults and children with current or active asthma. *Data for adults are 2006-2010.; data for children are 2006-2009. †Interpret with caution; based on unweighted numerator less than 50.

- More than one in seven (15.1 percent) Maine adults with asthma reported being unable to buy needed asthma medication in the last 12 months due to cost (Figure 3.10, Table 3.8).
- Among Maine children with asthma, 2.5 percent were unable to obtain needed asthma medication in the past year due to cost (Table 3.9).

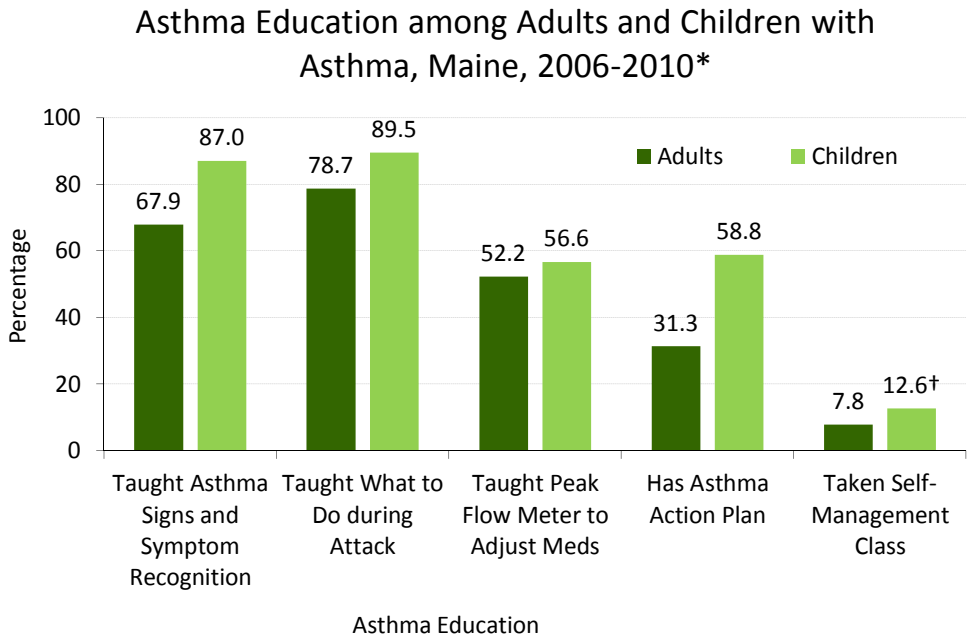
What percentage of Maine adults and children has an asthma action plan or has received asthma education?

Few Mainers with asthma have an asthma action plan; only 60 percent of Maine children with asthma and only 30 percent of Maine adults with asthma have an asthma action plan. Only about 10 percent of Maine adults or children (or their parent/guardian) with asthma have taken a class in how to manage asthma.

- Nearly six in ten Maine children with asthma (58.9 percent) have an asthma action plan while only three in ten (31.3 percent) Maine adults with asthma have one (Figure 3.11, Tables 3.10 and 3.12).

- The percentage of Maine adults with asthma who have an asthma action plan did not improve between 2006 (31.6 percent) and 2010 (32.5 percent; Table 3.11).
- Nearly nine in ten Maine children with asthma or their parents have been taught how to recognize asthma signs and symptoms (87.0 percent) and what to do during an asthma attack (89.5 percent), while just over half (56.6 percent) have been taught how to use a peak flow meter to adjust their asthma medications. More than four in ten Maine children with asthma or their parents have been taught all three of these and have an asthma action plan (Figure 3.11, Table 3.10).

Table 3.11. Asthma Education among Adults and Children with Asthma, Maine, 2006-2010*



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System, among adults and children with current or active asthma. *Data for adults are 2006-2010; data for children are 2006-2009. †Interpret with caution; based on an unweighted numerator less than 50.

- Among Maine adults with asthma, only seven in ten (67.9 percent) have been taught how to recognize signs and symptoms, only eight in ten (78.7 percent) have been taught what to do during an asthma attack, and just over half (52.2 percent) have been taught how to use a peak flow meter to adjust their asthma medications. Less than one in four adults (23.2 percent) has been taught all three of these and has an asthma action plan (Figure 3.11 and Table 3.10).
- The percentage of Maine adults with asthma who have been taught how to recognize asthma signs and symptoms, what to do during an asthma attack, and how to use a

peak flow meter to adjust their medications, and who have an asthma action plan did not improve between 2006 (26.4 percent) and 2010 (24.6 percent; Table 3.11).

- Less than one in ten Maine adults (7.8 percent) and only one in eight children (or their parent/guardian; 12.6 percent) with asthma has taken a class in how to manage asthma (Figure 3.11, Table 3.10, Table 3.12).

Management of Related Health Conditions and Behaviors

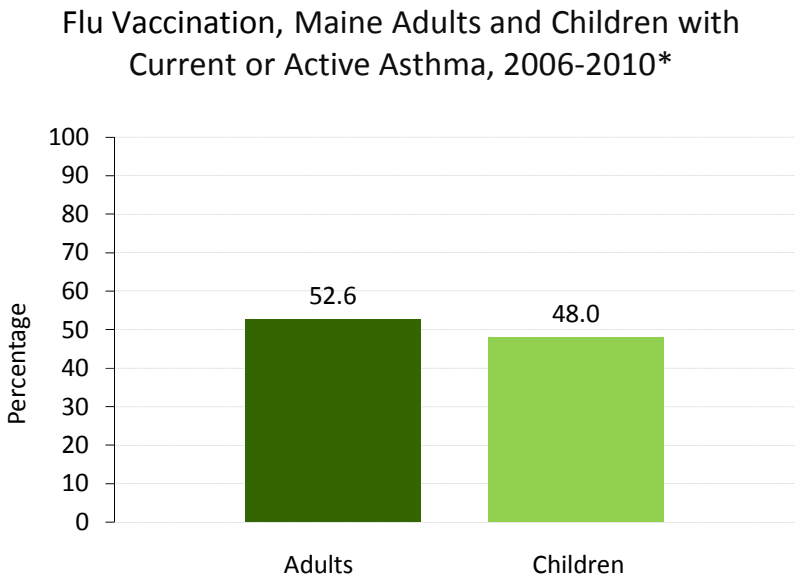
Certain health conditions and behaviors can impact asthma management; data on several of these are available for Maine and are presented here. Clinical guidelines recommend that all people with asthma should receive an annual flu shot, as influenza can have serious consequences for people with asthma.[5] Tobacco smoke is a known trigger for asthma attacks. Obesity is a serious risk factor for cancer and cardiovascular disease, but for people with asthma, it is also associated with poor asthma control.[17]

What percentage of Maine adults and children with asthma receive an annual flu shot?

Only half of Maine adults and children with current or active asthma received a flu shot in the past year.

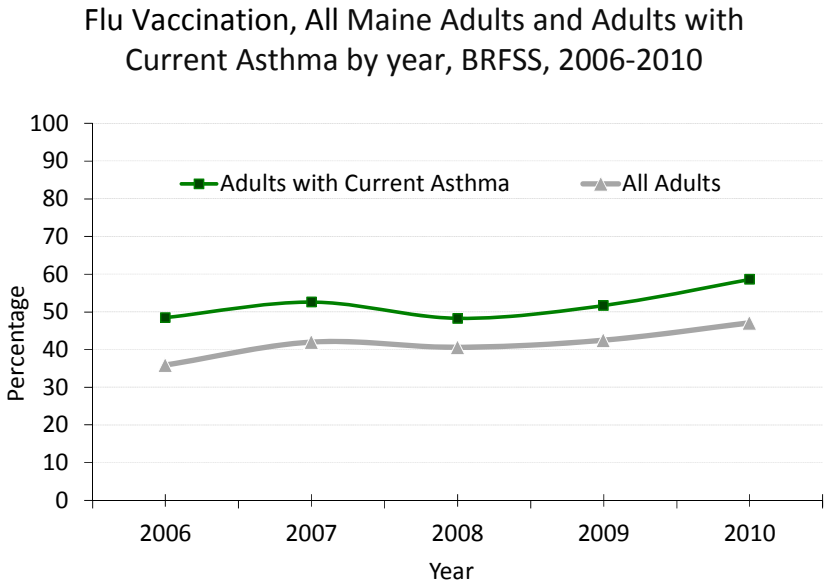
- On average in the years 2006-2010, only half (52.6 percent) of Maine adults with current or active asthma received an influenza vaccination in the past 12 months (Figure 3.12, Table 3.6).
- Less than half (48.0 percent) of Maine children with current or active asthma received an influenza vaccination in the past 12 months (Table 3.7).
- BRFSS data shows that flu vaccination rates among all Maine adults as well as Maine adults with current asthma have increased since 2006 and that Maine adults with current asthma are significantly more likely to have had a flu shot than Maine adults overall (58.6 percent vs 47.1 percent in 2010, respectively; Figure 3.13, Table 3.13).

Figure 3.12. Flu Vaccination, Maine Adults and Children with Current or Active Asthma, ACBS, 2006-2010*



Data Source: Maine Asthma Call-Back Survey. Flu vaccination in past 12 months among people with current or active asthma. *Data for adults are 2006-2010; data for children are 2006-2009.

Figure 3.13. Flu Vaccination, All Maine Adults and Adults with Current Asthma by year, BRFSS, 2006-2010



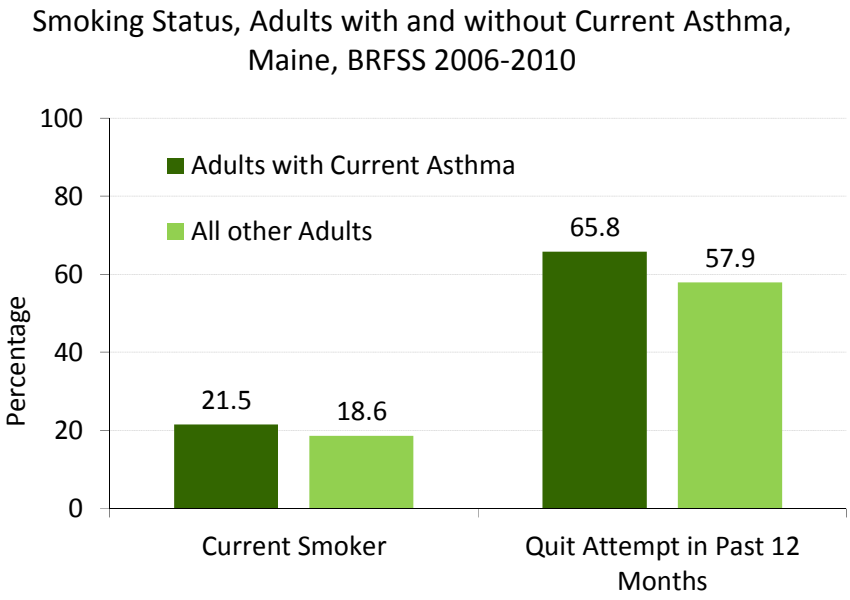
Data Source: Maine Behavioral Risk Factor Surveillance System. Flu vaccination in past 12 months among adults with current asthma and all Maine adults.

What percentage of Maine adults with asthma are current smokers?

More than two in ten Maine adults with current asthma are current smokers. Maine adults with asthma are significantly more likely to be current smokers than those without asthma.

- According to BRFSS data, 21.5 percent of Maine adults with current asthma were also current smokers, which is significantly higher than the smoking rate among Maine adults without current asthma (18.6 percent; Figure 3.14, Table 3.14).
- Among Maine adults with current asthma who are also current smokers, 65.8 percent stopped smoking for at least one day in the past year because they were trying to quit smoking; this was significantly higher than among current smokers without current asthma (57.9 percent; Figure 3.14, Table 3.14).

Figure 3.14. Smoking Status, Adults with and without Current Asthma, Maine, BRFSS 2006-2010



Data Source: Behavioral Risk Factor Surveillance System, among adults with current asthma and not current asthma. Data for adults are 2006-2010.

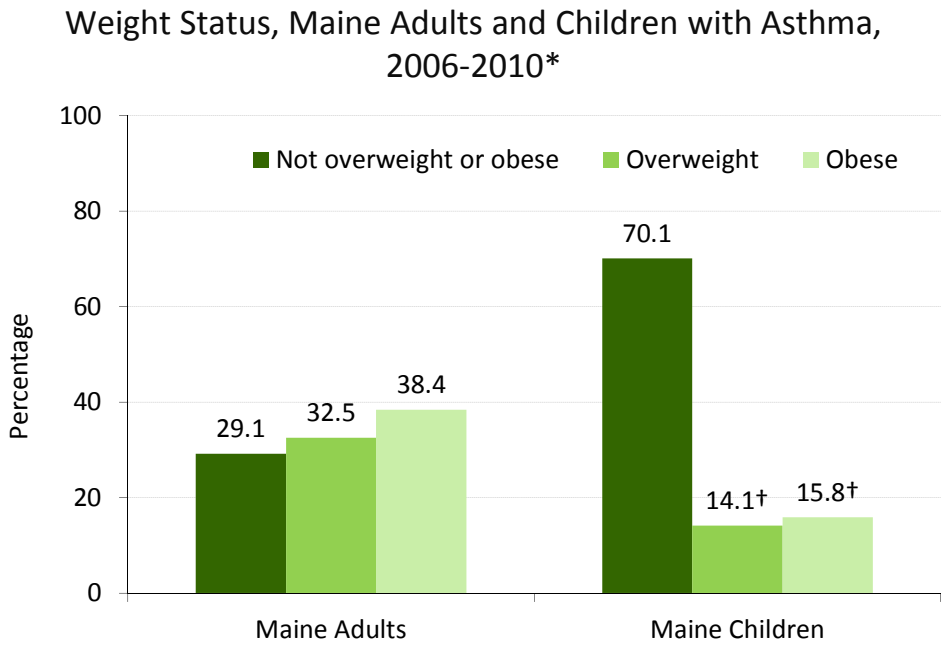
What percentage of Maine adults with asthma are obese?

Nearly 40 percent of Maine adults with asthma and 15 percent of Maine children with asthma are obese. Obesity is associated with poorer asthma control.

- Among Maine adults with current asthma, 38.4 percent were obese (Figure 3.15, Table 3.15)

- Among Maine children with current asthma, 15.8 percent were obese (Figure 3.15, Table 3.15)

Figure 3.15. Weight Status, Maine Adults and Children with Asthma, 2006-2010*



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System. Among people with current or active asthma. *Data for children are 2006-2009; data for adults are 2006-2010. †Interpret with caution; based on an unweighted numerator less than 50.

Home, Work and School Environments

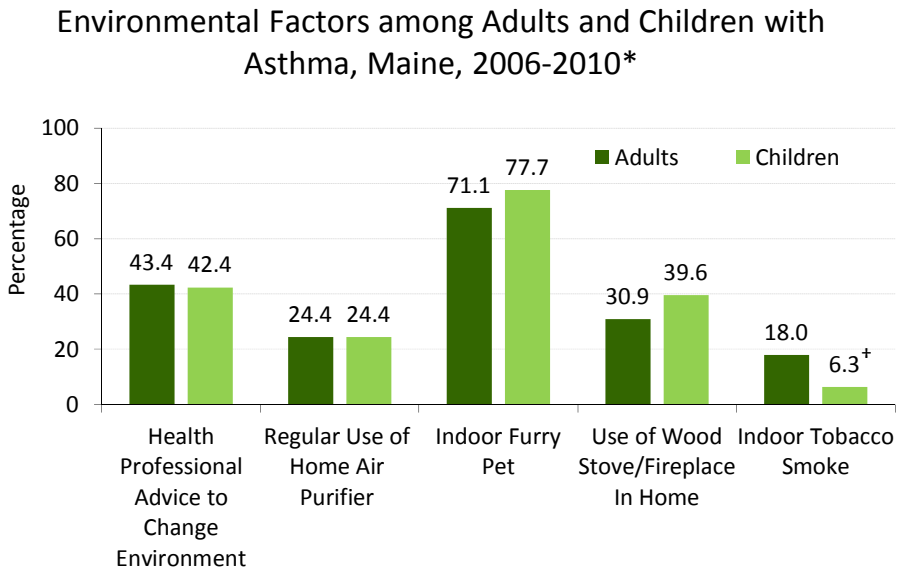
Recommendations for effective asthma control supported by the NHBLI Expert Panel include reducing exposure to environmental factors that may precipitate asthma symptoms or exacerbations.[5]

What percentage of Maine adults and children with asthma have had a health professional recommend changes to their home, school or work environments to help control their asthma?

About 40 percent of Maine adults and children with current asthma have received advice from a health professional to change their home, school or work environment to improve their asthma control.

- Among Maine adults with asthma, 43.3 percent have had a health professional recommend changes to their home, school or work environment to improve their asthma control (Figure 3.16, Table 3.16).
- Among Maine children with asthma, 42.2 percent have had a health professional recommend changes to their home, school or work environment to improve their asthma control (Figure 3.16, Table 3.16).

Figure 3.16. Environmental Factors among Adults and Children with Asthma, Maine, 2006-2010*



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System, among adults and children with current or active asthma. *Data for adults are 2006-2010; data for children are 2006-2009. †Interpret with caution; based on an unweighted numerator less than 50.

What percentage of Maine adults with asthma have potential asthma triggers in their home environment or take precautions to avoid these triggers?

Indoor furry pets (especially in the bedroom), wood-burning stoves or fireplaces, gas cooking, indoor smoking and carpeting or rugs in the bedroom are potential asthma triggers that are most common in the homes of Maine adults with asthma. While many Maine adults with asthma report using an exhaust fan in the kitchen while cooking and in the bathroom, fewer report using dust mite covers for sheets and pillowcases, washing sheets and pillowcases in hot water, or using a dehumidifier or air purifier regularly.

- More than two-thirds (71.1 percent) of Maine adults with asthma have indoor furry pets; more than half (54.1 percent) of those with furry pets allow them in their bedroom (Figure 3.16, Table 3.16).
- Nearly one-third of Maine adults with asthma live in homes with a wood-burning stove or fireplace (30.9 percent) or use gas for cooking in the home (31.4 percent; Figure 3.16, Table 3.16).

- Nearly two in ten (18.0 percent) Maine adults with asthma live in homes in which someone has smoked indoors within the past week (Figure 3.16, Table 3.16).
- More than half (59.2 percent) of Maine adults with asthma had carpeting or rugs in their bedroom (Table 3.16).
- Relatively few Maine adults with asthma had smelled mold (14.6 percent), seen cockroaches (0.2 percent), or seen mice or rats (7.5 percent) inside their home in the past 30 days (Table 3.16).
- Less than three in ten Maine adults with asthma used dust mite controlling mattress (26.9 percent) or pillow covers (25.6 percent), or washed sheets and pillowcases in hot water (28.5 percent; Table 3.16).
- More than half of Maine adults with asthma reported using a kitchen exhaust fan regularly when cooking (53.1 percent) and regularly using a bathroom exhaust fan that vents to the outside (58.6 percent; Table 3.16).
- About one in four Maine adults with asthma regularly use an air purifier (24.4 percent) or a dehumidifier (27.7 percent) in the home (Figure 3.16, Table 3.16).

What percentage of Maine children with asthma have potential asthma triggers in their home environment, or take precautions to avoid these triggers?

Indoor furry pets (especially in the bedroom), wood-burning stoves or fireplaces, gas cooking and carpeting or rugs in the bedroom are potential asthma triggers that are most common in the homes of Maine children with asthma. While many Maine children with asthma live in homes where an exhaust fan is regularly used in the kitchen while cooking and in the bathroom, fewer used dust mite covers for sheets and pillowcases, had sheets and pillowcases washed in hot water, or had a dehumidifier or air purifier regularly used in the home.

- Nearly eight in ten (77.7 percent) Maine children with asthma live with indoor furry pets; more than half (57.7 percent) of children with furry pets are exposed to those pets in their bedroom (Figure 3.16, Table 3.17).
- Four in ten (39.6 percent) Maine children with asthma live in homes with either a wood-burning stove or fireplace; nearly one-third (30.8 percent) live in homes where gas is used for cooking (Figure 3.16, Table 3.17).

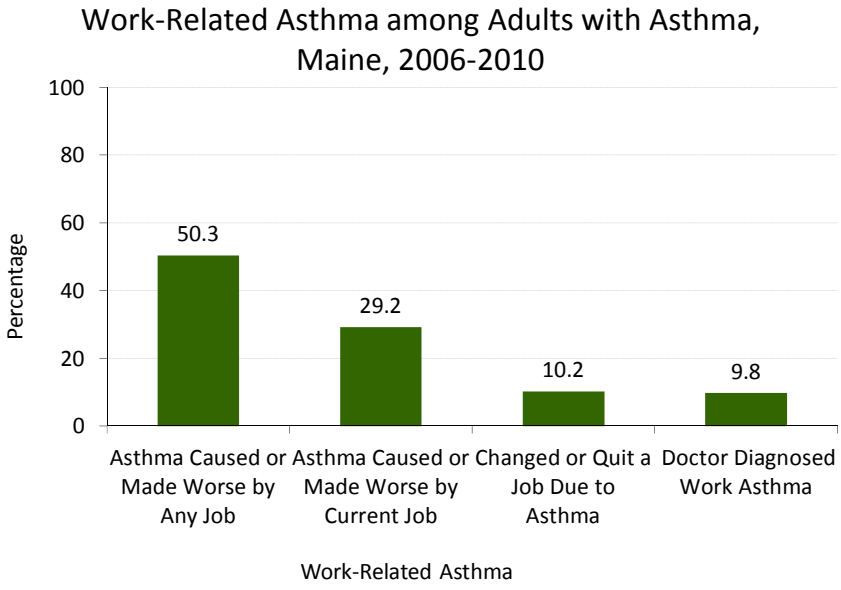
- Less than one in ten (6.3 percent) Maine children with asthma live in homes in which someone has smoked indoors within the past week (Figure 3.16, Table 3.17).
- More than half (60.5 percent) of Maine children with asthma had carpeting or rugs in their bedroom (Table 3.17).
- Relatively few Maine children with asthma lived in homes where mold had been smelled (9.8 percent), cockroaches seen (0.7 percent), or mice or rats seen (8.2 percent) in the past 30 days (Table 3.17).
- About four in ten Maine children with asthma used dust mite controlling mattress (43.1 percent) or pillow covers (37.0 percent) and only one-third (32.7 percent) had sheets and pillowcases washed in hot water (Table 3.17).
- More than half of Maine children with asthma live in homes where a kitchen exhaust fan was used regularly when cooking (58.5 percent) and a bathroom exhaust fan that vents to the outside was used regularly (57.3 percent; Table 3.17).
- About one in four (24.4 percent) children live in a household where an air purifier was regularly in the home and one-third (33.7 percent) live in a household where a dehumidifier was used regularly (Figure 3.16, Table 3.17).

What percentage of employed Maine adults with asthma has had asthma triggers in their work environment?

Only about 10 percent of ever-employed Maine adults with asthma have ever changed or quit a job because of their asthma or have ever been told by a doctor that their asthma was related to their work, but 50 percent say that their asthma was caused or made worse by work-related chemicals, smoke, fumes, or dust.

- About half (50.3 percent) of ever-employed Maine adults with asthma believe their asthma was caused or made worse by chemicals, smoke, fumes or dust at any job they had held (Figure 3.17; Table 3.18).
- One in ten (10.2 percent) ever-employed Maine adults with asthma reported they had ever changed or quit a job because chemicals, smoke, fumes or dust at the job caused their asthma or made it worse (Figure 3.17, Table 3.18).
- One in ten (9.8 percent) Maine adults with current asthma had been told by a doctor that their asthma was related to their work (Figure 3.17, Table 3.18).

Figure 3.17. Work-Related Asthma among Adults with Asthma, Maine, 2006-2010



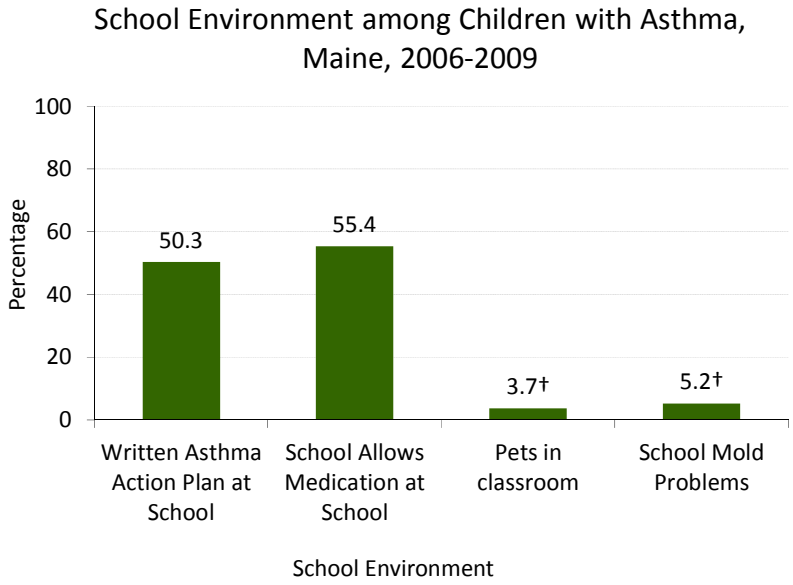
Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System, among adults with current or active asthma.

How common are school environment factors that may impact asthma control among Maine school children with current asthma?

Half of Maine school children with asthma have an asthma action plan on file at school, and half attend schools that allow them to have asthma medicines with them at school.

- Half (52.0 percent) of Maine school children with asthma had a written asthma action plan on file at school (Figure 3.18, Table 3.19).
- Half (55.4 percent) of Maine school children went to schools that allowed them to have medication with them at school (Figure 3.18, Table 3.19).
- According to parental/guardian report, few Maine school children with asthma had feathered or furry pets in their classroom (3.7 percent) or went to schools that had mold problems (5.2 percent; Table 3.19)

Figure 3.18. School Environment among Children with Asthma, Maine, 2006-2009



Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System, among children with current or active asthma. †Interpret with caution; based on an unweighted numerator less than 50.

Chapter 4: Asthma Health Care Utilization

This chapter presents data on emergency department visits and hospitalizations for asthma in Maine. These data are collected and maintained by the Maine Health Data Organization and include data from all non-federal hospitals in the state. The analysis was restricted to Maine residents. Event rates are per 10,000 population.

Emergency department visits and hospitalizations represent serious complications due to asthma. Proper management and control of asthma can largely prevent emergency department visits and hospitalizations. Even with the best treatment, however, some patients may still have poorly controlled asthma, leading to some unpreventable health care utilization.[5,18]

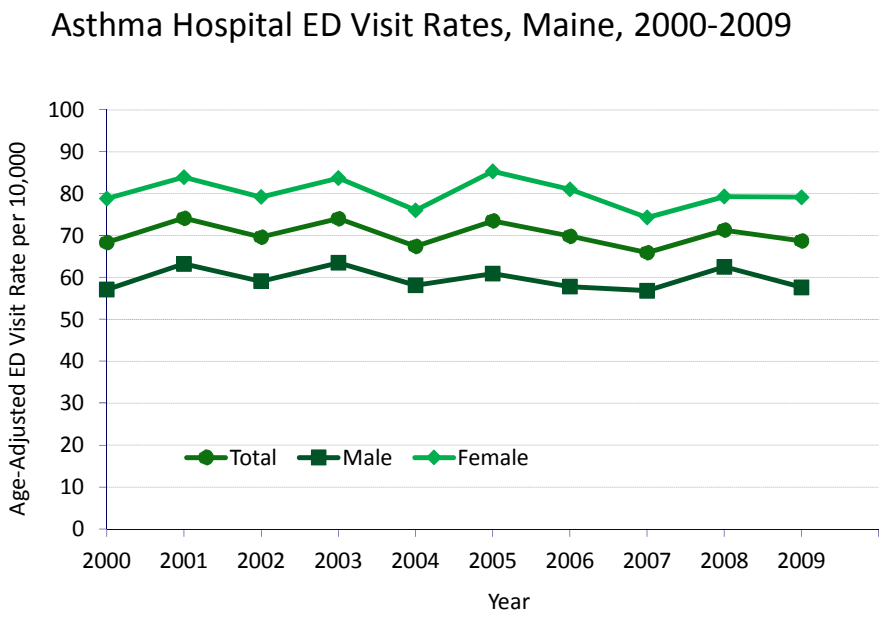
Nationally there are more than 2 million emergency department visits and almost 500,000 hospitalizations due to asthma each year.[19]

What are the trends over time in asthma emergency department visits in Maine?

The emergency department visit rate due to asthma in Maine has fluctuated throughout the 2000s, with no consistent trend.

- Each year, about 8,500 emergency department (ED) visits of Maine residents are due to asthma (asthma listed as the principal diagnosis). The age-adjusted ED visit rate in 2009 was 68.7 per 10,000 population. This is similar to the rate in 2000 (68.3 per 10,000). The rate of ED visits has fluctuated year-to-year throughout the decade and no consistent trend has been observed. The rate was highest in 2003 and 2005 when it was 74.0 and 73.5 per 10,000, respectively (Table 4.1, Figure 4.1).
- In contrast, the asthma-related ED visit rate (ED visits with asthma as any listed diagnosis) have increased significantly since 2000, from 139.3 per 10,000 in 2000 to 271.7 in 2009 (Table 4.11).

Figure 4-1. Age-adjusted Asthma Emergency Department Visit Rates by Sex, Maine, 2000 – 2009



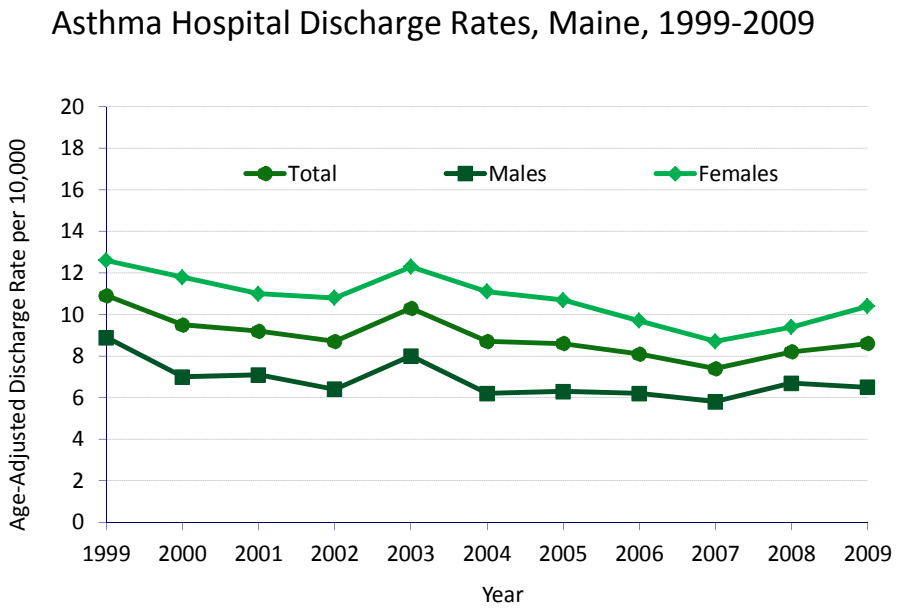
ED Visit rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization.

What are the trends over time in hospital discharge rates in Maine?

The asthma hospital discharge rate in Maine decreased significantly from 2003 to 2007, but has since been on the rise.

- Each year, about 1,200 hospitalizations of Maine residents are due to asthma (asthma listed as the principal diagnosis). The age-adjusted hospitalization rate in 2009 was 8.6 per 10,000 population. The asthma hospitalization rate declined significantly from 10.3 per 10,000 in 2003 to 7.4 per 10,000 in 2007, but then increased significantly to 8.6 per 10,000 in 2009 (Table 4.2, Figure 4.2).
- In contrast, the asthma-related hospitalization rate (hospitalizations with asthma as any listed diagnosis) increased significantly between 1999 and 2003 (from 52.1 to 71.8 per 10,000), but has changed little since then. In 2009, the asthma-related hospitalization rate was 68.6 per 10,000 (Table 4.12).

Figure 4.2. Age-adjusted Asthma Hospital Discharge Rates by Sex, Maine, 1999–2009



Discharge rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Are there differences by sex in asthma ED and hospitalization rates in Maine?

Females are significantly more likely than males to be hospitalized and visit the ED because of their asthma.

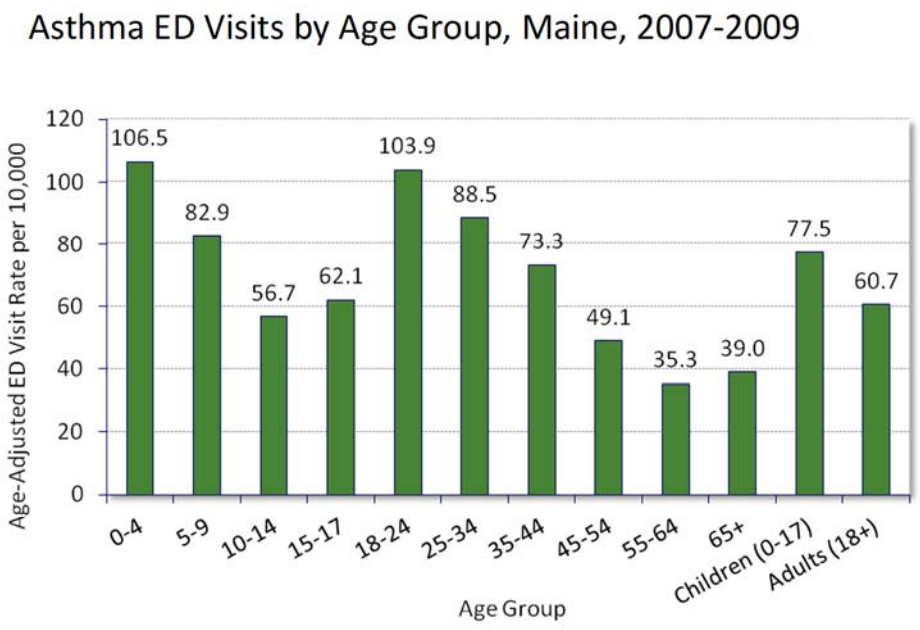
- In Maine, asthma ED rates were consistently significantly higher among females than males during the 2000s. In 2009, females were 37 percent more likely to have had an ED visit because of their asthma than males; this difference has varied between 27 percent and 40 percent during the 2000s. Females account for six of every ten asthma ED visits in Maine. In 2009, the asthma ED rate for Maine females was 79.1 per 10,000 while the rate for males was 57.6 per 10,000 (Table 4.1, Figure 4.1).
- Females account for two-thirds of all asthma hospitalizations in Maine. During the 2000s, asthma hospitalization rates were significantly higher among females than males. In 2009, asthma hospitalization rates were 60 percent higher among females than males; this difference varied between 40 percent and 79 percent during the 2000s. In 2009, the hospitalization rate for Maine females was 10.4 per 10,000 while the rate for males was 6.5 per 10,000 (Table 4.2, Figure 4.2).

Are there differences in asthma ED rates by age in Maine?

Children are significantly more likely than adults to visit the ED because of their asthma.

- The asthma ED visit rate among Maine children ages 0-17 years is 77.5 per 10,000, which is significantly higher than the rate among Maine adults ages 18 years and older, 60.7 per 10,000. The asthma ED visit rate varies significantly with age group among both children and adults (Figure 4.3 and Table 4.3).
- The ED visit rate is highest for Maine children 4 years and younger (106.5 per 10,000) and is significantly lower among older children. Nearly one in ten asthma ED visits is among the youngest age group, 4 years and younger (Figure 4.3 and Table 4.3).
- Among Maine adults, the asthma ED visit rate is highest among young adults ages 18-24 (103.9 per 10,000), declines with age to the 55-64 year age group (35.3 per 10,000) and then increases slightly (but significantly) to 39.0 in the 65+ year age group (Figure 4.3 and Table 4.3).

Figure 4.3. Age-specific Asthma ED Rate, Maine, 2007-2009



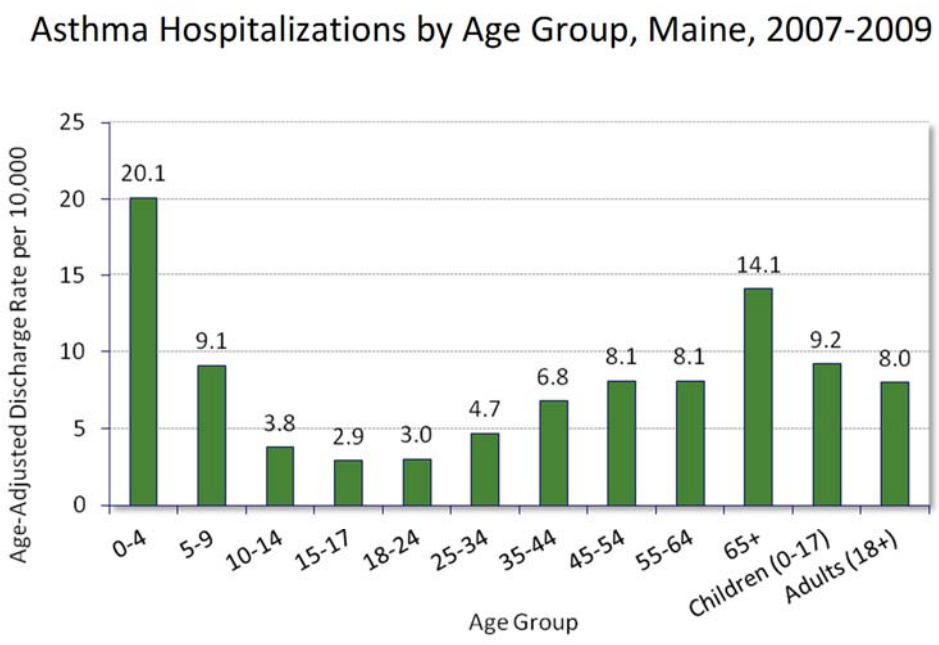
ED Visit rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization.

Are there differences in asthma hospitalization rates by age in Maine?

In Maine, the greatest burden of asthma hospitalizations is among those age 4 years and younger and those 65 years and older.

- Asthma hospitalization rates are significantly higher among children than adults. The asthma hospitalization rate among Maine children ages 0-17 years is 9.2 per 10,000 compared to 8.0 per 10,000 among Maine adults 18 years or older.
- The asthma hospitalization rate is highest in the youngest age group, 4 years and younger (20.1 per 10,000) and is significantly lower among older children (Figure 4.4 and Table 4.4).
- In contrast to the ED visit pattern among Maine adults observed by age, the asthma hospitalization rate among Maine adults increases with age and is significantly higher among older adults than younger adults (14.1 per 10,000 among those ages 65 or more; Figure 4.4 and Table 4.4).

Figure 4.4. Asthma Hospitalizations by Age Group, Maine, 2007-2009



Discharge rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Does the burden of asthma ED visits differ by geographic region in Maine?

Asthma emergency department visit rates and hospitalization rates vary by Maine Public Health District and county, which may reflect regional disparities in health status and access to care.

- Thirty percent of all asthma ED visits are among Cumberland and York County residents, reflecting the larger population sizes in these counties. The asthma ED visit rate is significantly lower among residents of these counties than in Maine overall (Figure 4.6, Table 4.5).
- The lowest asthma ED rates are observed in Southern Maine (York and Cumberland Districts), Midcoast District and Penquis District; all have rates significantly lower than Maine overall. Cumberland District has the lowest asthma ED visit rate (56.4 per 10,000; Figure 4.5, Table 4.5).
- Aroostook, Central, Downeast and Western Districts have significantly higher asthma ED visit rates than Maine overall. The burden of ED visits is greatest in Washington, Somerset and Aroostook Counties, where rates greater than 100 per 10,000 are observed (Figure 4.5, Table 4.5).

Figure 4.5 Age-adjusted Asthma Emergency Department Visit Rate by Public Health District, Maine, 2007-2009

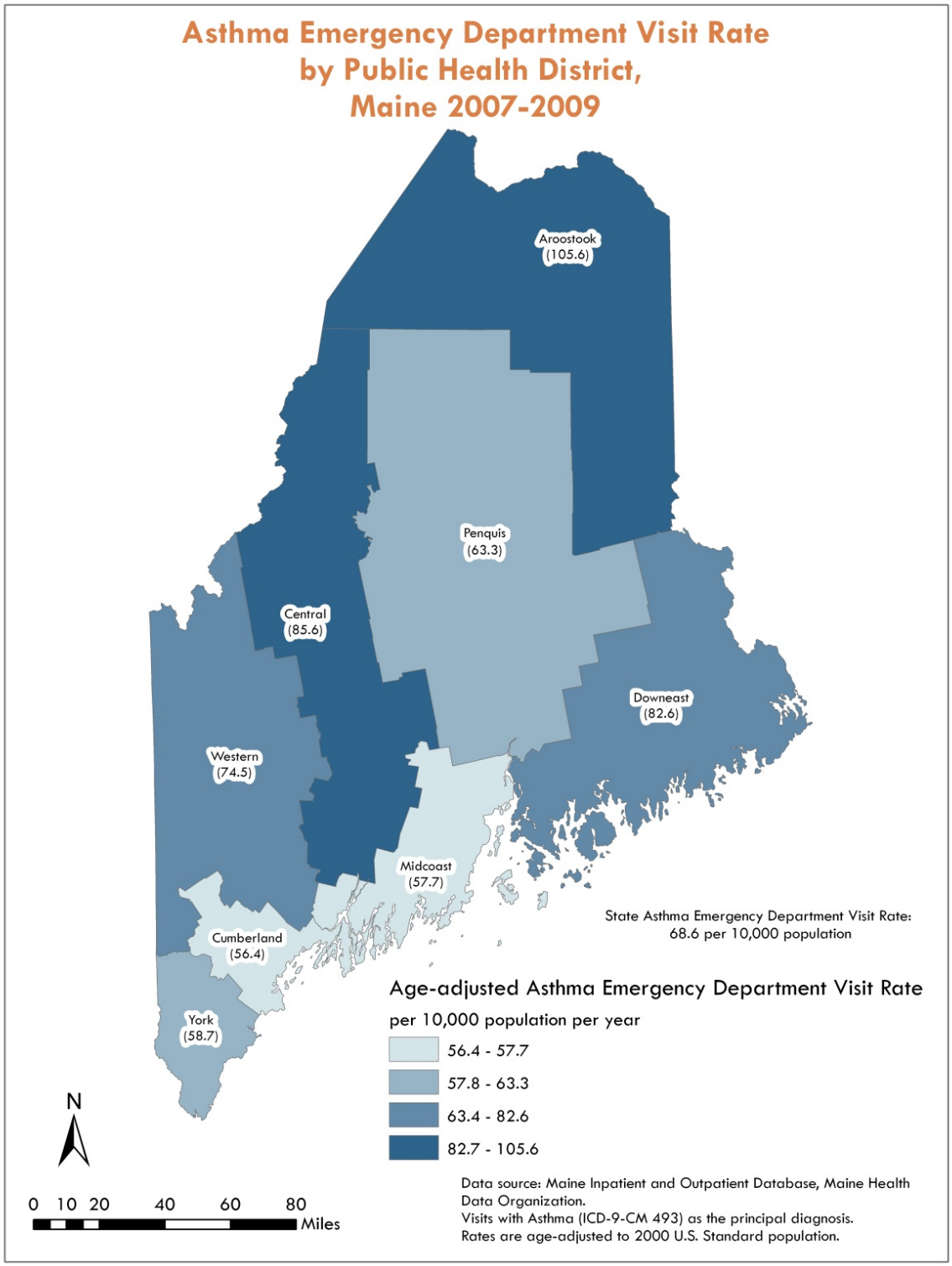
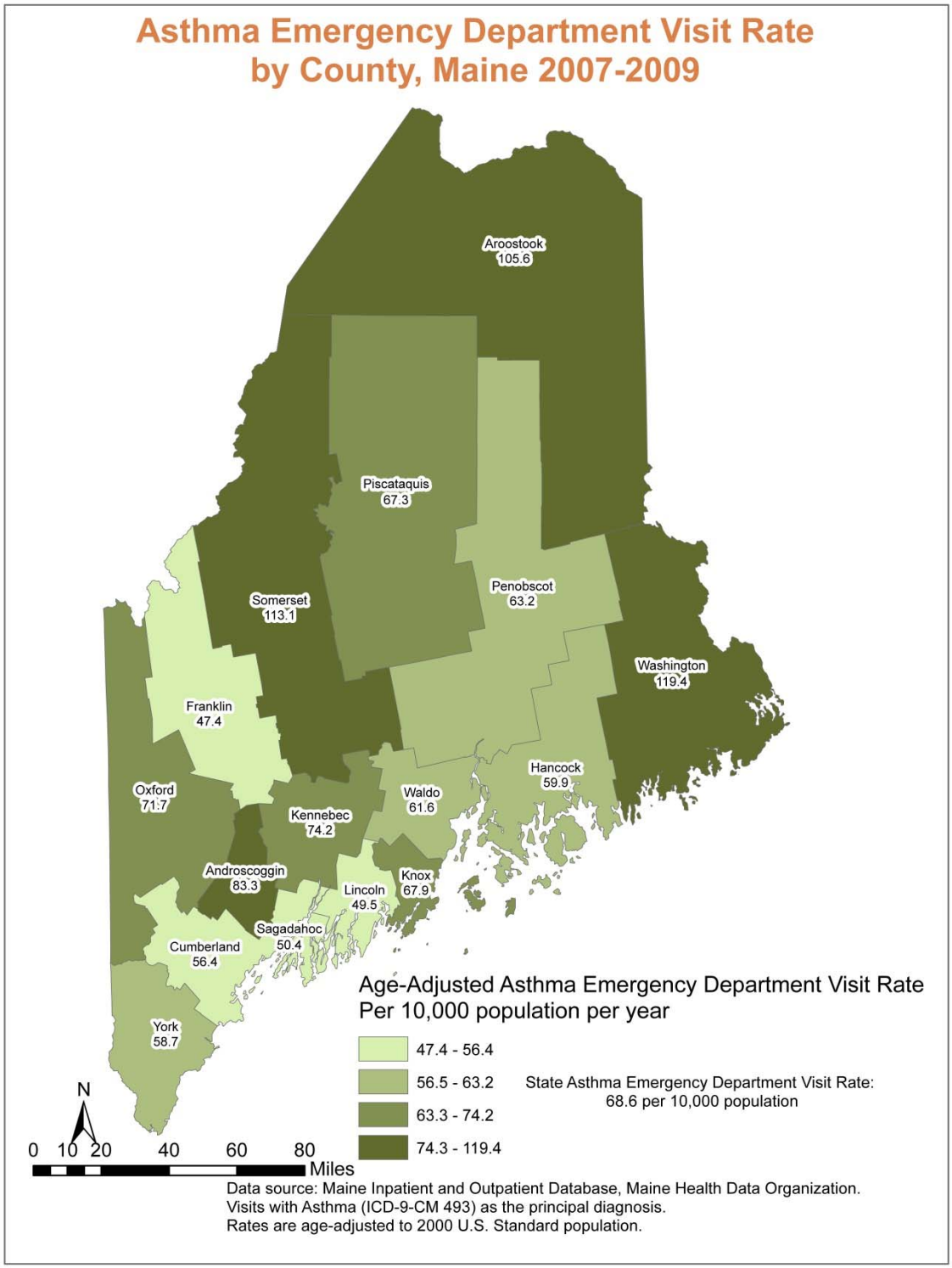


Figure 4.6 Age-adjusted Asthma Emergency Department Visit Rate by County, Maine, 2007-2009



Does the burden of hospitalization rates differ by geographic region in Maine?

Asthma hospitalization rates vary by Maine Public Health District and county.

- More than one-quarter of all asthma hospitalizations are among Cumberland and York County residents, reflecting the larger population sizes of these counties. The hospitalization rate is significantly lower, however, among residents of these counties (as well as Lincoln and Kennebec Counties) than in Maine overall (Figure 4.7, Table 4.6).
- The lowest asthma hospitalization rates are observed in Southern Maine; York and Cumberland Districts have rates significantly lower than Maine overall. York District has the lowest hospitalization rate (5.5 per 10,000; Figure 4.7, Table 4.6).
- Northern and western Maine (Aroostook, Penquis and Western Districts) have asthma hospitalization rates that are significantly higher than Maine overall. The burden of hospitalizations is greatest in Androscoggin, Aroostook, Franklin and Penobscot Counties, where rates greater than 10 per 10,000 are observed (Figure 4.8, Table 4.6).

Figure 4.7 Age-adjusted Asthma Hospital Discharge Rate by Public Health District, Maine, 2007-2009

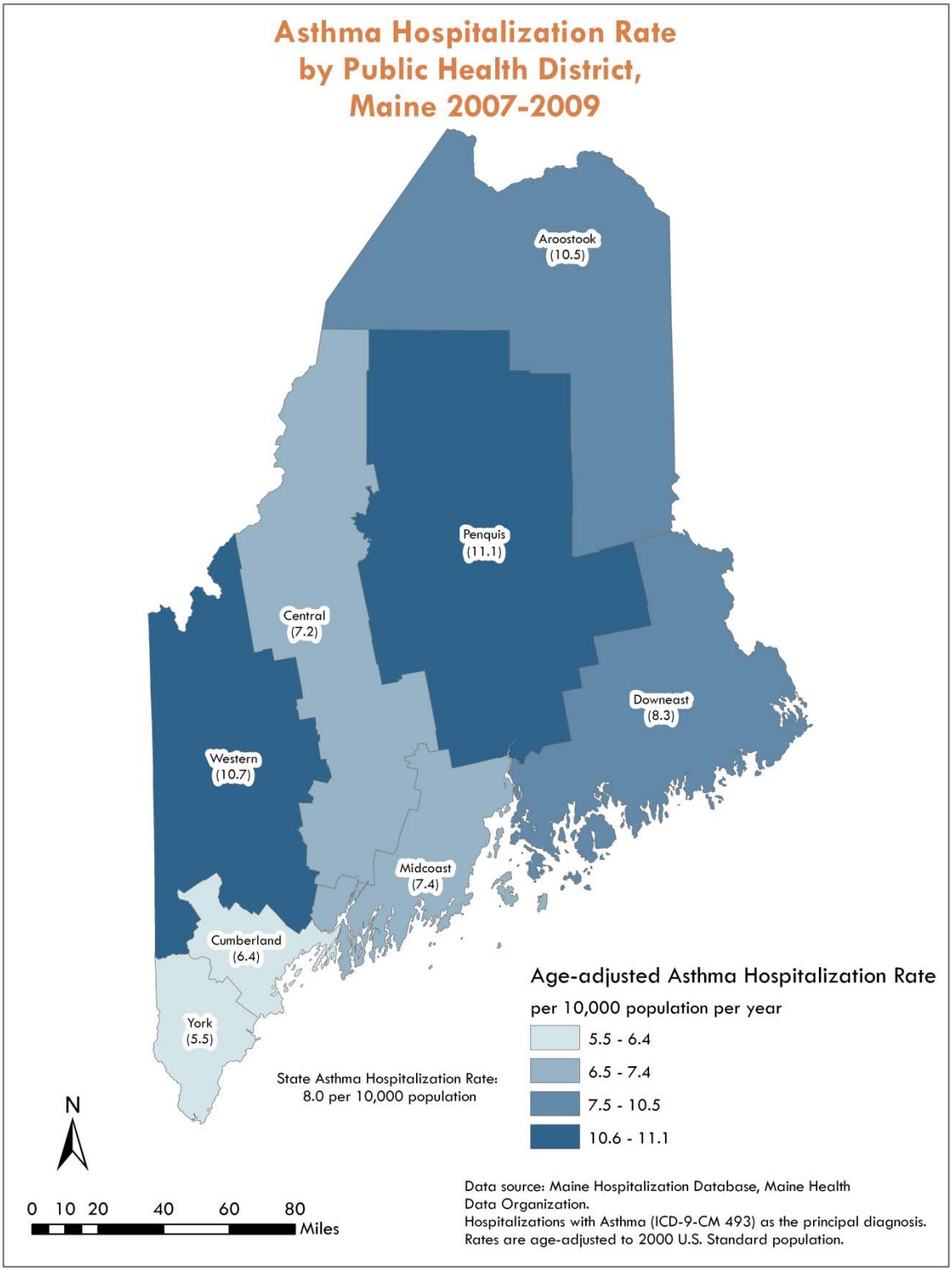
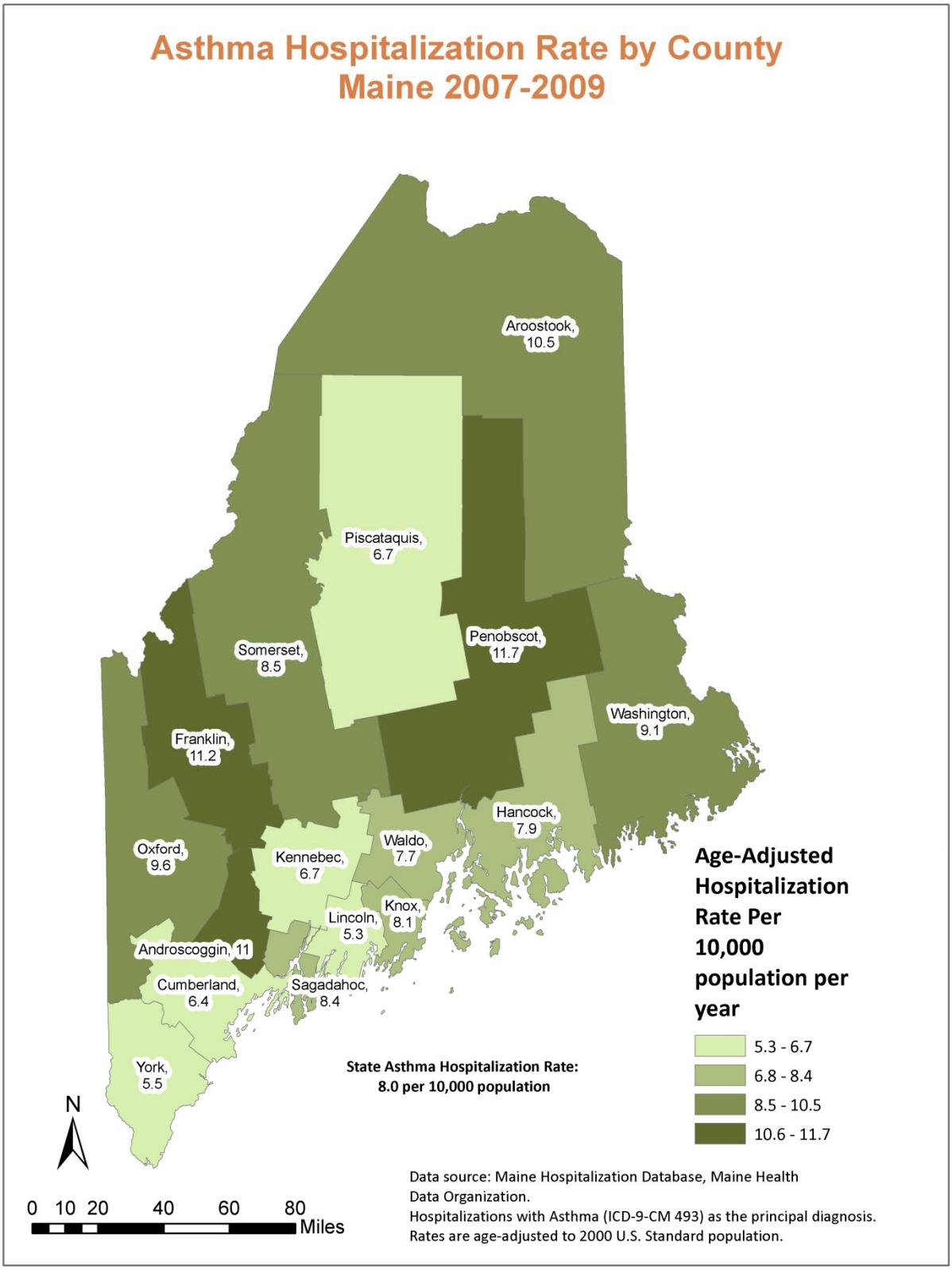


Figure 4.8 Age-adjusted Asthma Hospital Discharge Rate by County, Maine, 2007-2009

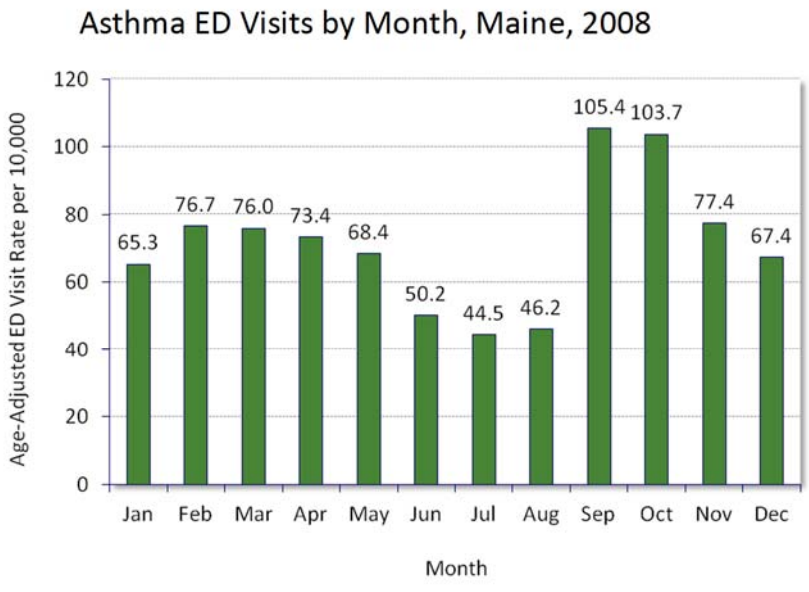


Do asthma ED visits and hospitalization rates differ by time of year in Maine?

Many common asthma triggers display seasonal variability, including outdoor allergens, poor outdoor air quality and respiratory infections. Asthma emergency department visit rates and hospitalization rates vary by month and may mirror seasonal variation in the severity of common asthma triggers.

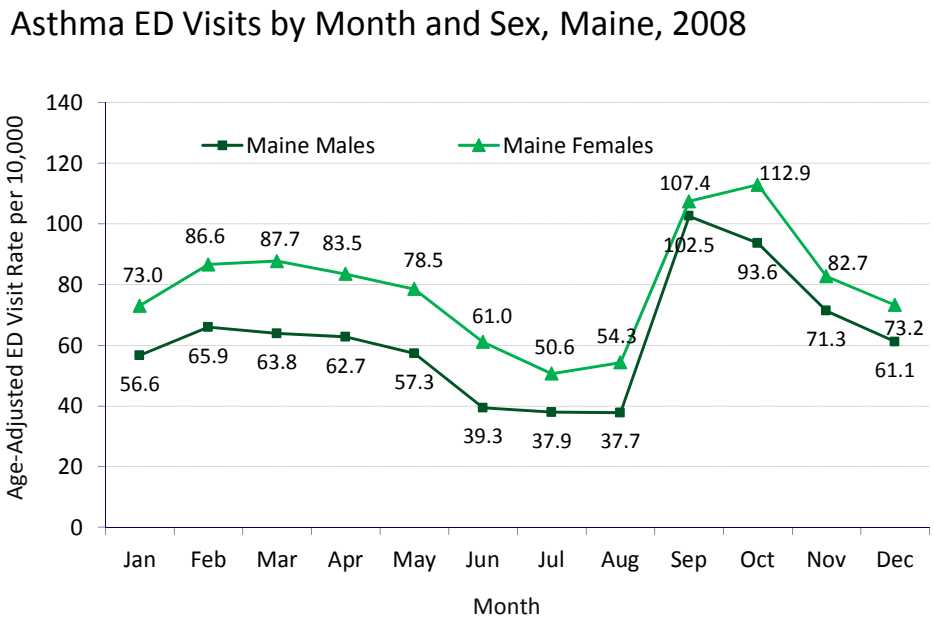
- Both asthma ED visit and hospitalization rates are the lowest in the summer months; higher rates are observed in fall and winter months (Figure 4.9, 4.11, Table 4.7, 4.8).
- Nearly one-quarter of annual asthma ED visits occur in September and October. ED visit rates greater than 100 per 10,000 are observed in September and October, in contrast to July and August when observed rates are significantly lower (less than 50 per 10,000; Figure 4.9, Table 4.7).
- The pattern of higher asthma ED visit rates among females than males is generally stable throughout the year, except in September when the male ED visit rate is nearly as high as the female rate (Figure 4.10, Table 4.7).

Figure 4.9. Asthma Emergency Department Visits by Month, Maine, 2008



ED Visit rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization.

Figure 4.10. Asthma Emergency Department Visits by Sex and Month, Maine, 2008

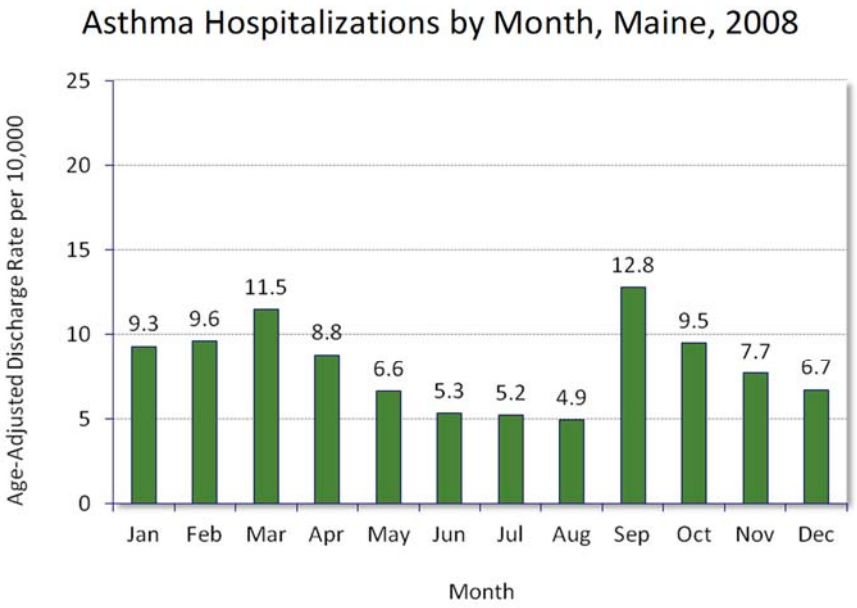


ED Visit rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization.

- Asthma hospitalization rates are the highest in September and March when rates greater than 10 per 10,000 are observed (Figure 4.11, Table 4.8). In contrast, rates drop to 5 per 10,000 in June, July and August.

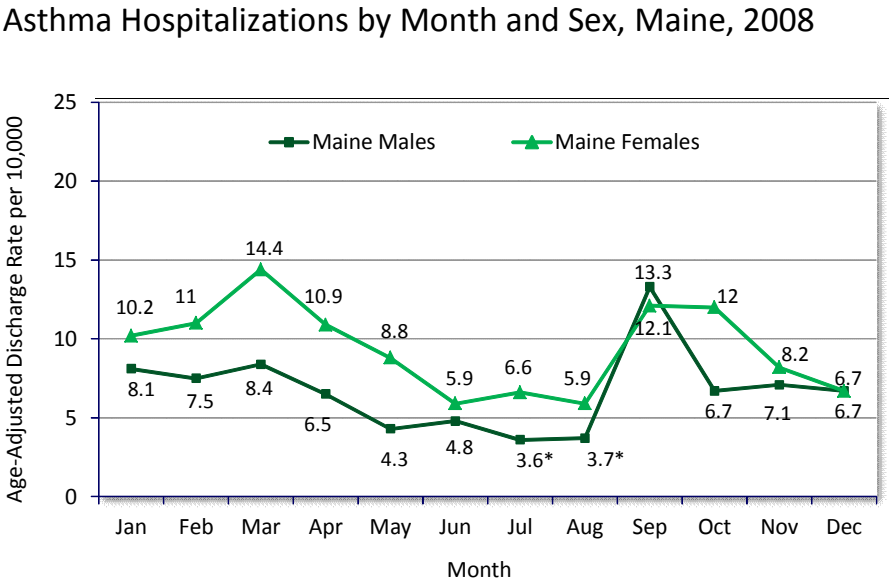
- The pattern of higher asthma hospitalization rates among females than males is generally stable throughout the year, except in September when the male hospitalization rate is similar to the female rate (Figure 4.12, Table 4.8).

Figure 4.11. Asthma Hospitalizations by Month, Maine, 2008



Discharge rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Figure 4.12. Asthma Hospitalizations by Month and Sex, Maine, 2008



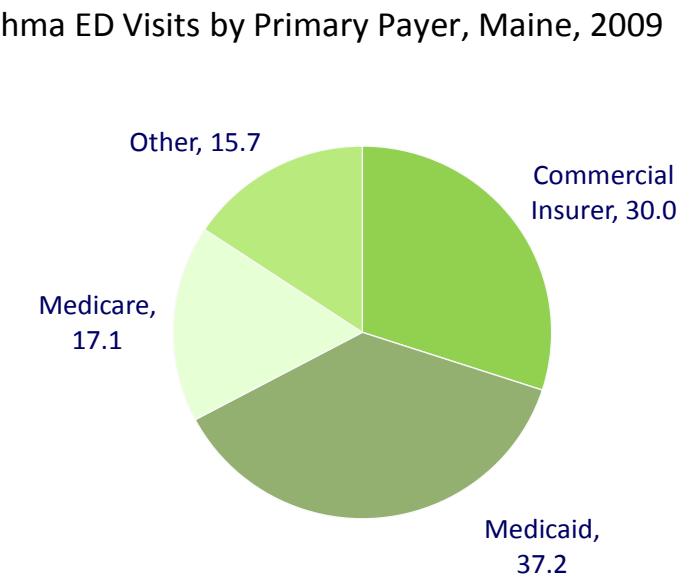
Discharge rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient Database, Maine Health Data Organization.
* These rates are based on fewer than 20 events; interpret with caution.

Do asthma ED visits and hospitalizations differ by primary payer in Maine?

A higher percentage of asthma ED visits and hospitalizations list public payers as the primary expected payer than list commercial payers.

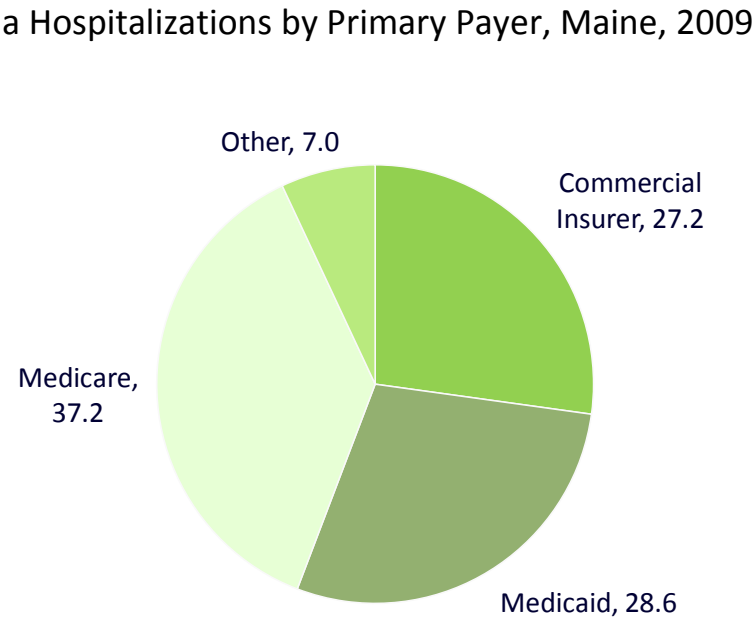
- Medicaid is the most common expected primary payer for asthma ED visits. Thirty-seven percent of asthma ED visits list Medicaid as the expected primary payer in 2009 (Figure 4.13, Table 4.9). This finding is similar to the percentage observed in 2005 and is greater than the percentage noted in 2000 (27 percent).[20] An additional 17 percent of asthma ED visits list Medicare as the expected primary payer.
- Medicare is the most common expected primary payer for asthma hospitalizations. Medicare is listed as the expected primary payer in 37 percent of asthma hospitalizations (Figure 4.14, Table 4.10). Again, this finding is similar to the percentage observed in 2005 (35.5 percent) and is greater than the percentage noted in 2000 (19.9 percent).[20] An additional 29 percent of asthma hospitalizations list Medicaid as the expected primary payer.

Figure 4.13. Age-adjusted Asthma ED Visits by Primary Payer Source, Maine, 2009



ED Visit rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization.

Figure 4.14. Age-adjusted Asthma Hospitalizations by Primary Payer Source, Maine, 2009



Discharge rates per 10,000 population age-adjusted to the U.S. 2000 standard population.
ICD-9-CM Codes 493; principal diagnosis only.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Chapter 5: Asthma Deaths

About Asthma Deaths

Death due to asthma represents the most severe outcome of asthma. Many asthma deaths could largely be avoided through appropriate management.[5]

Asthma deaths are those in which asthma was determined to be the underlying cause of death. Asthma-related deaths are those in which asthma was determined to be either the underlying or a contributing cause of death.

About the Data

Because asthma deaths are relatively rare in Maine, multiple years of data have been combined in these analyses to provide more stable death rate estimates. Data are presented for the period of 1999 through 2009. For most analyses shown here, five years of data were combined, but for certain analyses (for example, by age group and geography), ten years of data were combined. Maine death rates are compared to national estimates when possible. Because Maine's population is predominantly non-Hispanic White, Maine death rates are compared to those of the U.S. overall and those of U.S. non-Hispanic Whites. Asthma death rates are presented as the number of deaths per 1,000,000 population, unlike more common chronic disease deaths that are expressed as the number of deaths per 100,000 population.

Asthma Deaths in Maine

During the 2000s, between 10 and 20 people died each year from asthma in Maine. During this same period, 26 to 61 deaths to Maine residents each year were asthma-related, in which asthma was listed as an underlying or contributing cause of death.

How do asthma death rates in Maine compare to those in the U.S.?

Maine has consistently lower asthma death rates compared to the U.S. overall and similar rates compared to U.S. non-Hispanic Whites.

- Maine's 2005-2009 asthma death rate was 7.8 per 1,000,000 population, significantly lower than the U.S. rate of 11.3 per 1,000,000 and similar to the U.S. non-Hispanic White rate of 9.1 per 1,000,000.

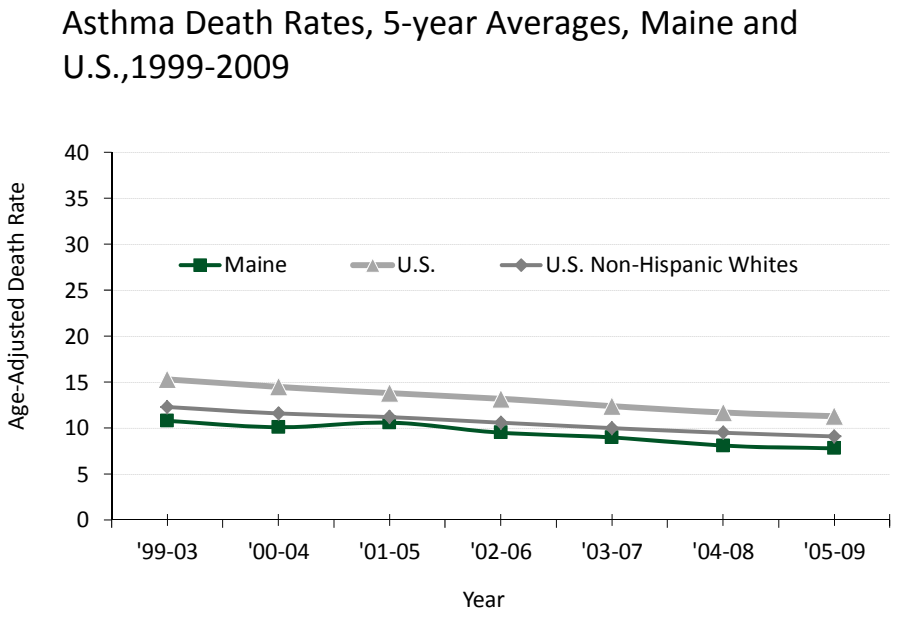
- Maine's 2005-2009 asthma-related death rate of 23.3 per 1,000,000 population was also significantly lower than the U.S. overall rate of 29.4 and similar to the U.S. non-Hispanic White rate of 25.2 (Table 5.2).

What are the trends over time in asthma death rates?

In Maine and the U.S., asthma death rates have declined since the late-1990s.

- Maine's asthma death rate declined from 10.8 per 1,000,000 population in 1999-2003 to 7.8 per 1,000,000 population in 2005-2009 (Figure 5.1, Table 5.1). This is a 27.8 percent decline, similar to the 26.1 percent decline in the U.S. overall.
- Maine's asthma-related death rates also declined 28.2 percent from 31.6 per 1,000,000 population in 1999-2003 to 22.7 in 2003-2007, but have not declined since and remain at 23.3 in 2005-2009 (Table 5.2).

Figure 5.1. Asthma Death Rates, Five-Year Averages, Maine and U.S., 1999-2009



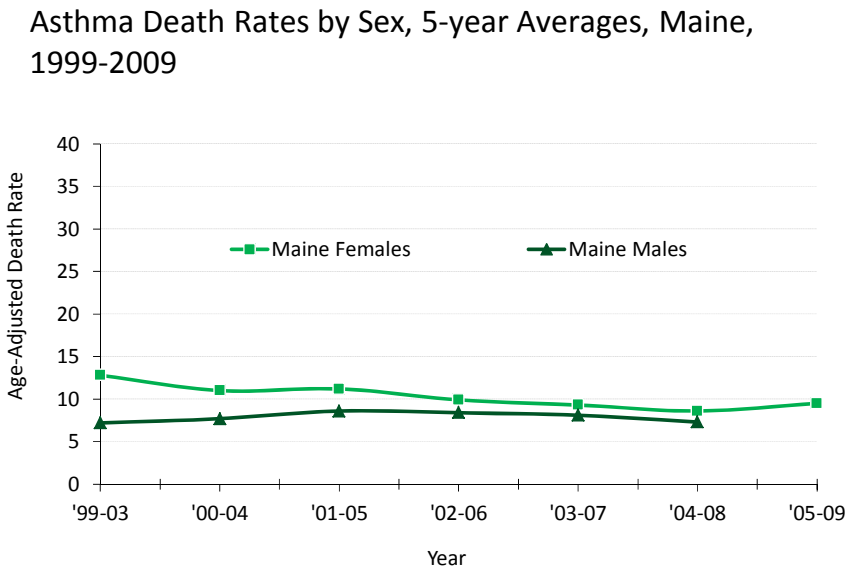
Asthma Deaths: ICD-10 J45-J46, underlying cause.
Rates per 1,000,000 population, age-adjusted to the 2000 U.S. standard population.
Data Source: Compressed Mortality File, CDC Wonder.

Are there differences by sex in asthma death rates in Maine?

While Maine females have had consistently higher asthma death rates than males during the 2000s, differences are not statistically significant and appear to have decreased over time.

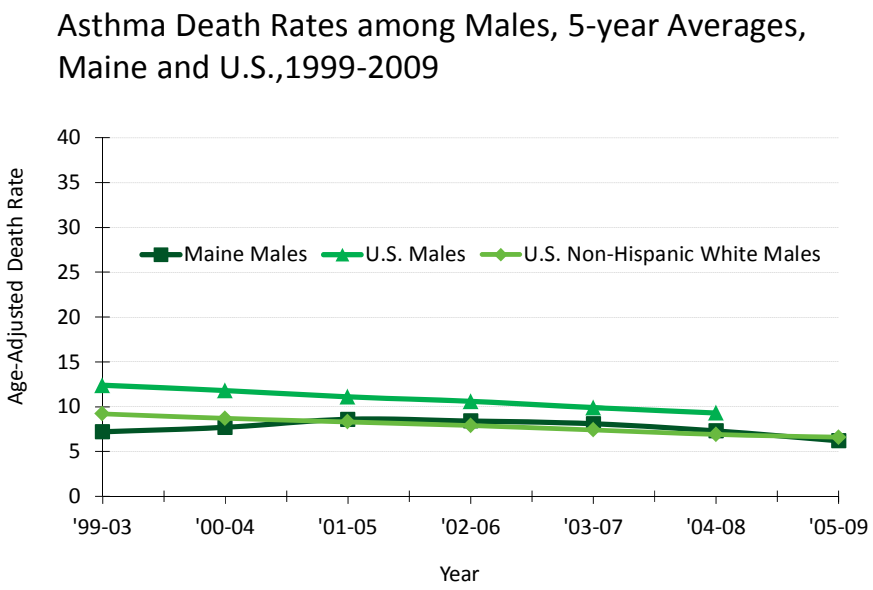
- In Maine, females consistently had higher asthma death rates than males during the 2000s, although these differences are not statistically significant (Table 5.3, Figure 5.2). The small number of asthma deaths occurring in Maine, however, makes detecting a statistically significant difference difficult.
- In the U.S., asthma death rates are significantly higher among females than males (Table 5.2, Figures 5.3, 5.4).
- Females account for 71 percent of the asthma deaths in Maine (Table 5.3).
- The rate of asthma-related deaths is nearly two times higher among females than among males in Maine (Table 5.4).
- Between 1999 and 2009, the age-adjusted asthma death rate for Maine females declined by 25.8 percent, while no clear trend was observed for males (Table 5.2, Figure 5.2). The declining rate among women and the stagnant rate among males contribute to the observed decrease in the disparity between males and females in Maine.

Figure 5.2. Asthma Death Rates by Sex, Five-Year Averages, Maine, 1999-2009



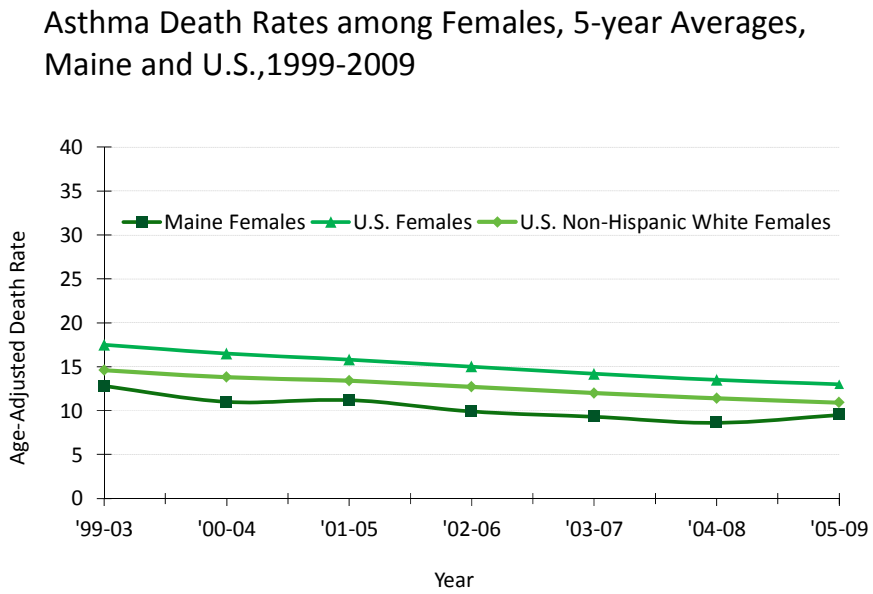
Asthma Deaths: ICD-10 J45-J46, underlying cause.
Rates per 1,000,000 population, age-adjusted to the 2000 U.S. standard population.
Data Source: Compressed Mortality File, CDC Wonder.
Male 2005-2009 rate based on fewer than 20 deaths and is suppressed due to unreliability.

Figure 5.3. Asthma Death Rates among Males, Five-Year Averages, Maine and U.S., 1999-2009



Asthma Deaths: ICD-10 J45-J46, underlying cause.
Rates per 1,000,000 population, age-adjusted to the 2000 U.S. standard population.
Data Source: Compressed Mortality File, CDC Wonder.
Male 2005-2009 rate based on fewer than 20 deaths and is suppressed due to unreliability.

Figure 5.4. Asthma Death Rates among Females, Five-Year Averages, Maine and U.S. 1999-2009



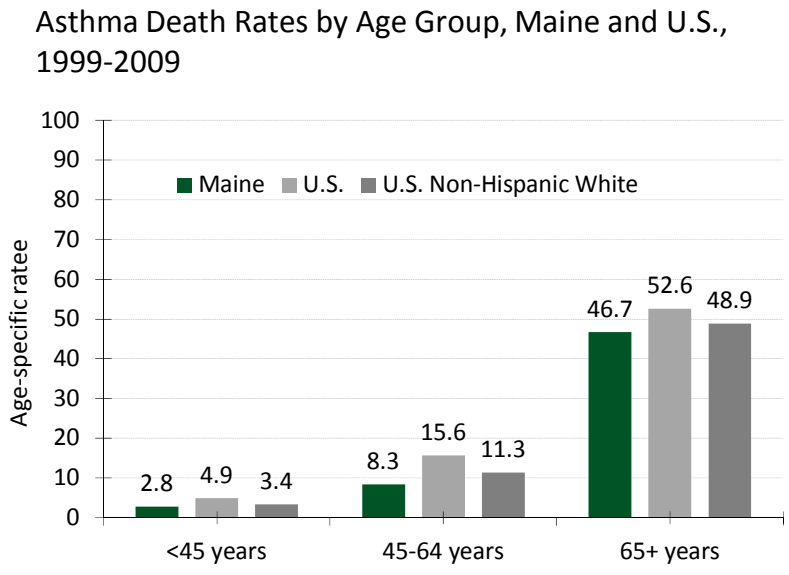
Asthma Deaths: ICD-10 J45-J46, underlying cause.
Rates per 1,000,000 population, age-adjusted to the 2000 U.S. standard population.
Data Source: Compressed Mortality File, CDC Wonder.

Do asthma death rates differ by age group in Maine?

Asthma death rates increase with age.

- The age-specific death rate among Mainers over 65 years of age (46.7 per 1,000,000) is almost six times greater than that of Mainers 45-64 years of age (8.3 per 1,000,000). The age-specific death rate among Mainers 45-64 years of age (8.3 per 1,000,000) is almost three times greater than that of Mainers under age 45 (2.8 per 1,000,000).
- Over the last decade, nearly 34 percent of asthma deaths in Maine occurred among those over 65 years of age (Table 5.4, Figure 5.5).
- Mainers under age 45 and Mainers 45-64 years of age have asthma death rates lower than their U.S. counterparts, but similar to their U.S. non-Hispanic White counterparts. Mainers 65 years of age and older have asthma death rates similar to both their U.S. and U.S. non-Hispanic White counterparts.
- Deaths attributed to asthma, especially among older adults, may be overestimated; recent reviews in several states suggest inaccurate reporting of asthma as the underlying cause of death on death certificates.[21]

Figure 5.5. Asthma Death Rates by Age Group, Maine and U.S., 1999-2009



Asthma Deaths: ICD-10 J45-J46, underlying cause.
Age-specific rates are deaths per 1,000,000 population.
Data Source: Compressed Mortality File, CDC Wonder.

Do asthma death rates differ by county of residence in Maine?

The small number of asthma deaths in Maine and resulting statistically unreliable rates for many counties and public health districts makes it very difficult to identify any geographic pattern.

- On average, there are between zero and three asthma deaths reported in each of Maine's counties per year (Table 5.6). Asthma death rates for most counties and several public health districts are suppressed due to privacy or statistical unreliability. Of those counties and districts with an asthma death rate shown, none have a death rate significantly different than the state rate or than another county or district rate(Table 5.6).

Chapter 6: Asthma Costs

About Asthma Costs

Costs are an additional way to describe the burden of asthma. Each year, asthma imposes a significant economic burden on the state, resulting in thousands of lost work days and millions of dollars in medical costs. There are two main types of costs: direct costs and indirect costs. Direct costs are those costs associated with hospital care, physician and nursing services, and medications. Indirect costs include lost productivity due to morbidity and mortality and are more difficult to estimate. Hospital charges have sometimes been used to look at costs, but they are not a good measure of direct cost because they reflect only what the hospital charges, not the actual cost of the care or what was paid for the care.

About the Data

Currently our best estimates of direct and indirect costs for asthma in Maine for all payers come from the U.S. Centers for Disease Control and Prevention's Chronic Disease Cost Calculator.[22] Direct costs are a function of the prevalence of asthma and the cost to care for each person with asthma. The CDC cost calculator estimates are based on estimates of the "treated population," which is a subset of the population with current asthma. Information on asthma prevalence ("treated population") used in the Chronic Disease Cost Calculator is based on the number of people receiving care for the disease in the previous year and so will be different from the estimates provided in the Prevalence chapter. "All-payer" estimates from the Chronic Disease Cost Calculator include self-pay and uninsured. Medicaid cost estimates from the Chronic Disease Cost Calculator are total Medicaid costs and do not separate out state and federal costs. Costs presented here are in 2010 dollars. Absenteeism costs are the only estimate of indirect costs available from the Chronic Disease Cost Calculator. Other important costs of asthma are not included in these cost estimates, including losses in productivity due to coming to work or school while ill (known as presenteeism), premature mortality and reductions in the quality of life.

What are the direct costs of asthma in Maine?

Asthma results in an estimated $160,000,000 in direct medical costs per year in Maine, $2,090 per treated Mainer. Forty percent of this cost, $64 million, was paid by Medicare.

- There are an estimated 76,900 Mainers treated for asthma, representing 5.8 percent of Maine's population. The estimated per capita direct cost of treating asthma was $2,090 each year (Table 6.1 and Figure 6.1).
- The direct medical costs of asthma in Maine is $160 million annually. Of this, $64 million is paid by Medicaid, $47 million is paid by private insurers, and $32 million is paid by Medicare (remaining costs borne by other payers; Table 6.1 and Figure 6.1).
- The cost per person for asthma treatment among those insured by Medicaid is $2,300 compared to $930 among those with private insurance (Table 6.1 and Figure 6.1).

What are the direct costs due to asthma projected to be in the year 2020?

By the year 2020, annual all-payer costs due to asthma in Maine are projected to rise substantially.

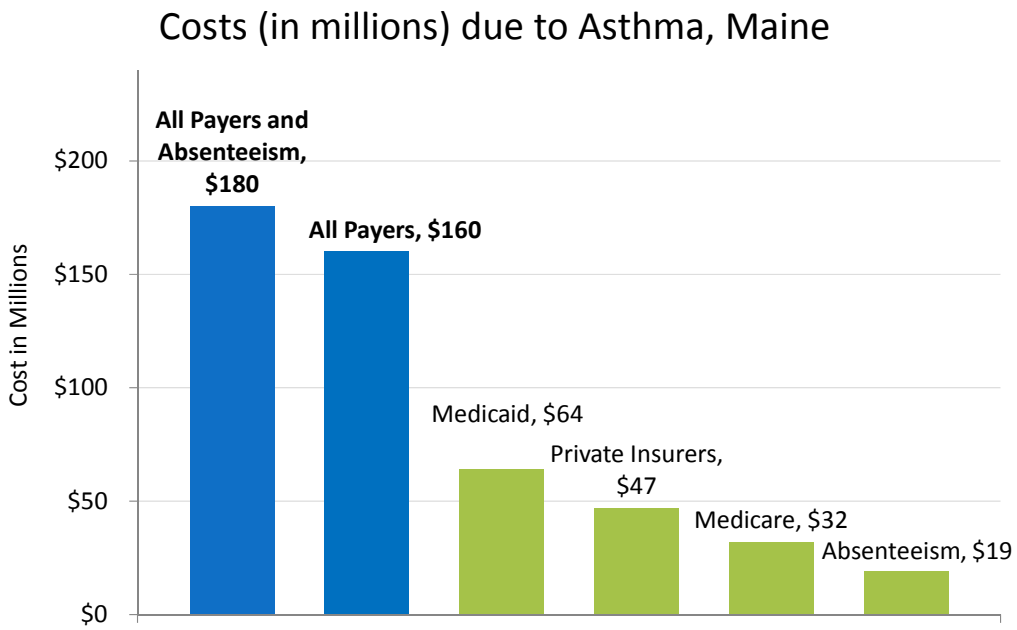
- The total cost attributable to asthma in Maine is estimated to increase by 60 percent by the year 2020, to $287 million.

What are the indirect costs of asthma in Maine?

Asthma results in an estimated 99,000 lost work days and $19 million in absenteeism costs annually.

- Of Maine's treated population with asthma, 47,900 are employed. Asthma causes an estimated 2.1 missed work days per employed person with asthma, for a total of 99,000 missed work days annually.
- Those 99,000 missed work days translate into $19 million annually in absenteeism costs.

Figure 6.1. Asthma Costs by Payer Group, Maine, 2010



Source: Centers for Disease Control and Prevention. Chronic Disease Cost Calculator: Version 2.
Costs are in 2010 dollars and reported in millions.

Chapter 7: Discussion

Poorly controlled asthma is a significant health and financial burden in Maine. Our state has high asthma prevalence, and Maine citizens with asthma live with significant exposure to asthma triggers, low levels of adequate management, high rates of costly healthcare utilization, and disparities in prevalence and outcomes. The data in this report describe the status of asthma in the state of Maine, illustrate the importance of proper management and can be used to guide statewide and local asthma intervention strategies.

The data in this report indicates that too many Mainers with asthma have poorly controlled asthma, leading to preventable missed school and work days, unnecessary hospital emergency department visits for asthma care, hospitalizations, high economic costs, and even deaths. Many Mainers with asthma do not receive the routine medical care consistent with the National Heart, Lung and Blood Institute (NHLBI) guidelines, do not have an asthma action plan, and are exposed to avoidable asthma triggers, particularly tobacco smoke.

This report examines disparities in prevalence, asthma control, and healthcare utilization to identify high-risk populations and opportunities for action. There are significant opportunities for improvement.

Maine CDC's Asthma Prevention and Control work is funded by the U.S. Federal Centers for Disease Control and Prevention, National Asthma Control Program. The title of the current five-year (2014-2019) funding cycle is "Comprehensive Asthma Control Through Evidence-based Strategies and Public Health—Health Care Collaboration." The focus of this cycle is implementing three types of strategies: infrastructure strategies to support leadership, strategic partnerships, strategic communications, surveillance and evaluation; services strategies to expand school- and home-based services; and health systems strategies to improve coverage, delivery, quality and use of clinical services.

Following is a brief description of Maine CDC's efforts in each of the U.S. CDC identified strategy areas:

Infrastructure Strategies: to support leadership, strategic partnerships, strategic communications, surveillance, and evaluation.

U.S. CDC definition of infrastructure strategies: ones which promote statewide planning, coordination, and expansion of asthma activities and resources, promote adoption of evidence-based strategies by payers and providers, engage strategic partners to develop, evaluate, and

sustain strategies and expand reach of comprehensive asthma control services; support dissemination of surveillance and evaluation findings tailored to key stakeholder audiences; maintain and enhance existing statewide surveillance system and evaluate comprehensive asthma control services and expansion strategies for effectiveness and efficiency.

Maine CDC Infrastructure Activities

Maine CDC collaborates, partners with, and supports numerous groups involved with asthma prevention and control in our state. These groups include state agencies, such as the Department of Education, Maine CDC's Maine Tracking Network, and many non-governmental organizations involved in issues affecting healthy indoor and outdoor air, tobacco smoke-free environments, public health education, and lung health. The work of these groups aligns with Maine CDC's workplan in promoting environments supportive of people with asthma, disseminating information about the burden of asthma in Maine and promoting evidence-based strategies for improved asthma control.

Maine CDC staff partner with the Breathe Easy Coalition (BEC) of Maine to identify areas of collaboration pertaining to smoke-free housing and college campuses. Maine CDC resource materials on asthma, smoking and tobacco use are included in the pledge kit the BEC sends to homeowners and renters who have taken the smoke-free housing pledge. Maine CDC is a member of the Maine Department of Education's School Health Advisory Committee, contributing its expertise and resources to training of school nurses, promoting the use of and distributing asthma action plans to school nurses, and promoting the accessibility and availability of rescue inhalers for students with asthma. Maine CDC provides updated content for the School Nurse Asthma Toolkit, which contains resources for school nurses, parents, students and school personnel including coaches. Maine CDC staff participate in Healthy Maine Works (HMW), which is a committee of Maine CDC staff from the Division of Environmental and Community Health, and the Division of Disease Prevention. Healthy Maine Works issues a monthly newsletter to Maine employers on employee health and the work environment. At least once a year the HMW Newsletter features an article on minimizing asthma triggers in the work environment.

Maine CDC continues its partnership with the Maine Department of Education school nurse consultant and the Maine Association of School Nurses to expand school-based strategies to reduce the burden of asthma on students and staff and to strengthen student and family linkages to primary care. Maine CDC continues to explore how it can best support the efforts of

school nurses, particularly regarding obtaining Asthma Action Plans for their students with asthma. Maine CDC's participation in the Maine Department of Education School Health Advisory Committee and in the biennial Maine School Nurse Association conference supports this work.

Services Strategies: **to expand school- and home-based services**

U.S. CDC definition of Services Strategies**:** Expand access to comprehensive asthma control services through home-based and/or school-based strategies by educating people with asthma in self-management skills; assure linkage to guidelines-based care for people with asthma, educate caregivers (e.g., family members, school staff, home visitors) in asthma management; inform stakeholders about evidence-based policies supportive of asthma control, including trigger reduction and improved air quality.

Maine CDC Services activities

During the past two years, Maine CDC supported the development and utilization of the Maine In-Home Asthma Education Program. This Program is an evidence-based asthma home visiting program which targeted children and adults whose asthma symptoms remained poorly controlled despite medical management. This Program was developed by two organizations contracted by Maine CDC: Bangor Public Health and Community Wellness, and Partnerships For Health.

The goals of the Program are to:

1. Increase individual learning of clients and caregivers
2. Improve health outcomes for clients receiving home visits
3. Improve knowledge and understanding among professionals of appropriate asthma management practices and effective public health strategies related to asthma management

Evaluation data collected during implementation of this Program yielded positive results including:

1. 55% decrease in the number of adults who missed work
2. 73% decrease in the number of children who missed school
3. 70% decrease in both children and adults in the use of oral steroids
4. 90% decrease in both children and adults in the use of hospital emergency rooms for asthma care

A priority activity for Maine CDC in the next several years is expanding the number and types of organizations, and types of personnel, to implement the Maine In-Home Asthma Education Program. The Program has been implemented by a municipal public health program, a Community Paramedicine Program, and a community-based organization working with immigrants and refugees. Similar programs in other states which have shown these types of results are reimbursed by health insurance payers, though reimbursement for asthma home visits is not widely available in Maine.

Maine CDC is also supporting the utilization of curricula to train persons who conduct home visits, such as Community Health Workers, to provide asthma self-management education. The intent of this activity is to increase the availability of persons who are trained to provide patient self-management education to patients with poorly controlled asthma. The self-management education will take place in medical provider offices, in community-based organizations employing Community Health Workers, and in patient homes when appropriate and necessary.

Health Systems Strategies: to improve coverage, delivery, quality and use of clinical services

U.S. CDC definition of Health Systems Strategies: Implement quality improvement processes to increase access to guideline-based care; Promote use of team-based care in medical homes and other health care delivery models to improve coordination and cultural competence of asthma care across settings; Promote coverage for and utilization of comprehensive asthma control services including medicine, devices, intensive self-management education, and home visits; Support the development of public health-health care linkages to provide comprehensive asthma control services.

Maine CDC Health Systems activities

The focus of Maine CDC's quality improvement work is currently assisting with provider training and establishing community-clinical linkages. Specifically, Maine CDC is supporting organizations to develop and strengthen linkages between community-based organizations, hospitals, and Community Health Centers. The linkages established will build referral and feedback mechanisms among the participating entities so that patient care is better coordinated. These activities will be in areas with multiple health care organizations including Federally Qualified Health Centers, community-based organizations, and at least one hospital.

Maine CDC will also support training in patient self-management education to Community Health Workers and medical practice/organization staff to expand the utilization of Community Health Workers as part of patient care treatment teams in medical offices and patient homes.

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Appendix 1: Tables

Chapter 2 Tables

Table 2.1. Asthma Prevalence Rates among Maine Adults by Year, Maine BRFSS 2006-2010

Year	Lifetime Asthma							Current Asthma						
	Maine					U.S.		Maine					U.S.	
	Total Respon-dents	n	Weighted n	%	95% CI	%	95% CI	Total Respon-dents	n	Weighted n	%	95% CI	%	95% CI
2000	4,596	563	117,749	**12.5**	10.8 - 14.1	**10.4**	10.2 - 10.7	4,589	413	84,202	**8.9**	7.5-10.3	**7.2**	7.0 - 7.4
2001	2,413	304	121,535	**12.6**	11.1 - 14.2	**11.0**	10.8 - 11.2	2,413	228	90,243	**9.4**	8.1-10.7	**7.2**	7.0 - 7.4
2002	2,436	340	134,684	**13.6**	12.1 - 15.1	**11.8**	11.6 - 12.0	2,430	255	99,008	**10.0**	8.7-11.4	**7.5**	7.3 - 7.7
2003	2,384	312	134,498	**13.4**	11.8 - 15.0	**11.9**	11.6 - 12.1	2,375	235	98,475	**9.9**	8.5-11.2	**7.7**	7.5 - 7.9
2004	3,527	504	150,850	**14.7**	13.2 - 16.1	**13.3**	13.1 - 13.6	3,509	346	98,627	**9.6**	8.4-10.8	**8.1**	7.9 - 8.3
2005	3,956	562	154,872	**15.0**	13.5 - 16.4	**12.5**	12.2 - 12.7	3,937	390	105,582	**10.2**	8.9-11.5	**7.9**	7.7 - 8.0
2006	4,020	577	147,710	**14.1**	12.8 - 15.4	**12.8**	12.5 - 13.0	3,999	408	100,915	**9.7**	8.6-10.8	**8.2**	8.0 - 8.4
2007	6,808	950	159,793	**15.2**	14.0 - 16.4	**12.9**	12.7 - 13.2	6,788	694	107,576	**10.3**	9.3-11.2	**8.2**	8.1 - 8.4
2008	6,770	974	164,628	**15.7**	14.5 - 16.9	**13.3**	13.1 - 13.5	6,742	683	107,556	**10.3**	9.3-11.3	**8.5**	8.3 - 8.7
2009	8,063	1,179	158,837	**15.2**	14.1 - 16.3	**13.4**	13.1 - 13.6	8,031	848	112,578	**10.8**	9.9-11.8	**8.4**	8.3 - 8.6
2010	8,104	1,203	163,398	**15.7**	14.5 - 16.8	**13.5**	13.3 - 13.7	8,069	843	103,702	**10.0**	9.1-10.9	**8.6**	8.5 - 8.8

Data Source: Maine Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

Weighted n = weighted numerator (for multi-year data, equals final weight divided by number of years).

95% CI = 95% Confidence Interval.

Table 2.2. Asthma Prevalence Rates among Maine Children by Year, Maine BRFSS 2006-2010

Year	Lifetime Asthma							Current Asthma						
	Maine					U.S.		Maine					U.S.	
	Total Respon-dents	n	Weighted n	%	95% CI	%	95% CI	Total Respon-dents	n	Weighted n	%	95% CI	%	95% CI
2006	1,136	157	34,465	**12.4**	10.3 - 14.5	**12.8**	12.3 - 13.4	1,128	108	23,960	**8.7**	6.8 - 10.5	**9.0**	8.5 - 9.5
2007	1,588	218	36,508	**13.3**	11.4 - 15.2	**13.5**	13.0 - 14.1	1,587	141	23,228	**8.5**	6.9 - 10.0	**8.9**	8.5 - 9.4
2008	1,656	251	38,384	**14.0**	12.1 - 15.9	**13.3**	12.8 - 13.7	1,649	174	25,629	**9.4**	7.9 - 10.9	**9.0**	8.6 - 9.4
2009	1,004	156	39,561	**14.5**	12.0 - 16.9	**13.2**	12.8 - 13.7	1,001	105	26,414	**9.7**	7.7 - 11.7	**8.6**	8.2 - 9.0
2010	899	128	35,202	**13.2**	10.7 - 15.7	**12.6**	12.1 - 13.2	891	80	22,482	**8.5**	6.4 - 10.6	**8.4**	8.0 - 8.8

Maine Data Source: Maine Behavioral Risk Factor Surveillance System.
US Data Source: BRFSS Childhood Asthma Prevalence optional module; U.S. total excludes the territory Puerto Rico in all reported years and includes 33 states plus the District of Columbia in 2006 and 2007, 37 states plus the District of Columbia in 2008, 35 states plus the District of Columbia in 2009, and 38 states plus the District of Columbia in 2010.
All percentages are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Use caution in interpreting percentages with an unweighted numerator less than 50.
Total respondents = unweighted denominator.
n = unweighted numerator.
Weighted n = weighted numerator (for multi-year data, equals total weighted n divided by number of years).
95% CI = 95% Confidence Interval.

Table 2.3. Asthma Prevalence Rates among Maine Children by Demographics, Maine BRFSS 2006-2010

Demographic Groups	Lifetime Asthma					Current Asthma				
	Total Respon-dents	n	weighted n	%	95% CI	Total Respon-dents	n	weighted n	%	95% CI
Total	6,283	910	36,824	**13.5**	12.5 - 14.5	6,256	608	24,342	**8.9**	8.1 - 9.8
Sex										
Male	3,212	554	22,249	**16.1**	14.7 - 17.6	3,193	350	13,851	**10.1**	8.9 - 11.3
Female	3,045	353	14,447	**10.8**	9.5 - 12.0	3,037	255	10,364	**7.8**	6.7 - 8.8
Race/Ethnicity										
Non-Hispanic White	5,849	843	33,557	**13.2**	12.3 - 14.2	5,822	557	21,745	**8.6**	7.8 - 9.4
Other Race or Hispanic	434	67	3,267	**16.5**	12.0 - 21.0	434	51	2,597	**13.1**	8.9 - 17.4
Age										
0-11	3497	402	18,127	**11.1**	9.9 - 12.3	3480	277	12,614	**7.8**	6.7 - 8.8
12+	2,488	473	17,356	**17.6**	15.9 - 19.3	2,478	301	10,672	**10.8**	9.5 - 12.2
Household Income										
Less than $25,000	1,058	203	7,990	**17.2**	14.5 - 19.9	1,054	140	5,467	**11.8**	9.4 - 14.1
$25,000-49,999	1,659	249	9,966	**14.3**	12.3 - 16.2	1,651	153	6,248	**9.0**	7.4 - 10.5
$50,000+	3,144	399	16,549	**11.9**	10.6 - 13.1	3,130	268	10,774	**7.8**	6.7 - 8.8

Data Source: Maine Behavioral Risk Factor Surveillance System.
All percentages are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Use caution in interpreting percentages with an unweighted numerator less than 50.
Total respondents = unweighted denominator.
n = unweighted numerator.
Weighted n = weighted numerator (for multi-year data, equals total weighted n divided by number of years).
95% CI = 95% Confidence Interval.

Table 2.4. Prevalence Rates of Lifetime Asthma by Sex, Maine and U.S., 2000-2010

Year	Males						Females					
	Maine				U.S.		Maine				U.S.	
	Total Respon-dents	n	%	95% CI	%	95% CI	Total Respon-dents	n	%	95% CI	%	95% CI
2000	1,886	181	**10.5**	8.1 - 12.9	**8.6**	8.2 -8.9	2,710	382	**14.3**	12.0 - 16.6	**12.2**	11.8 - 12.5
2001	1,027	102	**10.7**	8.5 - 12.9	**9.2**	8.9 - 9.6	1,386	202	**14.5**	12.4 - 16.6	**12.6**	12.3 - 13.0
2002	954	105	**11.6**	9.3 - 13.9	**9.9**	9.6 - 10.2	1,482	235	**15.5**	13.5 - 17.5	**13.6**	13.2 - 13.9
2003	939	96	**11.1**	8.8 - 13.4	**10.3**	10.0 - 10.7	1,445	216	**15.5**	13.3 - 17.7	**13.3**	13.0 - 13.6
2004	1,407	154	**12.6**	10.4 - 14.8	**11.6**	11.2 - 12.0	2,120	350	**16.6**	14.7 - 18.5	**14.9**	14.6 - 15.2
2005	1,557	163	**11.8**	9.8 - 13.8	**10.5**	10.1 - 10.8	2,399	399	**17.9**	15.9 - 19.9	**14.3**	14.1 - 14.6
2006	1,564	180	**11.5**	9.6 - 13.4	**10.7**	10.4 - 11.1	2,456	397	**16.5**	14.7 - 18.3	**14.7**	14.3 - 15.0
2007	2,544	287	**12.9**	11.1 - 14.7	**11.3**	10.9 - 11.6	4,264	663	**17.2**	15.6 - 18.8	**14.5**	14.2 - 14.8
2008	2,656	296	**13.5**	11.6 - 15.4	**11.4**	11.1 - 11.8	4,114	678	**17.8**	16.2 - 19.3	**15.0**	14.7 - 15.3
2009	3,071	334	**12.3**	10.6 - 14.1	**11.6**	11.3 - 12.0	4,992	845	**17.9**	16.5 - 19.3	**15.0**	14.7 - 15.3
2010	3,146	364	**13.0**	11.2 - 14.7	**11.7**	11.4 - 12.1	4,958	839	**18.2**	16.6 - 19.7	**15.1**	14.9 - 15.4

Data Source: Maine Behavioral Risk Factor Surveillance System.
All percentages are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Use caution in interpreting percentages with an unweighted numerator less than 50.
Total respondents = unweighted denominator.
n = unweighted numerator.
Weighted n = weighted numerator (for multi-year data, equals total weighted n divided by number of years).
95% CI = 95% Confidence Interval.

Table 2.5. Prevalence Rates of Current Asthma among Adults, Maine and U.S., 2000-2010

Year	Males						Females					
	Maine				U.S.		Maine				U.S.	
	Total Respon-dents	n	%	95% CI	%	95% CI	Total Respon-dents	n	%	95% CI	%	95% CI
2000	1,883	116	**6.9**	5.0 - 8.8	**5.1**	4.8 - 5.4	2,706	297	**10.8**	8.9 - 12.8	**9.1**	8.8 - 9.4
2001	1,027	66	**7.3**	5.3 - 9.2	**5.3**	5.1 - 5.6	1,386	162	**11.4**	9.5 - 13.2	**8.9**	8.6 - 9.2
2002	953	70	**7.7**	5.7 - 9.6	**5.5**	5.3 - 5.8	1,477	185	**12.2**	10.4 - 14.0	**9.4**	9.1 - 9.6
2003	934	66	**7.5**	5.6 - 9.5	**5.8**	5.5 - 6.1	1,441	169	**12.0**	10.1 - 13.9	**9.5**	9.2 - 9.7
2004	1,401	87	**7.3**	5.5 - 9.0	**6.1**	5.8 - 6.4	2,108	259	**11.8**	10.2 - 13.4	**10.0**	9.7 - 10.3
2005	1,552	108	**7.7**	6.1 - 9.4	**5.6**	5.4 - 5.8	2,385	282	**12.6**	10.7 - 14.4	**10.0**	9.7 - 10.2
2006	1,556	112	**7.0**	5.5 - 8.4	**6.0**	5.7 - 6.3	2,443	296	**12.2**	10.6 - 13.8	**10.3**	10.0 - 10.6
2007	2,532	171	**7.2**	5.8 - 8.6	**6.3**	6.0 - 6.5	4,256	523	**13.1**	11.7 - 14.5	**10.1**	9.9 - 10.3
2008	2,645	183	**7.2**	5.9 - 8.5	**6.5**	6.2 - 6.8	4,097	500	**13.2**	11.8 - 14.6	**10.4**	10.2 - 10.7
2009	3,063	228	**8.0**	6.6 - 9.4	**6.4**	6.2 - 6.7	4,968	620	**13.4**	12.2 - 14.7	**10.3**	10.1 - 10.6
2010	3,138	225	**6.8**	5.6 - 8.0	**6.5**	6.2 - 6.7	4,931	618	**13.0**	11.7 - 14.2	**10.7**	10.5 - 10.9

Data Source: Maine Behavioral Risk Factor Surveillance System.
All percentages are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Use caution in interpreting percentages with an unweighted numerator less than 50.
Total respondents = unweighted denominator.
n = unweighted numerator.
Weighted n = weighted numerator (for multi-year data, equals total weighted n divided by number of years).
95% CI = 95% Confidence Interval.

Table 2.6. Asthma Prevalence Rates among Maine Adults by Demographics, Maine BRFSS 2006-2010

Demographic Groups	Lifetime Asthma					Current Asthma				
	Total Respon-dents	n	Weight-ed n	%	95% CI	Total Respon-dents	n	Weight-ed n	%	95% CI
Total	33,765	4,883	158,873	**15.2**	14.6 -15.7	33,629	3,476	106,466	**10.2**	9.8 - 10.6
Sex										
Male	12,981	1,461	63,832	**12.7**	11.8 -13.5	12,934	919	36,370	**7.2**	6.6 - 7.8
Female	20,784	3,422	95,041	**17.5**	16.8 -18.2	20,695	2,557	70,095	**13.0**	12.4 - 3.6
Race/Ethnicity										
Non-Hispanic White	32,155	4,586	148,168	**15.0**	14.4 -15.5	32,033	3,252	98,904	**10.0**	9.6 - 10.5
Other Race or Hispanic	1,243	239	8,944	**19.3**	16.3 -22.3	1,236	189	6,684	**14.4**	11.8 - 7.0
Age										
18-24	1,011	224	26,944	**22.5**	19.6-25.5	1,006	130	15,078	**12.7**	10.4 - 5.0
25-34	2,608	519	28,081	**18.9**	17.3-20.6	2,597	322	16,513	**11.2**	9.9 - 12.5
35-44	4,807	739	27,150	**14.6**	13.5-15.7	4,785	531	19,532	**10.6**	9.6 - 11.5
45-54	7,265	1,066	29,284	**13.6**	12.7-14.5	7,230	777	20,692	**9.7**	8.9 - 10.4
55-64	7,950	1,101	22,489	**13.0**	12.2-13.9	7,925	796	15,907	**9.2**	8.5 - 10.0
65 and older	9,874	1,198	23,980	**12.0**	11.2-12.7	9838	894	18,128	**9.1**	8.4 - 9.8
Household Income										
Less than $25,000	8,980	1,654	46,541	**20.0**	18.7-21.3	8,940	1,295	33,207	**14.3**	13.3 -15.4
$25,000-49,999	8,829	1,166	36,760	**13.5**	12.6-14.5	8,797	813	25,122	**9.3**	8.5 - 10.1
$50,000+	12,033	1,486	55,146	**13.2**	12.4-14.0	11,990	941	33,981	**8.2**	7.5 - 8.8
Education Level										
Less than High School	2,134	430	15,211	**22.1**	19.3-25.0	2,122	358	11,556	**16.9**	14.5 -19.3
High School or GED	10,837	1,472	49,027	**14.5**	13.6-15.5	10,795	1,095	33,551	**10.0**	9.2 - 10.8
Some college	8,589	1,355	46,065	**16.6**	15.5-17.8	8,549	953	30,271	**11.0**	10.1 -11.9
College degree or more	12,160	1,618	48,438	**13.3**	12.6-14.1	12,119	1,066	31,005	**8.6**	8.0 - 9.2
Health Insurance Status										
Insured	30,549	4,415	138,999	**15.0**	14.5-15.6	30,431	3,161	94,529	**10.3**	9.8 - 10.7
Uninsured	3,138	458	19,058	**16.1**	14.2-18.0	3,120	307	11,405	**9.7**	8.3 - 11.1
Health Insurance Type (2008 - 2010 Only)										
Private Coverage	11,249	1,496	78,916	**13.8**	13.0-14.7	11,208	982	50,227	**8.8**	8.1 - 9.5
MaineCare	1,868	442	22,901	**23.4**	20.8-26.1	1,858	352	16,964	**17.4**	15.1 -19.8
Medicare/Other*	7,281	1,043	34,880	**14.9**	13.8-15.9	7,250	779	25,371	**10.9**	10.0 -11.7
Uninsured	2,078	314	21,538	**17.8**	15.3-20.4	2,066	212	12,317	**10.2**	8.4 - 12.1

Data Source: Maine Behavioral Risk Factor Surveillance System.
All percentages are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Use caution in interpreting percentages with an unweighted numerator less than 50.
Total respondents = unweighted denominator.
* "Other" health insurance includes VA, Indian Health Service, CHAMPUS, etc.
n = unweighted numerator.
Weighted n = weighted numerator (for multi-year data, equals total weighted n divided by number of years).
95% CI = 95% Confidence Interval.

Table 2.7. Asthma Prevalence Rates among Maine Adults by Demographics, Maine BRFSS 2006-2010

Demographic Groups	Lifetime Asthma					Current Asthma				
	Total Respon-dents	n	weighted n	%	95% CI	Total Respon-dents	n	weighted n	%	95% CI
Maine Total	33,765	4,883	158,873	**15.2**	14.6 -15.7	33,629	3,476	106,466	**10.2**	9.8 - 10.6
County										
Androscoggin	2,076	303	11,933	**15.3**	13.2-17.4	2,065	225	8,641	**11.1**	9.3 - 13.0
Aroostook	1,796	262	9,850	**15.3**	13.0-17.7	1,787	185	6,168	**9.7**	8.0 - 11.4
Cumberland	5,394	749	27,305	**14.1**	12.9-15.4	5,376	507	17,467	**9.1**	8.1 - 10.1
Franklin	1,235	160	3,414	**12.7**	10.1-15.4	1,233	117	2,405	**9.0**	6.8 - 11.2
Hancock	1,540	243	8,228	**16.9**	14.4-19.4	1,536	170	5,168	**10.6**	8.7 - 12.5
Kennebec	2,692	398	15,614	**16.1**	14.1-18.0	2,683	295	10,619	**11.0**	9.4 - 12.5
Knox	1,825	242	4,993	**14.4**	12.3-16.6	1,819	169	3,368	**9.8**	8.0 - 11.6
Lincoln	1,702	215	4,249	**13.1**	11.1-15.2	1,691	136	2,556	**7.9**	6.4 - 9.5
Oxford	1,435	199	7,231	**15.2**	12.6-17.7	1,431	144	4,916	**10.4**	8.4 - 12.3
Penobscot	2,941	519	19,208	**18.1**	16.3-20.0	2,923	378	13,545	**12.9**	11.3 - 14.5
Piscataquis	897	138	3,191	**16.9**	13.5-20.3	894	102	2,275	**12.1**	9.1 - 15.1
Sagadahoc	1,297	171	4,057	**13.7**	11.3-16.2	1,293	120	2,602	**8.8**	6.9 - 10.8
Somerset	1,264	201	6,939	**16.3**	13.5-19.2	1,257	146	4,447	**10.5**	8.5 - 12.6
Waldo	1,665	241	5,452	**16.2**	13.6-18.7	1,659	174	3,663	**10.9**	8.8 - 13.0
Washington	1,510	247	4,906	**16.8**	14.3-19.3	1,505	185	3,495	**12.0**	9.8 - 14.2
York	3,800	493	18,527	**13.2**	11.7-14.8	3,786	344	12,277	**8.8**	7.5 - 10.1
Public Health District										
Aroostook	1,796	262	9,850	**15.3**	13.0-17.7	1,787	185	6,168	**9.7**	8.0 - 11.4
Central Maine	3,956	599	22,553	**16.1**	14.5-17.7	3,940	441	15,066	**10.8**	9.6 - 12.1
Cumberland	5,394	749	27,305	**14.1**	12.9-15.4	5,376	507	17,467	**9.1**	8.1 - 10.1
Downeast	3,050	490	13,135	**16.9**	15.0-18.7	3,041	355	8,663	**11.1**	9.7 - 12.6
Mid Coast	6,489	869	18,751	**14.4**	13.2-15.6	6,462	599	12,188	**9.4**	8.5 - 10.3
Penquis	3,838	657	22,399	**18.0**	16.3-19.6	3,817	480	15,820	**12.8**	11.3 - 14.2
Western Maine	4,746	662	22,578	**14.8**	13.4-16.2	4,729	486	15,963	**10.5**	9.3 - 11.7
York	3,800	493	18,527	**13.2**	11.7-14.8	3,786	344	12,277	**8.8**	7.5 - 10.1

Data Source: Maine Behavioral Risk Factor Surveillance System.
All percentages are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Use caution in interpreting percentages with an unweighted numerator less than 50.
Total respondents = unweighted denominator.
n = unweighted numerator.
Weighted n = weighted numerator (for multi-year data, equals total weighted n divided by number of years).
95% CI = 95% Confidence Interval.

Table 2.8. Asthma Prevalence Rates among Maine Children by Demographics, Maine BRFSS 2006-2010

Demographic Groups	Lifetime Asthma					Current Asthma				
	Total Respon-dents	n	Weight-ed n	%	95% CI	Total Respon-dents	n	Weight-ed n	%	95% CI
Maine Total	6,283	910	36,824	**13.5**	12.5 - 14.5	6,256	608	24,342	**8.9**	8.1 - 9.8
County										
Androscoggin	397	62	3,165	**15.6**	11.2 - 20.0	395	42	2,093†	**10.4†**	6.6 - 14.1
Aroostook	304	51	2,327	**14.6**	10.4 - 18.8	303	33	1,366†	**8.7†**	5.4 - 11.9
Cumberland	1,120	160	7,862	**14.1**	11.8 - 16.5	1,111	107	5,115	**9.3**	7.3 - 11.2
Franklin	214	29	820†	**12.9†**	7.9 - 18.0	214	24	702†	**11.1†**	6.3 - 15.9
Hancock	260	28	1,235†	**10.7†**	6.7 - 14.7	259	19	847†	**7.3†**	3.9 - 10.8
Kennebec	510	56	2,591	**10.6**	7.6 - 13.6	509	35	1,429†	**5.9†**	3.7 - 8.0
Knox	347	48	1,151†	**12.1†**	8.2 - 16.0	346	27	690†	**7.3†**	4.1 - 10.5
Lincoln	253	30	837†	**12.1†**	7.5 - 16.7	251	18	505†	**7.4†**	3.6 - 11.1
Oxford	279	37	1,631†	**13.3†**	8.6 - 18.0	250	27	1,208†	**9.9†**	5.7 - 14.2
Penobscot	562	88	4,177	**15.0**	11.7 - 18.4	561	62	2,904	**10.5**	7.6 - 13.4
Piscataquis	142	29	875†	**21.0†**	12.5 - 29.4	142	20	618†	**14.8†**	7.0 - 22.6
Sagadahoc	251	45	1,271†	**14.9†**	10.1 - 19.8	248	24	655†	**7.8†**	4.3 - 11.3
Somerset	236	42	1,536†	**13.2†**	8.7 - 17.7	236	25	902†	**7.7†**	4.2 - 11.3
Waldo	297	38	1,054†	**13.1†**	8.6 - 17.5	295	28	783†	**9.8†**	5.8 - 13.7
Washington	276	55	1,429	**17.8**	12.6 - 22.9	274	33	900†	**11.3†**	6.9 - 15.6
York	748	104	4,504	**12.0**	9.6 - 14.5	748	79	3,487	**9.3**	7.1 - 11.5
Public Health District										
Aroostook	304	51	2,327	**14.6**	10.4 - 18.8	303	33	1,366†	**8.7†**	5.4 - 11.9
Central Maine	746	98	4,127	**11.4**	8.9 - 14.0	745	60	2,332	**6.5**	4.6 - 8.3
Cumberland	1,120	160	7,862	**14.1**	11.8 - 16.5	1,111	107	5,115	**9.3**	7.3 - 11.2
Downeast	536	83	2,664	**13.6**	10.4 - 16.8	533	52	1,747	**8.9**	6.2 - 11.6
Mid Coast	1,148	161	4,313	**13.1**	10.9 - 15.3	1,140	97	2,633	**8.0**	6.2 - 9.8
Penquis	704	117	5,053	**15.8**	12.7 - 18.9	703	82	3,522	**11.0**	8.3 - 13.8
Western Maine	890	128	5,615	**14.5**	11.6 - 17.3	886	93	4,004	**10.4**	7.9 - 12.9
York	748	104	4,504	**12.0**	9.6 - 14.5	748	79	3,487	**9.3**	7.1 - 11.5

Data Source: Maine Behavioral Risk Factor Surveillance System.
All percentages are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
†Use caution in interpreting percentages with an unweighted numerator less than 50.
Total respondents = unweighted denominator.
n = unweighted numerator.
Weighted n = weighted numerator (for multi-year data, equals total weighted n divided by number of years).
95% CI = 95% Confidence Interval.

Table 2.9. Age at Diagnosis and Time since Diagnosis among Maine Adults with Current or Active Asthma, Asthma Call-Back Survey, 2006-2010

Characteristics	Total Respon-dents	n	%	95% CI
Age at Diagnosis				
Under 1	1,710	51	**3.5**	1.9 - 5.1
2-5	1,710	127	**10.4**	8.0 - 12.9
6-12	1,710	178	**16.1**	13.0 - 19.3
13 - 17	1,710	126	**12.2**	9.3 - 15.0
18 or older	1,710	1,228	**57.8**	54.0 - 61.6
Time Since Diagnosis				
Within Past Year	1,818	51	**3.3**	1.5 - 5.1
1-5 Years Ago	1,818	232	**11.4**	9.4 - 13.3
5+ Years Ago	1,818	1,535	**85.4**	82.8 - 87.9

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

*Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 2.10. Age at Diagnosis and Time since Diagnosis among Maine Children with Current or Active Asthma, Asthma Call-Back Survey, 2006-2009

Characteristics	Total Respon-dents	n	%	95% CI
Age at Diagnosis				
Under 2	300	68	**25.9**	19.8 - 32.1
2-5	300	121	**40.7**	34.2 - 47.3
6+	300	111	**33.3**	27.3 - 39.4
Time Since Diagnosis				
Within Past Year	305	23	**7.6†**	3.8 - 11.4
1-5 Years Ago	305	118	**40.0**	33.6 - 46.5
5+ Years Ago	305	164	**52.4**	45.8 - 58.9

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general child population of Maine and to adjust for non-response.

†Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator

95% CI = 95% Confidence Interval.

Chapter 3 Tables

Table 3.1. Asthma Control and Impact among Maine Adults with Current or Active Asthma, Asthma Call-Back Survey, 2006-2010

Asthma Control Measures	Total Respondents	n	%	95% CI
Overall Level of Asthma Control				
Well Controlled	1,825	882	**50.2**	46.7 - 53.8
Not Well Controlled	1,825	468	**25.8**	22.6 - 29.0
Very Poorly Controlled	1,825	475	**23.9**	20.8 - 27.0
Symptoms within Past Month				
Yes	1,792	1,192	**67.6**	64.5 - 70.7
No	1,792	600	**32.4**	29.3 - 35.5
Symptom-Free Days, Past 2 Weeks				
All Days (14 Days)	1,787	734	**37.7**	34.1 - 41.2
7-13 Days	1,787	379	**24.7**	21.6 - 27.8
<7 Days	1,787	674	**37.6**	34.3 - 41.0
Asthma Attack Past 12 Months				
Yes	1,806	887	**50.6**	47.0 - 54.1
No	1,806	919	**49.4**	45.9 - 53.0
Number of Attacks Past 3 Months				
None	1,757	1,123	**62.6**	59.0 - 66.1
One	1,757	168	**11.1**	8.5 - 13.7
2+	1,757	466	**26.3**	23.2 - 29.5
Activity Limitations Due to Asthma, Past 12 Months				
None	1,813	640	**36.6**	33.2 - 40
A Little	1,813	709	**43.4**	39.8 - 46.9
A Moderate Amount	1,813	306	**13.6**	11.5 - 15.7
A Lot	1,813	158	**6.5**	5.1 - 7.8
Any Activity Limitation Due to Asthma, Past 12 Months				
Yes	1,813	1,173	**63.4**	60.0 - 66.9
No	1,813	640	**36.6**	33.1 - 40.0
Missed Work/Activities among Currently Employed, Due to Asthma, Past 12 Months				
None	844	653	**78.1**	74.1-82.2
1 or More Missed Days	844	191	**21.9**	17.8-25.9
Number of Urgent Asthma Doctor Visits, Past 12 Months				
None	1,807	1,404	**79.7**	77.1 - 82.2
1 or 2	1,807	271	**14.3**	12.2 - 16.5
3+	1,807	132	**6.0**	4.5 – 7.5
Urgent Care or ED Visit for Asthma, Past 12 Months				
Yes	1,811	203	**11.8**	9.1 – 14.5
No	1,811	1,608	**88.2**	85.5 – 90.9
Hospitalization Due to Asthma, Past 12 Months				
Yes	1,822	62	**2.3**	1.6 – 3.0
No	1,822	1,760	**97.7**	97.0 – 98.4

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

Overall Level of Control is based upon the component categories of level of control indicated by Symptoms, Nighttime Awakenings and Rescue Medication Use, each of which are summary measures based upon respondents' reports of frequency of symptoms, nighttime awakenings and use of rescue medications. Briefly, all three components must be "well-controlled" in order to score an overall level of "well-controlled." Otherwise, the overall level of control will be the worst control score of the three components.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.2. Asthma Control and Impact among Maine Children with Current or Active Asthma, Asthma Call-Back Survey, 2006-2009

Asthma Control Measures	Total Respon-dents	n	%	95% CI
Overall Level of Asthma Control				
Well Controlled	306	215	**71.2**	65.4 - 77.0
Not Well Controlled	306	60	**19.3**	14.3 - 24.3
Very Poorly Controlled	306	31	**9.5†**	5.9 - 13.1
Symptoms within Past Month				
Yes	299	122	**39.2**	32.8 - 45.6
No	299	177	**60.8**	54.4 - 67.2
Symptom-Free Days, Past 2 Weeks				
All Days (14 Days)	303	192	**63.8**	57.5 - 70.2
7-13 Days	303	56	**19.4**	14.1 - 24.8
<7 Days	303	55	**16.7**	12.0 - 21.5
Asthma Attack Past 12 Months				
Yes	306	151	**50.3**	43.7 - 56.9
No	306	155	**49.7**	43.1 - 56.3
Number of Attacks Past 3 Months				
None	299	185	**60.2**	53.7 - 66.8
One	299	50	**17.8**	12.8 - 22.8
2+	299	64	**21.9**	16.3 - 27.5
Activity Limitations Due to Asthma, Past 12 Months				
None	305	148	**49.6**	43.1 - 56.2
A Little	305	125	**38.9**	32.6 - 45.2
A Moderate Amount	305	26	**9.3†**	5.0 - 13.5
A Lot	305	6	**2.2†**	0.3 - 4.2
Any Activity Limitation Due to Asthma, Past 12 Months				
Yes	305	157	**50.4**	43.8 - 56.9
No	305	148	**49.6**	43.1 - 56.2
How Many Days Missed School or Daycare Due to Asthma, Past Year*				
None	239	150	**60.4**	53.3 - 67.5
1+ Day	239	89	**39.6**	32.5 – 46.7
Number of Urgent Asthma Doctor Visits, Past 12 Months				
None	306	221	**71.5**	65.4 - 77.6
1 or 2	306	65	**21.0**	15.5 - 26.5
3+	306	20	**7.5†**	3.8 – 11.3
Urgent Care or ED Visit for Asthma in Past 12 Months				
Yes	305	29	**11.0†**	6.7 – 15.4
No	305	276	**89.0**	84.6 - 93.3

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

Overall Level of Control is based upon the component categories of level of control indicated by Symptoms, Nighttime Awakenings and Rescue Medication Use, each of which are summary measures based upon respondents' reports of frequency of symptoms, nighttime awakenings and use of rescue medications. Briefly, all three components must be "well-controlled" in order to score an overall level of "well-controlled". Otherwise, the overall level of control will be the worst control score of the three components.

All %s are weighted to be more representative of the general child population of Maine and to adjust for non-response.

†Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

*Among children attending school or daycare.

Table 3.3. Level of Asthma Control among Maine Adults with Current or Active Asthma by Year, Asthma Call-Back Survey, 2006-2010

Year	Total Respon-dents	Well-Controlled			Not Well or Very Poorly Controlled		
		n	%	95% CI	n	%	95% CI
2006	202	84	**40.0**	31.7 - 48.4	118	**60.0**	51.6 - 68.3
2007	407	190	**51.8**	44.2 - 59.4	217	**48.2**	40.6 - 55.8
2008	445	227	**53.0**	46.6 - 59.4	218	**47.0**	40.6 - 53.4
2009	264	123	**51.4**	42.0 - 60.9	141	**48.6**	39.1 - 58.0
2010	507	258	**54.7**	48.4 - 61.1	249	**45.3**	38.9 - 51.6
2006-10	1,825	882	**50.2**	46.7 - 53.8	943	**49.8**	46.2 - 53.3

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.4. Level of Asthma Control among Maine Children with Current or Active Asthma by Year, Asthma Call-Back Survey, 2006-2009

Pooled Years	Well-Controlled				Not Well or Very Poorly Controlled		
	Total Respon-dents	n	%	95% CI	n	%	95% CI
2006-2007	138	99	**71.0**	62.2 - 79.7	39	**29.0†**	20.3 - 37.8
2007-2008	193	141	**73.5**	66.6 - 80.3	52	**26.5**	19.7 - 33.4
2008-2009	168	116	**71.3**	63.7 - 79.0	52	**28.7**	21.0 - 36.3
2006 -2009	306	215	**71.3**	65.5 - 77.1	91	**28.7**	22.9 - 34.5

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general child population of Maine and to adjust for non-response.

†Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.5. Adult Tribal Members Ever Diagnosed with Asthma within Maine's Tribal Communities, 2012

Question	Tribal Members Ever Diagnosed with Asthma [a] within Maine's Tribal Communities		
	Mean	Range	N*
Number of asthma related emergency room or urgent care center visits in past 12 months	0.3	0-6	253
Number of visits to doctor, nurse, or other health professional for urgent treatment of worsening asthma symptoms in past 12 months	0.7	0-20	252
Number of days in past year unable to work or carry out usual activities because asthma	3.9	0-365	248
Number of visits to doctor, nurse, or other health professional for a routine checkup for asthma in past 12 months	0.8	0-12	252

Reference source: Pat Knox- Nicola and Patrik Johansson.Waponahki Tribal Health Assessment, 2012. Unpublished data. Waponahki Tribal Health Assessment information available from http://www.maine.gov/dhhs/mecdc/public-health-systems/tribal/documents/waponahki-assessment.pdf

*This is the total number of persons who provided an answer to this question other than "Don't Know / Not Sure" or "Refused / Prefer Not To Answer." This number is used to calculate the percentages of respondents that appear in the table.

a – Limited to respondents who answered "Yes" to Have you ever been told by a doctor, nurse, or other health professional that you had asthma?" Maximum N= 253. Not including don't know/not sure/refused or skipped.

Table 3.6. Health Care Utilization among Maine Adults with Current or Active Asthma, Asthma Call-Back Survey, 2006-2010

Health Care Utilization Measures		Total Respon-dents	n	%	95% CI
Number of Routine Asthma Checkups, Past 12 Months					
	None	1,796	746	**45.8**	42.2 - 49.4
	One	1,796	465	**25.2**	22.2 - 28.1
	Two or More	1,796	585	**29.0**	25.9 - 32.1
Received Influenza Shot in Past 12 Months*					
	Yes	1,815	1,118	**52.6**	49.0 - 56.2
	No	1,815	697	**47.4**	43.8 - 51.0
Needed to See Primary Care for Asthma but Could not Due to Cost, Past 12 Months					
	Yes	1,683	101	**8.1**	5.4 - 10.7
	No	1,683	1,582	**91.9**	89.3 - 94.6
Referred to Specialist, but Could Not Go Due to Cost, Past 12 Months					
	Yes	1,686	51	**3.3**	1.9 - 4.8
	No	1,686	1,635	**96.7**	95.2 - 98.1
Gap in Health Insurance, Past 12 Months					
	Yes	1,820	204	**16.3**	12.9 - 19.6
	No	1,820	1,616	**83.7**	80.4 - 87.1

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

* Flu shot only; flu mist not included.

Table 3.7. Health Care Utilization among Maine Children with Current or Active Asthma, Asthma Call-Back Survey, 2006-2009

Health Care Utilization Measures	Total Respon-dents	n	%	95% CI
Number of Routine Asthma Checkups, Past 12 Months				
None	305	87	**28.7**	22.6 - 34.8
One	305	126	**40.8**	34.3 - 47.2
Two or More	305	92	**30.5**	24.3 - 36.7
Received Influenza Shot in Past 12 Months*				
Yes	300	139	**48.0**	41.5 - 54.6
No	300	161	**52.0**	45.4 - 58.5
Needed to See Primary Care for Asthma but Could not Due to Cost, Past 12 Months				
Yes	256	3	**0.8†**	0.0 - 1.8
No	256	253	**99.2**	98.2 - 100.0
Referred to Specialist, but Could Not Go Due to Cost, Past 12 Months				
Yes	255	4	**0.9†**	0.0 - 1.8
No	255	251	**99.1**	98.2 - 100.0
Gap in Health Insurance, Past 12 Months				
Yes	306	23	**6.6†**	3.5 - 9.8
No	306	283	**93.4**	90.2 - 96.5

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general child population of Maine and to adjust for non-response.

†Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

* Flu shot only; flu mist not included.

Table 3.8. Asthma Medication Use among Maine Adults with Current or Active Asthma, Asthma Call-Back Survey, 2006-2010

Medication Use	Total Respon-dents	n	%	95% CI
Used a Rescue Medication (past 3 months)				
Yes	1,796	1,010	**56.8**	53.3 - 60.3
No	1,796	786	**43.2**	39.7 - 46.7
Used a Controller Medication (past 3 months)				
Yes	1,796	817	**40.1**	36.7 - 43.4
No	1,796	979	**59.9**	56.6 - 63.3
Rescue and Controller Medication Use (past 3 months)				
No Rescue or Controller Medication	1,787	582	**33.1**	29.8 - 36.4
Rescue Medication Only	1,787	395	**27.0**	23.4 - 30.6
Controller Medication Only	1,787	201	**10.1**	8.1 - 12.2
Both Controller and Rescue Medication	1,787	609	**29.8**	26.9 - 32.7
Needed Medication but Could Not Buy It Due to Cost, Past 12 Months				
Yes	1,685	213	**15.1**	11.9 - 18.3
No	1,685	1,472	**84.9**	81.7 - 88.1

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.9. Asthma Medication Use among Maine Children with Current or Active Asthma, Asthma Call-Back Survey, 2006-2009

Medication Use	Total Respon-dents	n	%	95% CI
Has a Rescue Medication				
Yes	295	155	**50.9**	44.2 - 57.6
No	295	140	**49.1**	42.4 - 55.8
Uses a Controller Medication				
Yes	301	122	**41.9**	35.4 - 48.4
No	301	179	**58.1**	51.6 - 64.6
Rescue and Controller Medication Use				
No Rescue or Controller Medication	294	114	**41.3**	34.6 - 47.9
Rescue Medication Only	294	65	**17.7**	13.2 - 22.3
Controller Medication Only	294	26	**7.9†**	4.5 - 11.2
Both Controller and Rescue Medication	294	89	**33.1**	26.7 - 39.5
Needed Medication but Could Not Buy It Due to Cost, Past 12 Months				
Yes	256	8	**2.5†**	0.4 - 4.5
No	256	248	**97.5**	95.5 - 99.6

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general child population of Maine and to adjust for non-response.

†Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.10. Asthma Education among Maine Adults with Current or Active Asthma, Asthma Call-Back Survey, 2006-2010

Asthma Education Measures	Total Respon-dents	n	%	95% CI
Has an Asthma Action Plan				
Yes	1,778	560	**31.3**	28.1 - 34.5
No	1,778	1,218	**68.7**	65.5 - 71.9
Taught Recognition of Asthma Signs & Symptoms				
Yes	1,785	1,215	**67.9**	64.3 - 71.5
No	1,785	570	**32.1**	28.5 - 35.7
Taught What to Do During Asthma Attack				
Yes	1,790	1,405	**78.7**	75.4 - 82.0
No	1,790	385	**21.3**	18.0 - 24.6
Taught How to Use Peak Flow Meter and Adjust Meds				
Yes	1,807	883	**52.2**	48.7 - 55.8
No	1,807	924	**47.8**	44.2 - 51.3
Has Taken an Asthma Self-Management Class				
Yes	1,820	158	**7.8**	6.2 - 9.4
No	1,820	1,662	**92.2**	90.6 - 93.8
Taught Recognition, What to Do During Asthma Attack, How to Use Peak Flow Meter and Has an Asthma Action Plan				
Yes	1,799	388	**23.2**	20.3 - 26.1
No	1,799	1,411	**76.8**	73.9 - 79.7

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.11. Asthma Education among Maine Adults with Current or Active Asthma by Year, Asthma Call-Back Survey, 2006-2010

Year	Has an Asthma Action Plan				Taught Recognition, What to Do During Asthma Attack, How to Use Peak Flow Meter and Has an Asthma Action Plan			
	Total Respon-dents	n	%	95% CI	Total Respon-dents	n	%	95% CI
2006	198	67	**31.6**	23.6 - 39.7	198	55	**26.4**	18.9 - 33.9
2007	403	133	**34.5**	27.3 - 41.7	404	91	**25.4**	18.6 - 32.3
2008	429	132	**34.7**	28.5 - 40.9	438	88	**23.5**	18.0 - 29.1
2009	257	72	**23.5**	16.6 - 30.4	260	47	**16.3***	10.3 - 22.4
2010	491	156	**32.5**	26.0 - 39.0	499	107	**24.6**	18.3 - 30.9
2006 - 2010	1,778	560	**31.3**	28.1 - 34.5	1,799	388	**23.2**	20.3 - 26.1

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

Data suppressed if the unweighted denominator is <50 or the 95% CI half-width is >10.

*Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.12. Asthma Education among Maine Children with Current or Active Asthma or Their Parents, Asthma Call-Back Survey, 2006-2009

Asthma Education Measures	Total Respon-dents	n	%	95% CI
Has an Asthma Action Plan				
Yes	293	161	**58.9**	52.5 - 65.3
No	293	132	**41.1**	34.7 - 47.5
Taught Recognition of Asthma Signs & Symptoms				
Yes	299	259	**87.0**	82.6 - 91.4
No	299	40	**13.0†**	8.6 - 17.4
Taught What to Do During Asthma Attack				
Yes	303	270	**89.5**	85.4 - 93.6
No	303	33	**10.5†**	6.4 - 14.6
Taught How to Use Peak Flow Meter and Adjust Meds				
Yes	303	174	**56.6**	50.0 - 63.2
No	303	129	**43.4**	36.8 - 50.0
Has Taken an Asthma Self-Management Class				
Yes	303	41	**12.6†**	8.3 - 17.0
No	303	262	**87.4**	83.0 - 91.7
Taught Recognition, What to Do During Asthma Attack, How to Use Peak Flow Meter and Has an Asthma Action Plan				
Yes	299	118	**41.5**	34.8 - 48.2
No	299	181	**58.5**	51.8 - 65.2

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general child population of Maine and to adjust for non-response.

†Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.13. Influenza Vaccination Rates among all Maine Adults and among Adults with Current Asthma, Maine BRFSS 2006-2010

Year	All Adults				Adults with Current Asthma			
	Total Respon-dents	n	%	95% CI	Total Respon-dents	n	%	95% CI
2006	3,987	1,545	**35.9**	34.1 - 37.8	403	206	**48.5**	42.6 - 54.5
2007	6,802	3,255	**42.0**	40.5 - 43.5	691	407	**52.6**	47.4 - 57.8
2008	6,738	3,308	**40.6**	39.1 - 42.0	680	388	**48.3**	43.4 - 53.3
2009	7,959	3,964	**42.5**	41.1 - 44.0	837	502	**51.7**	47.0 - 56.4
2010	8,034	4,280	**47.1**	45.6 - 48.6	832	522	**58.6**	54.0 - 63.3
2006 - 2010	33,520	16,352	**41.6**	40.9 - 42.3	3,443	2,025	**51.9**	49.7 - 54.2

Data Source: Maine Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

Use caution in interpreting percentages with an unweighted numerator less than 50.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.14. Smoking Behavior among Maine Adults by Asthma Status, Maine BRFSS, 2006-2010

	ALL MAINE ADULTS					ADULTS WITH CURRENT ASTHMA					ADULTS WITHOUT CURRENT ASTHMA				
	Total Respon-dents	n	weighted n	%	95% CI	Total Respon-dents	n	weighted n	%	95% CI	Total Respon-dents	n	weighted n	%	95% CI
Current Smoking Status															
Currently smokes	33,697	5,712	198,319	**19.0**	18.4 - 19.6	3,462	697	22,810	**21.5**	19.5 - 23.5	29,998	4,968	173,972	**18.6**	18.0 - 19.3
Not a current smoker	33,697	27,985	847,712	**81.0**	80.4 - 81.6	3,462	2,765	83,307	**78.5**	76.5 - 80.5	29,998	25,030	758,866	**81.4**	80.7 - 82.0
Attempted to Quit Smoking in Past 12 Months (Current Smokers only)															
Quit attempt in past 12 months	5,699	3,241	116,004	**58.6**	56.9 - 60.4	695	459	14,937	**65.8**	60.6 - 70.9	4,957	2,761	100,494	**57.9**	56.0 - 59.8
No quit attempt	5,699	2,458	81,817	**41.4**	39.6 - 43.1	695	236	7,768	**34.2**	29.1 - 39.4	4,957	2,196	73,086	**42.1**	40.2 - 44.0

Data Source: Maine Behavioral Risk Factor Surveillance System.
All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Use caution in interpreting percentages with an unweighted numerator less than 50.
Total respondents = unweighted denominator; n = unweighted numerator.
Weighted n = weighted numerator (for multi-year data, equals total weighted n divided by number of years).
95% CI = 95% Confidence Interval.

Table 3.15. Weight Status among Maine Adults and Children with Current or Active Asthma, Asthma Call-Back Survey, 2006-2010

	Total Respon-dents	n	%	95% CI
Adults, 2006-10				
Not overweight or obese	1,756	479	**29.1**	25.9 - 32.4
Overweight	1,756	576	**32.5**	29.2 - 35.8
Obese	1,756	701	**38.4**	34.8 - 42.0
Children, 2006-09				
Not overweight or obese	178	117	**70.1**	62.4 - 77.8
Overweight	178	29	**14.1***	8.1 - 20.2
Obese	178	32	**15.8***	9.8 - 21.7

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

*Based on an unweighted numerator less than 50; interpret with caution.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Table 3.16 (page 1 of 2). Home Environment Measures among Maine Adults with Current or Active Asthma, Asthma Call-Back Survey, 2006-2010

Home Environment Measures	Total Respondents	n	%	95% CI
Health Professional Recommended Changes to Home, School, or Work Environment				
Yes	1,814	753	**43.4**	39.9 - 47.0
No	1,814	1,061	**56.6**	53.0 - 60.1
Air Purifier Used Regularly in Home				
Yes	1,808	443	**24.4**	21.4 - 27.4
No	1,808	1,365	**75.6**	72.6 - 78.6
Dehumidifier Used Regularly in Home				
Yes	1,816	489	**27.7**	24.6 - 30.7
No	1,816	1,327	**72.3**	69.3 - 75.4
Kitchen Exhaust Fan Used Regularly When Cooking in Home				
Yes	1,816	999	**53.1**	49.5 - 56.7
No	1,816	817	**46.9**	43.3 - 50.5
Gas Used for Cooking in Home				
Yes	1,821	581	**31.4**	28.1 - 34.6
No	1,821	1,240	**68.6**	65.4 - 71.9
Smelled Mold Inside Home, Past 30 Days				
Yes	1,813	283	**14.6**	12.3 - 16.9
No	1,813	1,530	**85.4**	83.1 - 87.7
Indoor Furry Pets				
Yes	1,822	1,218	**71.1**	67.9 - 74.2
No	1,822	604	**28.9**	25.8 - 32.1
Pets Allowed in the Bedroom				
Yes	1,825	949	**54.1**	50.6 - 57.6
No	1,825	876	**45.9**	42.4 - 49.4
Cockroaches Seen Inside Home, Past 30 Days				
Yes	1,822	5	**0.2***	0.0 - 0.5
No	1,822	1,817	**99.8**	99.5 - 100.0
Mice or Rats Seen Inside Home, Past 30 Days				
Yes	1,822	154	**7.5**	6.0 - 9.0
No	1,822	1,668	**92.5**	91.0 - 94.0
Wood Burning Stove or Fireplace Used in Home				
Yes	1,821	554	**30.9**	27.5 - 34.2
No	1,821	1,267	**69.1**	65.8 - 72.5
Unvented Gas Logs, Gas Fireplaces,				
Yes	1,817	107	**5.4**	3.8 - 7.1
No	1,817	1,710	**94.6**	92.9 - 96.2
Anyone Smoked Inside Home, Past Week				
Yes	1,823	288	**18.0**	14.9 - 21.1
No	1,823	1,535	**82.0**	78.9 - 85.1

Table 3.16 (page 2 of 2). Home Environment Measures among Maine Adults with Current or Active Asthma, Asthma Call-Back Survey, 2006-2010

Home Environment Measures	Total Respondents	N	%	95% CI
Uses Dust Mite-Controlling Mattress Cover				
Yes	1,795	537	**26.9**	23.9 - 29.9
No	1,795	1,258	**73.1**	70.1 - 76.1
Uses Dust Mite-Controlling Pillow Cover				
Yes	1,803	524	**25.6**	22.9 - 28.4
No	1,803	1,279	**74.4**	71.6 - 77.1
Carpeting or Rugs in the Bedroom				
Yes	1,821	1,078	**59.2**	55.8 - 62.6
No	1,821	743	**40.8**	37.4 - 44.2
Sheets and Pillowcases Washed in Hot Water				
Yes	1,791	538	**28.5**	25.5 - 31.5
No	1,791	1,253	**71.5**	68.5 - 74.5
Regularly Uses Exhaust Fan that Vents to Outside in the Bathroom				
Yes	1,815	1,049	**58.6**	55.1 - 62.1
No	1,815	766	**41.4**	37.9 - 44.9

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.

*Based on an unweighted numerator less than 50; interpret with caution.

Total respondents = unweighted denominator; n = unweighted numerator.
95% CI = 95% Confidence Interval.

Table 3.17 (page 1 of 2). Home Environment Measures among Maine Children with Current or Active Asthma, Asthma Call-Back Survey, 2006-2009

Home Environment Measures	Total Respondents	n	%	95% CI
Health Professional Recommended Changes to Home, School, or Work Environment				
Yes	304	134	**42.2**	35.7 - 48.8
No	304	170	**57.8**	51.2 - 64.3
Air Purifier Used Regularly in Home				
Yes	306	77	**24.4**	18.8 - 30.0
No	306	229	**75.6**	70.0 - 81.2
Dehumidifier Used Regularly in Home				
Yes	305	102	**33.7**	27.6 - 39.7
No	305	203	**66.3**	60.3 - 72.4
Kitchen Exhaust Fan Used Regularly When Cooking in Home				
Yes	306	168	**58.5**	52.2 - 64.9
No	306	138	**41.5**	35.1 - 47.8
Gas Used for Cooking in Home				
Yes	306	97	**30.8**	24.8 - 36.9
No	306	209	**69.2**	63.1 - 75.2
Smelled Mold Inside Home, Past 30 Days				
Yes	305	38	**9.8***	6.4 - 13.2
No	305	267	**90.2**	86.8 - 93.6
Indoor Furry Pets				
Yes	306	243	**77.7**	72.2 - 83.2
No	306	63	**22.3**	16.8 - 27.8
Pets Allowed in Child's Bedroom				
Yes	304	181	**57.7**	51.2 - 64.2
No	304	123	**42.3**	35.8 - 48.8
Cockroaches Seen Inside Home, Past 30 Days				
Yes	305	2	**0.7***	0.0 - 1.8
No	305	303	**99.3**	98.2 - 100.0
Mice or Rats Seen Inside Home, Past 30 Days				
Yes	306	25	**8.2***	4.5 - 11.8
No	306	281	**91.8**	88.2 - 95.5
Wood Burning Stove or Fireplace Used in Home				
Yes	306	122	**39.6**	33.3 - 46.0
No	306	184	**60.4**	54.0 - 66.7
Unvented Gas Logs, Gas Fireplaces,				
Yes	306	14	**5.7***	2.5 - 8.9
No	306	292	**94.3**	91.1 - 97.5
Anyone Smoked Inside Home, Past Week				
Yes	306	25	**6.3***	3.5 - 9.0
No	306	281	**93.7**	91.0 - 96.5

Table 3.17 (page 2 of 2). Home Environment Measures among Maine Children with Current or Active Asthma, Asthma Call-Back Survey, 2006-2009

Home Environment Measures	Total Respondents	n	%	95% CI
Child Uses Dust Mite-Controlling Mattress Cover				
Yes	302	128	**43.1**	36.5 - 49.6
No	302	174	**56.9**	50.4 - 63.5
Child Uses Dust Mite-Controlling Pillow Cover				
Yes	305	110	**37.0**	30.7 - 43.4
No	305	195	**63.0**	56.6 - 69.3
Carpeting or Rugs in Child's Bedroom				
Yes	306	186	**60.5**	54.0 - 67.0
No	306	120	**39.5**	33.0 - 46.0
Sheets and Pillowcases Washed in Hot Water				
Yes	304	92	**32.7**	26.5 - 38.9
No	304	212	**67.3**	61.1 - 73.5
Child Regularly Uses Exhaust Fan that Vents to Outside in Child's Bathroom				
Yes	305	180	**57.3**	50.8 - 63.8
No	305	125	**42.7**	36.2 - 49.2

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

All %s are weighted to be more representative of the general child population of Maine and to adjust for non-response.

*Based on an unweighted numerator less than 50; interpret with caution.

Total respondents = unweighted denominator; n = unweighted numerator.
95% CI = 95% Confidence Interval.

Table 3.18. Work Environment Measures among Maine Adults with Current or Active Asthma, Asthma Call-Back Survey, 2006-2010

Calculated Work Environment Measures	Total Respon-dents	n	%	95% CI
Asthma caused OR made worse by current job (currently employed only)				
Yes	808	230	**29.4**	24.7 - 34.2
No	808	578	**70.6**	65.8 - 75.3
Asthma caused by any job (ever employed only)				
Yes (caused by current or any previous job)	1,547	434	**27.3**	24.0 - 30.7
No	1,547	1,113	**72.7**	69.3 - 76.0
Asthma made worse any job (ever employed only)				
Yes	1,654	777	**46.8**	43.2 - 50.5
No	1,654	877	**53.2**	49.5 - 56.8
Asthma caused OR made worse by any job (ever employed only)				
Yes	1,617	821	**50.3**	46.6 - 54.0
No	1,617	796	**49.7**	46.0 - 53.4
Ever change or quit job due to asthma? (ever employed only)				
Yes	1,740	174	**10.2**	8.0 - 12.3
No	1,740	1,566	**89.8**	87.7 - 92.0
Doctor diagnosed work asthma? (ever employed only)				
Yes	1,730	178	**9.8**	7.9 - 11.8
No	1,730	1,552	**90.2**	88.2 - 92.1
Self-identified work asthma? (ever employed only)				
Yes	1,745	243	**13.0**	10.7 - 15.2
No	1,745	1,502	**87.0**	84.8 - 89.3
Doctor diagnosed OR self-identified work asthma? (ever employed only)				
Yes	1,729	293	**16.0**	13.6 - 18.5
No	1,729	1,436	**84.0**	81.5 - 86.4
Any indication of work-related asthma from any question (ever employed only)				
Yes	1,622	845	**51.7**	47.9 - 55.4
No	1,622	777	**48.3**	44.6 - 52.1

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.
All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Use caution in interpreting percentages with an unweighted numerator less than 50.
Total respondents = unweighted denominator; n = unweighted numerator.
95% CI = 95% Confidence Interval.

Table 3.19. School Environment Measures among Maine Children with Current or Active Asthma, Asthma Call-Back Survey, 2006-2009

School Environment Measures	Total Respondents	n	%	95% CI
Written Asthma Action Plan at School				
Yes	230	118	**52.0**	44.5 - 59.4
No	230	112	**48.0**	40.6 - 55.5
School Allows Child to Have Medication with them at School				
Yes	210	131	**55.4**	47.3 - 63.4
No	210	79	**44.6**	36.6 - 52.7
Feathered or Furry Pets in Classroom				
Yes	268	8	**3.7***	1.0 - 6.5
No	268	260	**96.3**	93.5 - 99.0
Mold Problems in School				
Yes	275	17	**5.2***	2.4 - 7.9
No	275	258	**94.8**	92.1 - 97.6

Data Source: Maine Asthma Call-Back Survey, Behavioral Risk Factor Surveillance System.

Questions only asked of children attending school outside the home in the past year.

All %s are weighted to be more representative of the general child population of Maine and to adjust for non-response.

*Based on an unweighted numerator less than 50; interpret with caution.

Total respondents = unweighted denominator; n = unweighted numerator.

95% CI = 95% Confidence Interval.

Chapter 4 Tables

Table 4.1. Asthma Emergency Department Visits by Year and Sex, Maine, 1999-2009

Year	Both Genders					Males					Females				
	Number	Crude Rate		Age-adjusted Rate		Number	Crude Rate		Age-adjusted Rate		Number	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI		Rate	95% CI	Rate	95% CI		Rate	95% CI	Rate	95% CI
2000	8,413	65.9	64.5 - 67.3	**68.3**	66.9 - 69.8	3,393	54.6	52.8 - 56.5	**57.1**	55.2 - 59.1	5,020	76.5	74.4 - 78.7	**78.8**	76.7 - 81.1
2001	9,094	70.8	69.4 - 72.3	**74.1**	72.5 - 75.6	3,738	59.8	57.9 - 61.7	**63.2**	61.2 - 65.3	5,356	81.2	79.1 - 83.4	**83.9**	81.6 - 86.2
2002	8,569	66.2	64.8 - 67.6	**69.6**	68.1 - 71.1	3,497	55.5	53.7 - 57.4	**59.1**	57.2 - 61.1	5,072	76.3	74.3 - 78.5	**79.2**	77.0 - 81.4
2003	9,150	70.1	68.6 - 71.5	**74.0**	72.5 - 75.5	3,792	59.6	57.7 - 61.5	**63.5**	61.5 - 65.6	5,357	80.1	77.9 - 82.2	**83.7**	81.4 - 86.0
2004	8,411	63.9	62.5 - 65.2	**67.4**	65.9 - 68.9	3,489	54.2	52.5 - 56.1	**58.1**	56.2 - 60.1	4,922	73.0	71.0 - 75.1	**76.0**	73.9 - 78.2
2005	9,194	69.6	68.2 - 71.0	**73.5**	71.9 - 75.0	3,674	56.9	55.1 - 58.8	**60.9**	59.0 - 63.0	5,519	81.7	79.5 - 83.8	**85.3**	83.0 - 87.6
2006	8,726	66.0	64.6 - 67.4	**69.8**	68.3 - 71.3	3,481	53.8	52.1 - 55.7	**57.8**	55.9 - 59.8	5,244	77.7	75.6 - 79.8	**81.0**	78.8 - 83.3
2007	8,139	61.8	60.5 - 63.1	**65.9**	64.5 - 67.4	3,381	52.6	50.8 - 54.4	**56.8**	54.9 - 58.7	4,758	70.6	68.6 - 72.6	**74.3**	72.2 - 76.5
2008	8,756	66.5	65.1 - 67.9	**71.3**	69.7 - 72.8	3,695	57.5	55.7 - 59.4	**62.5**	60.5 - 64.6	5,060	75.1	73.0 - 77.2	**79.3**	77.1 - 81.6
2009	8,482	64.3	63.0 - 65.7	**68.7**	67.2 - 70.2	3,412	53.0	51.3 - 54.8	**57.6**	55.6 - 59.5	5,070	75.1	73.1 - 77.2	**79.1**	76.9 - 81.4

Asthma Emergency Department (ED) Visits: ED visits with asthma as the principal diagnosis.
Asthma: ICD-9-CM codes 493.
Crude rates are ED visits per 10,000 population.
Age-adjusted rates are ED Visits per 10,000 population age-adjusted to the U.S. 2000 standard population
95% CI: 95% confidence interval of the rate.
Maine Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization

Table 4.2. Asthma Hospitalizations by Year and Gender, Maine, 1999-2009

Year	Both Genders					Males					Females				
	Number	Crude Rate		Age-adjusted Rate		Number	Crude Rate		Age-adjusted Rate		Number	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI		Rate	95% CI	Rate	95% CI		Rate	95% CI	Rate	95% CI
1999	1,340	10.6	10.0 - 11.2	**10.9**	10.3 - 11.5	517	8.4	7.7 - 9.1	**8.9**	8.1 - 9.7	823	12.6	11.8 - 13.5	**12.6**	11.8 - 13.5
2000	1,197	9.4	8.8 - 9.9	**9.5**	9.0 - 10.1	398	6.4	5.8 - 7.1	**7.0**	6.3 - 7.7	799	12.2	11.4 - 13.1	**11.8**	11.0 - 12.7
2001	1,148	8.9	8.4 - 9.5	**9.2**	8.7 - 9.8	404	6.5	5.8 - 7.1	**7.1**	6.5 - 7.9	744	11.3	10.5 - 12.1	**11.0**	10.2 - 11.8
2002	1,093	8.4	8.0 - 9.0	**8.7**	8.2 - 9.3	367	5.8	5.2 - 6.5	**6.4**	5.8 - 7.1	726	10.9	10.1 - 11.8	**10.8**	10.0 - 11.6
2003	1,307	10.0	9.5 - 10.6	**10.3**	9.7 - 10.9	462	7.3	6.6 - 7.9	**8.0**	7.3 - 8.8	845	12.6	11.8 - 13.5	**12.3**	11.5 - 13.2
2004	1,140	8.7	8.2 - 9.2	**8.7**	8.2 - 9.3	365	5.7	5.1 - 6.3	**6.2**	5.5 - 6.8	775	11.5	10.7 - 12.3	**11.1**	10.3 - 11.9
2005	1,147	8.7	8.2 - 9.2	**8.6**	8.1 - 9.1	382	5.9	5.3 - 6.5	**6.3**	5.7 - 7.0	765	11.3	10.5 - 12.1	**10.7**	9.9 - 11.5
2006	1,068	8.1	7.6 - 8.6	**8.1**	7.6 - 8.6	374	5.8	5.2 - 6.4	**6.2**	5.6 - 6.9	694	10.3	9.5 - 11.1	**9.7**	8.9 - 10.4
2007	993	7.5	7.1 - 8.0	**7.4**	6.9 - 7.9	357	5.6	5.0 - 6.2	**5.8**	5.2 - 6.5	636	9.4	8.7 - 10.2	**8.7**	8.0 - 9.4
2008	1,094	8.3	7.8 - 8.8	**8.2**	7.7 - 8.7	415	6.5	5.9 - 7.1	**6.7**	6.1 - 7.4	679	10.1	9.3 - 10.9	**9.4**	8.7 - 10.2
2009	1,169	8.9	8.4 - 9.4	**8.6**	8.1 - 9.1	396	6.2	5.6 - 6.8	**6.5**	5.9 - 7.2	773	11.5	10.7 - 12.3	**10.4**	9.6 - 11.1

Asthma Hospitalizations: Hospitalizations with asthma as the principal diagnosis.
Asthma: ICD-9-CM codes 493.
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the U.S. 2000 standard population
95% CI: 95% confidence interval of the rate.
Maine Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 4.3. Asthma Emergency Department Visits by Age Group, Maine, 2007-2009

Age Group	Average Annual Number of ED Visits	Age-specific Rate	
		Rate	95% CI
0-4	756	**106.5**	102.2 - 111.0
5-9	601	**82.9**	79.1 - 86.8
10-14	443	**56.7**	53.7 - 59.8
15-17	332	**62.1**	58.3 - 66.1
18-24	1,190	**103.9**	100.6 - 107.4
25-34	1,323	**88.5**	85.8 - 91.3
35-44	1,330	**73.3**	71.1 - 75.6
45-54	1,073	**49.1**	47.4 - 50.8
55-64	630	**35.3**	33.8 - 37.0
65+	780	**39.0**	37.5 - 40.6
Children (0-17)	2,132	**77.5**	75.6 - 79.4
Adults (18+)	6,327	**60.7**	59.9 - 61.6

Asthma Emergency Department (ED) Visits: ED visits with asthma as the principal diagnosis.

Asthma: ICD-9-CM codes 493.

Crude rates are ED visits per 10,000 population.

Age-adjusted rates are ED Visits per 10,000 population age-adjusted to the U.S. 2000 standard population.

95% CI: 95% confidence interval of the rate.

Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization.

Table 4.4. Asthma Hospitalizations by Age Group, Maine, 2007-2009

Age Group	Average Annual Number of Hospitalizations	Age-specific Rate	
		Rate	95% CI
0-4	143	**20.1**	18.3 - 22.1
5-9	66	**9.1**	7.8 - 10.4
10-14	30	**3.8**	3.1 - 4.7
15-17	15	**2.9**	2.1 - 3.8
18-24	34	**3.0**	2.4 - 3.6
25-34	71	**4.7**	4.1 - 5.4
35-44	123	**6.8**	6.1 - 7.5
45-54	177	**8.1**	7.4 - 8.8
55-64	145	**8.1**	7.4 - 8.9
65+	282	**14.1**	13.2 - 15.1
Children (0-17)	254	**9.2**	8.6 - 9.9
Adults (18+)	831	**8.0**	7.7 - 8.3

Asthma Hospitalizations: Hospitalizations with asthma as the principal diagnosis.

Asthma: ICD-9-CM codes 493.

Age-specific rates are hospitalizations per 10,000 population

95% CI: 95% confidence interval of the rate.

Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 4.5. Asthma Emergency Department Visits by County or Public Health District of Residence, Maine, 2007-2009

County or District	Average Annual Number of ED Visits	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI
Maine Total	8,459	64.2	63.4 - 65.0	**68.6**	67.7 - 69.4
County					
Androscoggin	841	78.8	75.8 - 82.0	**83.3**	80.1 - 86.7
Aroostook	713	99.4	95.3 - 103.7	**105.6**	101.0 - 110.4
Cumberland	1,471	53.2	51.6 - 54.8	**56.4**	54.7 - 58.1
Franklin	136	45.5	41.2 - 50.1	**47.4**	42.8 - 52.4
Hancock	291	54.5	51.0 - 58.3	**59.9**	55.8 - 64.1
Kennebec	839	69.3	66.6 - 72.1	**74.2**	71.3 - 77.2
Knox	252	61.7	57.4 - 66.3	**67.9**	63.0 - 73.1
Lincoln	153	44.0	40.1 - 48.3	**49.5**	44.9 - 54.5
Oxford	364	64.4	60.6 - 68.3	**71.7**	67.4 - 76.1
Penobscot	921	61.9	59.6 - 64.2	**63.2**	60.8 - 65.6
Piscataquis	98	57.5	51.1 - 64.5	**67.3**	59.6 - 75.7
Sagadahoc	173	47.5	43.5 - 51.7	**50.4**	46.1 - 55.0
Somerset	535	104.2	99.2 - 109.5	**113.1**	107.5 - 118.9
Waldo	220	57.3	53.0 - 61.9	**61.6**	56.9 - 66.5
Washington	370	114.1	107.5 - 121.0	**119.4**	112.2 - 126.8
York	1,082	53.7	51.8 - 55.6	**58.7**	56.6 - 60.7
Public Health District					
Aroostook	713	99.4	95.3 - 103.7	**105.6**	101.0 - 110.4
Central Maine	1,374	79.7	77.3 - 82.2	**85.6**	83.0 - 88.4
Cumberland	1,471	53.2	51.6 - 54.8	**56.4**	54.7 - 58.1
Downeast	661	77.1	73.7 - 80.6	**82.6**	78.9 - 86.5
Mid Coast	797	53.1	51.0 - 55.2	**57.7**	55.3 - 60.1
Penquis	1,019	61.4	59.3 - 63.6	**63.3**	61.0 - 65.6
Western Maine	1,341	69.4	67.3 - 71.6	**74.5**	72.2 - 76.8
York	1,082	53.7	51.8 - 55.6	**58.7**	56.6 - 60.7

Asthma Emergency Department (ED) Visits: ED visits with asthma as the principal diagnosis.
Asthma: ICD-9-CM codes 493.
Crude rates are ED visits per 10,000 population.
Age-adjusted rates are ED visits per 10,000 population age-adjusted to the U.S. 2000 standard population.
95% CI: 95% confidence interval of the rate.

Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization.

Table 4.6. Asthma Hospitalizations by County or Public Health District of Residence, Maine, 2007-2009

County or District	Average Annual Number of Hospitalizations	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI
Maine Total	1,085	8.2	8.0 - 8.5	**8.0**	7.8 - 8.3
County					
Androscoggin	116	10.9	9.8 - 12.1	**11.0**	9.9 - 12.2
Aroostook	87	12.1	10.7 - 13.7	**10.5**	9.2 - 11.9
Cumberland	179	6.5	5.9 - 7.0	**6.4**	5.9 - 7.0
Franklin	34	11.5	9.4 - 14.0	**11.2**	9.1 - 13.7
Hancock	43	8.1	6.8 - 9.7	**7.9**	6.5 - 9.4
Kennebec	82	6.8	6.0 - 7.7	**6.7**	5.8 - 7.6
Knox	35	8.5	6.9 - 10.3	**8.1**	6.5 - 9.8
Lincoln	20	5.7	4.3 - 7.3	**5.3**	4.0 - 7.0
Oxford	54	9.5	8.1 - 11.1	**9.6**	8.1 - 11.3
Penobscot	181	12.2	11.2 - 13.2	**11.7**	10.7 - 12.7
Piscataquis	10	5.9	4.0 - 8.4	**6.7**	4.4 - 9.6
Sagadahoc	33	9.1	7.4 - 11.0	**8.4**	6.8 - 10.3
Somerset	42	8.1	6.8 - 9.7	**8.5**	7.0 - 10.1
Waldo	31	8.0	6.4 - 9.8	**7.7**	6.2 - 9.5
Washington	30	9.2	7.4 - 11.4	**9.1**	7.2 - 11.3
York	109	5.4	4.8 - 6.0	**5.5**	4.9 - 6.1
Public Health District					
Aroostook	87	12.1	10.7 - 13.7	**10.5**	9.2 - 11.9
Central Maine	124	7.2	6.5 - 7.9	**7.2**	6.5 - 8.0
Cumberland	179	6.5	5.9 - 7.0	**6.4**	5.9 - 7.0
Downeast	73	8.6	7.5 - 9.8	**8.3**	7.2 - 9.6
Mid Coast	118	7.9	7.1 - 8.7	**7.4**	6.6 - 8.2
Penquis	191	11.5	10.6 - 12.5	**11.1**	10.2 - 12.0
Western Maine	204	10.6	9.8 - 11.5	**10.7**	9.8 - 11.6
York	109	5.4	4.8 - 6.0	**5.5**	4.9 - 6.1

Asthma Hospitalizations: Hospitalizations with asthma as the principal diagnosis.
Asthma: ICD-9-CM codes 493.
Crude rates are hospitalizations per 10,000 population. Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the U.S. 2000 standard population.
95% CI: 95% confidence interval of the rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 4.7. Asthma Emergency Department Visits by Month of Admission, Maine, 2008

Month	Maine					Maine Males					Maine Females				
	n	Crude Rate		Age-adjusted Rate		n	Crude Rate		Age-adjusted Rate		n	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI		Rate	95% CI	Rate	95% CI		Rate	95% CI	Rate	95% CI
Jan	671	61.2	56.6 - 66.0	**65.3**	60.3 - 70.5	280	52.3	46.4 - 58.8	**56.6**	50.1 - 63.7	390	69.4	62.7 - 76.7	**73.0**	65.8 - 80.8
Feb	804	73.3	68.3 - 78.5	**76.7**	71.4 - 82.3	333	62.2	55.7 - 69.3	**65.9**	58.9 - 73.5	471	83.8	76.4 - 91.8	**86.6**	78.8 - 95.0
Mar	805	73.4	68.4 - 78.6	**76.0**	70.8 - 81.6	325	60.7	54.3 - 67.7	**63.8**	56.9 - 71.2	480	85.4	78.0 - 93.4	**87.7**	79.8 - 96.1
Apr	772	70.4	65.5 - 75.5	**73.4**	68.3 - 78.9	318	59.4	53.1 - 66.3	**62.7**	55.9 - 70.1	454	80.8	73.6 - 88.6	**83.5**	75.8 - 91.7
May	699	63.7	59.1 - 68.6	**68.4**	63.4 - 73.8	281	52.5	46.5 - 59.0	**57.3**	50.7 - 64.5	418	74.4	67.4 - 81.9	**78.5**	71.0 - 86.6
Jun	521	47.5	43.5 - 51.7	**50.2**	45.9 - 54.8	195	36.4	31.5 - 41.9	**39.3**	33.9 - 45.2	326	58.0	51.9 - 64.7	**61.0**	54.4 - 68.2
Jul	463	42.2	38.4 - 46.2	**44.5**	40.4 - 48.8	187	34.9	30.1 - 40.3	**37.9**	32.6 - 43.8	276	49.1	43.5 - 55.3	**50.6**	44.6 - 57.0
Aug	473	43.1	39.3 - 47.2	**46.2**	42.1 - 50.6	187	34.9	30.1 - 40.3	**37.7**	32.4 - 43.6	286	50.9	45.2 - 57.2	**54.3**	48.1 - 61.1
Sep	1,023	93.3	87.6 - 99.1	**105.4**	99.0 - 112.2	482	90.0	82.2 - 98.5	**102.5**	93.5 - 112.1	541	96.3	88.4 - 104.8	**107.4**	98.4 - 117.0
Oct	1,045	95.3	89.6 - 101.2	**103.7**	97.5 - 110.3	454	84.8	77.2 - 93.0	**93.6**	85.1 - 102.7	591	105.2	96.9 - 114.0	**112.9**	103.8 - 122.6
Nov	781	71.2	66.3 - 76.4	**77.4**	72.0 - 83.1	350	65.4	58.7 - 72.6	**71.3**	63.9 - 79.2	431	76.7	69.7 - 84.3	**82.7**	75.0 - 91.1
Dec	695	63.4	58.7 - 68.2	**67.4**	62.4 - 72.7	301	56.2	50.1 - 63.0	**61.1**	54.3 - 68.5	394	70.1	63.4 - 77.4	**73.2**	66.0 - 80.9

Asthma Emergency Department (ED) Visits: ED visits with asthma as the principal diagnosis.
Asthma: ICD-9-CM codes 493.
n = Number.
Crude rates are ED visits per 10,000 population.
Age-adjusted rates are ED Visits per 10,000 population age-adjusted to the U.S. 2000 standard population
95% CI: 95% confidence interval of the rate.
Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization

Table 4.8. Asthma Hospitalizations by Month of Admission, Maine, 2008

Month	Maine					Maine Males					Maine Females				
	n	Crude Rate		Age-adjusted Rate		n	Crude Rate		Age-adjusted Rate		n	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI		Rate	95% CI	Rate	95% CI		Rate	95% CI	Rate	95% CI
Jan	104	9.5	7.7 - 11.5	**9.3**	7.5 - 11.3	42	7.8	5.7 - 10.6	**8.1**	5.8 - 11.0	62	11.0	8.5 - 14.1	**10.2**	7.7 - 13.1
Feb	116	10.6	8.7 - 12.7	**9.6**	7.9 - 11.6	41	7.7	5.5 - 10.4	**7.5**	5.3 - 10.2	75	13.4	10.5 - 16.7	**11.0**	8.6 - 14.0
Mar	139	12.7	10.7 - 15.0	**11.5**	9.6 - 13.7	45	8.4	6.1 - 11.2	**8.4**	6.1 - 11.3	94	16.7	13.5 - 20.5	**14.4**	11.6 - 17.8
Apr	98	8.9	7.3 - 10.9	**8.8**	7.1 - 10.8	34	6.4	4.4 - 8.9	**6.5**	4.5 - 9.2	64	11.4	8.8 - 14.5	**10.9**	8.3 - 14.1
May	75	6.8	5.4 - 8.6	**6.6**	5.2 - 8.4	22	4.1	2.6 - 6.2	**4.3**	2.6 - 6.5	53	9.4	7.1 - 12.3	**8.8**	6.5 - 11.6
Jun	63	5.7	4.4 - 7.3	**5.3**	4.1 - 6.9	27	5.0	3.3 - 7.3	**4.8**	3.1 - 7.0	36	6.4	4.5 - 8.9	**5.9**	4.1 - 8.2
Jul	57	5.2	3.9 - 6.7	**5.2**	3.9 - 6.7	18	3.4*	2.0 - 5.3	**3.6***	2.1 - 5.7	39	6.9	4.9 - 9.5	**6.6**	4.6 - 9.1
Aug	56	5.1	3.9 - 6.6	**4.9**	3.7 - 6.4	20	3.7*	2.3 - 5.8	**3.7***	2.2 - 5.7	36	6.4	4.5 - 8.9	**5.9**	4.1 - 8.3
Sep	128	11.7	9.7 - 13.9	**12.8**	10.6 - 15.2	63	11.8	9.0 - 15.1	**13.3**	10.2 - 17.1	65	11.6	8.9 - 14.7	**12.1**	9.3 - 15.6
Oct	100	9.1	7.4 - 11.1	**9.5**	7.7 - 11.6	33	6.2	4.2 - 8.7	**6.7**	4.6 - 9.5	67	11.9	9.2 - 15.1	**12.0**	9.2 - 15.3
Nov	81	7.4	5.9 - 9.2	**7.7**	6.1 - 9.6	35	6.5	4.6 - 9.1	**7.1**	4.9 - 9.9	46	8.2	6.0 - 10.9	**8.2**	5.9 - 11.0
Dec	75	6.8	5.4 - 8.6	**6.7**	5.3 - 8.5	34	6.4	4.4 - 8.9	**6.7**	4.6 - 9.4	41	7.3	5.2 - 9.9	**6.7**	4.7 - 9.2

Asthma Hospitalizations: Hospitalizations with asthma as the principal diagnosis.

Asthma: ICD-9-CM codes 493.

n = Number.

Crude rates are hospitalizations per 10,000 population

Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the U.S. 2000 standard population

95% CI: 95% confidence interval of the rate.

Data Source: Maine Inpatient Database, Maine Health Data Organization.

*Based on fewer than 20 events; interpret with caution.

Table 4.9. Asthma Emergency Department Visits by Primary Payer, Maine, 2009

Primary Payer	Number	% of Total	95% CI
Commercial Insurer	2,545	**30.0**	29.0 – 31.0
Medicaid	3,158	**37.2**	36.2 - 38.3
Medicare	1,448	**17.1**	16.3 - 17.9
Other	1,331	**15.7**	14.9 - 16.5
Total	8,482	**100.0**	na

Asthma Emergency Department (ED) Visits: ED visits with asthma as the principal diagnosis.
Asthma: ICD-9-CM codes 493.
Crude rates are ED visits per 10,000 population.
Age-adjusted rates are ED Visits per 10,000 population age-adjusted to the U.S. 2000 standard population
95% CI: 95% confidence interval of the rate.
Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization.
na= not applicable

Table 4.10. Asthma-Related Hospitalizations by Primary Payer, Maine, 2009

Primary Payer	Number	% of Total	95% CI
Commercial Insurer	2,637	**27.6**	26.7 - 28.5
Medicaid	2,569	**26.9**	26.0 - 27.8
Medicare	3,669	**38.4**	37.5 - 39.4
Other	674	**7.1**	6.6 - 7.6
Total	9,549	**100.0**	na

Asthma-Related Hospitalizations: Hospitalizations with asthma as any listed diagnosis.
Asthma: ICD-9-CM codes 493.
95% CI: 95% confidence interval of the percentage.
Data Source: Maine Inpatient Database, Maine Health Data Organization.
na: not applicable.

Table 4.11. Asthma-Related Emergency Department Visits by Year, Maine, 1999-2009

Year	Maine				
	Number	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI
2000	17,364	135.9	133.9 - 138.0	**139.3**	137.2 - 141.4
2001	19,940	155.2	153.1 - 157.4	**160.0**	157.8 - 162.3
2002	19,582	151.3	149.2 - 153.4	**155.7**	153.5 - 157.9
2003	22,114	169.4	167.1 - 171.6	**175.2**	172.9 - 177.6
2004	20,143	152.9	150.8 - 155.0	**157.3**	155.1 - 159.5
2005	24,259	183.6	181.3 - 185.9	**190.4**	188.0 - 192.9
2006	27,652	209.2	206.8 - 211.7	**216.5**	213.9 - 219.1
2007	29,184	221.6	219.0 - 224.1	**230.7**	228.0 - 233.4
2008	31,749	241.2	238.5 - 243.8	**252.3**	249.5 - 255.2
2009	34,072	258.5	255.7 - 261.2	**271.7**	268.7 - 274.6

Asthma-Related Emergency Department (ED) Visits: ED visits with asthma as any listed diagnosis.

Asthma: ICD-9-CM codes 493.

Crude rates are ED visits per 10,000 population.

Age-adjusted rates are ED visits per 10,000 population age-adjusted to the U.S. 2000 standard population

95% CI: 95% confidence interval of the rate.

Data Source: Maine Inpatient and Outpatient Databases, Maine Health Data Organization

Table 4.12 Asthma-Related Hospitalizations by Year, Maine, 1999-2009

Year	Maine				
	Number	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI
1999	6,696	52.9	51.6 - 54.1	**52.1**	50.9 - 53.4
2000	7,470	58.5	57.2 - 59.8	**56.9**	55.6 - 58.2
2001	7,869	61.3	59.9 - 62.6	**59.5**	58.2 - 60.9
2002	8,628	66.7	65.3 - 68.1	**64.8**	63.5 - 66.2
2003	9,604	73.6	72.1 - 75.0	**71.8**	70.4 - 73.3
2004	9,544	72.5	71.0 - 73.9	**70.0**	68.6 - 71.4
2005	9,378	71.0	69.5 - 72.4	**68.5**	67.1 - 69.9
2006	9,507	71.9	70.5 - 73.4	**68.7**	67.3 - 70.1
2007	9,431	71.6	70.2 - 73.1	**68.0**	66.6 - 69.4
2008	9,560	72.6	71.2 - 74.1	**69.2**	67.8 - 70.7
2009	9,549	72.4	71.0 - 73.9	**68.6**	67.2 - 70.0

Asthma-Related Hospitalizations: Hospitalizations with asthma as any listed diagnosis.

Asthma: ICD-9-CM codes 493.

Crude rates are hospitalizations per 10,000 population

Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the U.S. 2000 standard population

95% CI: 95% confidence interval of the rate.

Maine Data Source: Maine Inpatient Database, Maine Health Data Organization.

Chapter 5 Tables

Table 5.1. Asthma Deaths by 5-Year Period, Maine and U.S., 1993-2009

Year	Average Deaths Per Year	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI
Maine					
1999-2003	16	12.1	9.6 - 15.1	**10.8**	8.5 - 13.5
2000-2004	15	11.4	9.0 - 14.3	**10.1**	7.9 - 12.8
2001-2005	16	12.0	9.5 - 14.9	**10.6**	8.3 - 13.2
2002-2006	14	10.8	8.5 - 13.7	**9.5**	7.4 - 12.1
2003-2007	13	10.2	7.9 - 12.9	**9.0**	6.9 - 11.4
2004-2008	12	9.4	7.2 - 12.1	**8.1**	6.2 - 10.4
2005-2009	12	9.4	7.2 - 12.1	**7.8**	6.0 - 10.0
U.S.					
1999-2003	4,355	15.3	15.1 - 15.5	**15.3**	15.1 - 15.5
2000-2004	4,186	14.5	14.3 - 14.7	**14.5**	14.3 - 14.7
2001-2005	4,066	14.0	13.8 - 14.2	**13.8**	13.6 - 14.0
2002-2006	3,935	13.4	13.2 - 13.6	**13.2**	13.0 - 13.3
2003-2007	3,772	12.7	12.5 - 12.9	**12.4**	12.2 - 12.6
2004-2008	3,631	12.1	12.0 - 12.3	**11.7**	11.6 - 11.9
2005-2009	3,546	11.8	11.6 - 11.9	**11.3**	11.1 - 11.5
U.S. Non-Hispanic Whites					
1999-2003	2,775	14.0	13.8 - 14.2	**12.3**	12.1 - 12.5
2000-2004	2,648	13.3	13.1 - 13.6	**11.6**	11.4 - 11.8
2001-2005	2,576	12.9	12.7 - 13.2	**11.2**	11.0 - 11.4
2002-2006	2,481	12.4	12.2 - 12.6	**10.6**	10.4 - 10.8
2003-2007	2,368	11.8	11.6 - 12.0	**10.0**	9.8 - 10.2
2004-2008	2,264	11.3	11.1 - 11.5	**9.5**	9.3 - 9.7
2005-2009	2,191	10.9	10.7 - 11.1	**9.1**	8.9 - 9.2

Asthma Deaths: Deaths with asthma as the underlying cause of death.
Asthma: ICD-10 codes J45-J46.
Crude rates are deaths per 1,000,000 population
Age-adjusted rates are deaths per 1,000,000 population age-adjusted to the U.S. 2000 standard population.
95% CI: 95% confidence interval of the rate.
Data Source: Detailed Mortality Files accessed through CDC Wonder.

Table 5.2. Asthma-Related Deaths by 5-Year Period, Maine and U.S., 1999-2009

5-Year Period	Number of Deaths	Average Annual Number of Deaths	Crude Rate		Age-adjusted Rate	
			Rate	95% CI	Rate	95% CI
Maine						
1999-2003	231	46	35.9	31.3 - 40.6	**31.6**	27.5 - 35.7
2000-2004	208	42	32.1	27.7 - 36.5	**28.1**	24.2 - 31.9
2001-2005	214	43	32.8	28.4 - 37.2	**28.5**	24.6 - 32.3
2002-2006	193	39	29.4	25.3 - 33.6	**25.5**	21.9 - 29.2
2003-2007	174	35	26.4	22.5 - 30.4	**22.7**	19.3 - 26.1
2004-2008	175	35	26.5	22.6 - 30.5	**22.8**	19.3 - 26.2
2005-2009	181	36	27.4	23.4 - 31.4	**23.3**	19.8 - 26.7
U.S.						
1999-2003	48,720	9,744	34.2	33.9 - 34.5	**34.3**	34.0 - 34.6
2000-2004	48,038	9,608	33.4	33.1 - 33.7	**33.3**	33.0 - 33.6
2001-2005	47,814	9,563	32.9	32.6 - 33.2	**32.5**	32.2 - 32.8
2002-2006	47,513	9,503	32.4	32.1 - 32.6	**31.7**	31.4 - 32.0
2003-2007	46,892	9,378	31.6	31.4 - 31.9	**30.7**	30.4 - 31.0
2004-2008	46,490	9,298	31.1	30.8 - 31.4	**29.8**	29.5 - 30.1
2005-2009	46,513	9,303	30.8	30.6 - 31.1	**29.4**	29.1 - 29.6
U.S. Non-Hispanic Whites						
1999-2003	33,216	6,643	33.5	33.2 - 33.9	**29.0**	28.7 - 29.3
2000-2004	32,649	6,530	32.9	32.5 - 33.2	**28.2**	27.9 - 28.5
2001-2005	32,486	6,497	32.6	32.3 - 33.0	**27.6**	27.3 - 27.9
2002-2006	32,246	6,449	32.3	31.9 - 32.6	**27.1**	26.8 - 27.4
2003-2007	31,824	6,365	31.8	31.4 - 32.1	**26.4**	26.1 - 26.7
2004-2008	31,452	6,290	31.3	31.0 - 31.7	**25.7**	25.4 - 25.9
2005-2009	31,304	6,261	31.1	30.8 - 31.5	**25.2**	25.0 - 25.5

Asthma-related Deaths: Deaths with asthma listed as an underlying or contributing cause of death.

Asthma: ICD-10 codes J45-J46.
Crude rates are deaths per 1,000,000 population
Age-adjusted rates are deaths per 1,000,000 population age-adjusted to the U.S. 2000 standard population.
95% CI: 95% confidence interval of the rate.
* These rates are based on fewer than 20 deaths and should be interpreted with caution.
Maine Data Source: Maine Mortality Data, Office of Data, Research and Vital Statistics, Maine CDC.
U.S. Data Source: Compressed Mortality Files accessed through CDC Wonder.

Table 5.3. Asthma Deaths by Sex and 5-Year Periods, Maine and U.S., 1993-2009

Year	Males					Females				
	Average Annual Number	Crude Rate		Age-adjusted Rate		Average Annual Number	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI		Rate	95% CI	Rate	95% CI
	Maine Males					**Maine Females**				
1999-2003	5	7.4	4.7 - 11.0	**7.2**	4.6 - 10.9	11	16.7	12.6 - 21.7	**12.8**	9.6 - 16.7
2000-2004	5	7.9	5.1 - 11.7	**7.7**	5.0 - 11.4	10	14.8	10.9 - 19.5	**11.0**	8.1 - 14.7
2001-2005	6	8.8	5.8 - 12.7	**8.6**	5.6 - 12.5	10	15.0	11.1 - 19.7	**11.2**	8.3 - 14.8
2002-2006	5	8.1	5.3 - 11.9	**8.4**	5.4 - 12.4	9	13.4	9.8 - 17.9	**9.9**	7.2 - 13.3
2003-2007	5	7.8	5.0 - 11.5	**8.1**	5.2 - 12.0	8	12.5	9.0 - 16.9	**9.3**	6.7 - 12.6
2004-2008	5	7.1	4.5 - 10.7	**7.3**	4.6 - 11.0	8	11.6	8.2 - 15.8	**8.6**	6.0 - 11.8
2005-2009	4	*	3.3 - 8.8	*	3.4 - 9.0	9	13.0	9.5 - 17.5	**9.5**	6.8 - 12.9
	U.S. Males					**U. S. Females**				
1999-2003	1,561	11.2	10.9 - 11.4	**12.4**	12.1 - 12.7	2,794	19.3	18.9 - 19.6	**17.5**	17.2 - 17.8
2000-2004	1,514	10.7	10.5 - 10.9	**11.8**	11.5 - 12.0	2,672	18.2	17.9 - 18.6	**16.5**	16.2 - 16.8
2001-2005	1,451	10.1	9.9 - 10.4	**11.1**	10.8 - 11.3	2,615	17.7	17.4 - 18.0	**15.8**	15.6 - 16.1
2002-2006	1,414	9.8	9.6 - 10.0	**10.6**	10.3 - 10.8	2,521	16.9	16.6 - 17.2	**15.0**	14.8 - 15.3
2003-2007	1,353	9.3	9.0 - 9.5	**9.9**	9.7 - 10.2	2,419	16.1	15.8 - 16.4	**14.2**	13.9 - 14.5
2004-2008	1,291	8.8	8.6 - 9.0	**9.3**	9.1 - 9.5	2,340	15.4	15.1 - 15.7	**13.5**	13.3 - 13.8
2005-2009	1,258	8.5	8.3 - 8.7	**8.9**	8.7 - 9.1	2,288	15.0	14.7 - 15.2	**13.0**	12.8 - 13.2
	U.S. Non-Hispanic White Males					**U.S. Non-Hispanic White Females**				
1999-2003	882	9.1	8.8 - 9.4	**9.2**	8.9 - 9.5	1,893	18.7	18.3 - 19.1	**14.6**	14.3 - 14.9
2000-2004	845	8.7	8.4 - 8.9	**8.7**	8.5 - 9.0	1,803	17.8	17.4 - 18.2	**13.8**	13.5 - 14.1
2001-2005	809	8.3	8.0 - 8.5	**8.3**	8.0 - 8.5	1,766	17.4	17.0 - 17.8	**13.4**	13.1 - 13.7
2002-2006	785	8.0	7.8 - 8.3	**7.9**	7.6 - 8.1	1,696	16.7	16.3 - 17.0	**12.7**	12.4 - 13.0
2003-2007	744	7.6	7.3 - 7.8	**7.4**	7.1 - 7.6	1,624	15.9	15.6 - 16.3	**12.0**	11.8 - 12.3
2004-2008	706	7.2	6.9 - 7.4	**6.9**	6.7 - 7.1	1,558	15.2	14.9 - 15.6	**11.4**	11.1 - 11.6
2005-2009	684	6.9	6.7 - 7.2	**6.6**	6.4 - 6.8	1,507	14.7	14.4 - 15.0	**10.9**	10.7 - 11.2

Asthma Deaths: Deaths with asthma as the underlying cause of death.
Asthma: ICD-10 codes J45-J46.
Crude rates are deaths per 1,000,000 population
Age-adjusted rates are deaths per 1,000,000 population age-adjusted to the U.S. 2000 standard population.
95% CI: 95% confidence interval of the rate.
* These rates are based on fewer than 20 deaths and are suppressed due to unreliability; 95% CI's are provided.
Data Source: Compressed Mortality Files accessed through CDC Wonder.

Table 5.4. Asthma-related Deaths by Sex and 5-Year Periods, Maine, 1999-2009

5-Year Period	Males						Females					
	Number of Deaths	Average Annual Number	Crude Rate		Age-adjusted Rate		Number of Deaths	Average Annual Number	Crude Rate		Age-adjusted Rate	
			Rate	95% CI	Rate	95% CI			Rate	95% CI	Rate	95% CI
Maine Males							**Maine Females**					
1999-2003	71	14	22.7	17.7 - 28.6	**23.6**	18.4 - 29.9	160	32	48.5	41.0 - 56.0	**35.9**	30.3 - 41.6
2000-2004	60	12	19.0	14.5 - 24.5	**19.6**	14.9 - 25.4	148	30	44.6	37.4 - 51.7	**33.1**	27.7 - 38.5
2001-2005	64	13	20.1	15.5 - 25.7	**20.4**	15.7 - 26.2	150	30	44.9	37.7 - 52.1	**33.5**	28.0 - 38.9
2002-2006	55	11	17.2	12.9 - 22.4	**17.9**	13.4 - 23.3	138	28	41.1	34.2 - 47.9	**30.8**	25.6 - 36.1
2003-2007	49	10	15.2	11.3 - 20.2	**15.8**	11.7 - 21.0	125	25	37.1	30.6 - 43.6	**27.6**	22.6 - 32.5
2004-2008	50	10	15.5	11.5 - 20.5	**15.7**	11.6 - 20.8	125	25	37.1	30.6 - 43.5	**27.8**	22.8 - 32.8
2005-2009	50	10	15.5	11.5 - 20.5	**15.5**	11.5 - 20.5	131	26	38.8	32.2 - 45.5	**29.0**	23.9 - 34.1
U.S. Males							**U.S. Females**					
1999-2003	17,035	3,407	24.3	24 - 24.7	**28.0**	27.6 - 28.4	31,685	6,337	43.7	43.2 - 44.2	**38.9**	38.5 - 39.4
2000-2004	16,745	3,349	23.7	23.3 - 24	**26.9**	26.5 - 27.3	31,293	6,259	42.7	42.3 - 43.2	**37.8**	37.4 - 38.3
2001-2005	16,645	3,329	23.3	22.9 - 23.6	**26.2**	25.8 - 26.6	31,169	6,234	42.2	41.7 - 42.6	**37.0**	36.6 - 37.5
2002-2006	16,587	3,317	22.9	22.6 - 23.3	**25.5**	25.1 - 25.9	30,926	6,185	41.5	41.0 - 41.9	**36.1**	35.7 - 36.5
2003-2007	16,382	3,276	22.4	22.1 - 22.8	**24.7**	24.3 - 25.1	30,510	6,102	40.6	40.1 - 41.0	**35.0**	34.6 - 35.4
2004-2008	16,185	3,237	22.0	21.6 - 22.3	**23.9**	23.5 - 24.3	30,305	6,061	40.0	39.5 - 40.4	**34.1**	33.7 - 34.5
2005-2009	16,219	3,244	21.8	21.5 - 22.1	**23.5**	23.1 - 23.9	30,294	6,059	39.6	39.2 - 40.0	**33.6**	33.2 - 33.9
U.S. Non-Hispanic White Males							**U.S. Non-Hispanic White Females**					
1999-2003	10,900	2,180	22.5	22.1 - 22.9	**23.0**	22.5 - 23.4	22,316	4,463	44.1	43.6 - 44.7	**33.4**	32.9 - 33.8
2000-2004	10,626	2,125	21.8	21.4 - 22.3	**22.0**	21.6 - 22.5	22,023	4,405	43.5	42.9 - 44.0	**32.6**	32.1 - 33.0
2001-2005	10,565	2,113	21.6	21.2 - 22	**21.5**	21.1 - 21.9	21,921	4,384	43.2	42.6 - 43.7	**32.1**	31.6 - 32.5
2002-2006	10,528	2,106	21.5	21.1 - 21.9	**21.1**	20.7 - 21.5	21,718	4,344	42.7	42.1 - 43.2	**31.4**	31.0 - 31.8
2003-2007	10,391	2,078	21.2	20.7 - 21.6	**20.5**	20.1 - 20.9	21,433	4,287	42.0	41.5 - 42.6	**30.6**	30.2 - 31.0
2004-2008	10,278	2,056	20.9	20.5 - 21.3	**19.9**	19.5 - 20.3	21,174	4,235	41.4	40.9 - 42.0	**29.8**	29.4 - 30.2
2005-2009	10,246	2,049	31.1	30.8 - 31.5	**25.2**	25.0 - 25.5	21,058	4,212	41.1	40.6 - 41.7	**29.4**	29.0 - 29.8

Asthma-related Deaths: Deaths with asthma listed as an underlying or contributing cause of death.

Asthma: ICD-10 codes J45-J46.
Crude rates are deaths per 1,000,000 population
Age-adjusted rates are deaths per 1,000,000 population age-adjusted to the U.S. 2000 standard population.
95% CI: 95% confidence interval of the rate.
Maine Data Source: Maine Mortality Data, Office of Data, Research and Vital Statistics, Maine CDC.
U.S. Data Source: Compressed Mortality Files accessed through CDC Wonder.

Table 5.5. Asthma Deaths by Age Group, Maine, 1999-2009

Age Group	Maine			U.S.			U.S. Non-Hispanic Whites		
	Average Annual Number of Deaths	Age-Specific Rate		Number of Deaths	Age-Specific Rate		Number of Deaths	Age-Specific Rate	
		Rate	95% CI		Rate	95% CI		Rate	95% CI
<45 years	2	**2.8**	1.8 - 4.2	10,030	**4.9**	4.8 - 5.0	4,359	**3.4**	3.3 - 3.5
45-64 years	3	**8.3**	5.7 - 11.6	12,080	**15.6**	15.3 - 15.9	6,624	**11.3**	11.1 - 11.6
65+ years	9	**46.7**	37.9 - 56.9	21,205	**52.6**	51.9 - 53.3	16,220	**48.9**	48.1 - 49.6

Asthma Deaths: Deaths with asthma as the underlying cause of death.
Asthma: 1999-2009: ICD-10 codes J45-J46.
Age-specific rates are deaths per 1,000,000 population
95% CI: 95% confidence interval of the rate.
Data Source: Compressed Mortality Files accessed through CDC Wonder.

Table 5.6. Asthma Deaths by County or Public Health District of Residence, Maine, 1999-2009

County or District	Average Annual Number of Deaths	Crude Rate		Age-adjusted Rate	
		Rate	95% CI	Rate	95% CI
Maine Total	15	10.7	9.0 - 12.4	**9.3**	7.8 - 10.8
County					
Androscoggin	2	*	8.5 - 23.4	*	7.2 - 19.8
Aroostook	<1	--	--	--	--
Cumberland	2	7.0	4.3 - 10.7	**6.4**	4.0- 9.8
Franklin	<1	--	--	--	--
Hancock	<1	--	--	--	--
Kennebec	2	18.3	11.7 - 27.2	**15.6**	10.0 - 23.2
Knox	<1	--	--	--	--
Lincoln	<1	--	--	--	--
Oxford	<1	--	--	--	--
Penobscot	2	*	5.2 - 15.3	*	4.8 – 14.0
Piscataquis	<1	--	--	--	--
Sagadahoc	<1	--	--	--	--
Somerset	<1	--	--	--	--
Waldo	<1	--	--	--	--
Washington	<1	--	--	--	--
York	3	13.9	9.3 - 19.8	**12.5**	8.4 - 17.8
Public Health District					
Aroostook	<1	--	--	--	--
Central Maine	3	14.9	9.9 - 21.5	**12.8**	8.5 - 18.5
Cumberland	2	7.0	4.3 - 10.7	**6.4**	4.0 - 9.8
Downeast	1	*	5.1 - 19.4	*	4.0 - 16.5
Mid Coast	2	12.2	7.5 - 18.8	**9.8**	6.0 - 15.1
Penquis	2	*	6.3 - 16.4	*	5.8 - 15.0
Western Maine	2	10.9	6.9 - 16.4	**9.3**	5.9 - 14.0
York	3	13.9	9.3 - 19.8	**12.5**	8.4 - 17.8

Asthma Deaths: Deaths with asthma as the underlying cause of death.

Asthma: 1999-2009: ICD-10 codes J45-J46.

Crude rates are deaths per 1,000,000 population.

Age-adjusted rates are deaths per 1,000,000 population age-adjusted to the U.S. 2000 standard population.

95% CI: 95% confidence interval of the rate.

* These rates are based on fewer than 20 deaths and are suppressed due to unreliability; 95% CI's are provided.

-- These rates are based upon fewer than 10 deaths and are suppressed to protect privacy.

Data Source: Compressed Mortality Files accessed through CDC Wonder.

Table 6.1 Annual Direct Medical Costs of Asthma, All-Payer and Medicaid, Maine

Insurance Type	Treated Population	Cost per Person	Total Costs (Millions)	2020 Projection Total Costs (Millions)
All-Payer	76,900	$2,090	$160	$287
Medicaid	27,800	$2,300	$64	
Medicare	18,100	$1,750	$32	
Private	50,200	$930	$47	

Source: Centers for Disease Control and Prevention. Chronic Disease Cost Calculator: Version 2. Available at: http://www.cdc.gov/chronicdisease/calculator/.
Costs are in 2010 dollars and include expenditures for office based visits, hospital outpatient visits, emergency room visits, inpatient hospital stays, dental visits, home health care, vision aids, other medical supplies and equipment, prescription medicines, and nursing homes.
All-Payer: all private and public insurers/sources, worker's compensation, out of pocket (including uninsured), and other unclassified sources.
Treated Population: Persons receiving care for the disease in the previous year.

Table 6.2. Annual Absenteeism Costs of Asthma, All-Payer, Maine

Condition	Employed Treated Population	Missed Days per Employed Person	Total Missed Days	Total Absentee-ism Costs (Millions)
Asthma	47,900	2.1	99,000	$19

Source: Centers for Disease Control and Prevention. Chronic Disease Cost Calculator: Version 2. Available at: http://www.cdc.gov/chronicdisease/calculator/.
Costs are in 2010 dollars.
All-Payer: all private and public insurers/sources, worker's compensation, out of pocket (including uninsured), and other unclassified sources.
Employed Treated Population: Persons receiving care for the disease in the previous year who were employed.

Appendix 2: Technical Notes

Data Sources

Behavioral Risk Factor Surveillance System (BRFSS) and Asthma Call-Back Survey (ACBS) Data

Data from the Maine Behavioral Risk Factor Surveillance System (BRFSS), an annual random-digit-dialed telephone survey of non-institutionalized adults, were used to estimate the prevalence of asthma among Maine adults. The BRFSS collects information on health risk behaviors, preventive health practices and health care access. The BRFSS is a state-based survey coordinated by the U.S. CDC and conducted in all 50 states, the District of Columbia and several U.S. territories. More information on the BRFSS may be found on the website: http://www.cdc.gov/brfss.

In 2006, 4,040 Maine adults participated in this survey; 6,830 Maine adults in 2007; 6,788 adults in 2008; 8,082 adults in 2009; and 8,132 adults in 2010. The data are weighted to be representative of Maine's adult population and to adjust for non-response. Two adult asthma prevalence questions and two questions on child asthma prevalence are included on Maine's BRFSS survey. Child (0-17 years) asthma prevalence data is based on information provided by the adult respondent about a randomly selected child living in the household.

The Asthma Call-back Survey (ACBS) is an in-depth asthma survey developed and funded by the Air Pollution and Respiratory Health Branch (APRHB) in the National Center for Environmental Health (NCEH), U.S. CDC. BRFSS respondents who report ever being diagnosed with asthma are eligible for the ACBS. For households with children, if the randomly selected child in the BRFSS survey has ever been diagnosed with asthma, then the child is eligible for the asthma call-back survey. If both the selected child and the BRFSS adult in a household have asthma, then only one or the other is eligible for the ACBS using a random 50-50 split.[23] For those eligible, permission is sought to call back approximately two weeks after the BRFSS to conduct the ACBS.

ACBS data are collected by telephone interviews for adults and children. The Child Asthma Call-Back Survey interviews the adult in the household who is most knowledgeable about the health of the child. This survey provides additional information related to asthma including treatment, medications, history of asthma attacks, types of asthma symptoms and impact on work and

usual activities. Due to small sample sizes each year, descriptive information regarding children and sub-groups of adults is limited. In some analyses, multiple years of data have been combined to produce more stable estimates. The Adult and Child Asthma Call-Back Survey data presented here are weighted to be representative of all Maine adults and children with asthma and to adjust for non-response.

Waponahki Tribal Health Assessment Data

The Waponahki Tribal Health Assessment was the first multi-tribal health assessment to be conducted in Maine.[16] In 2010, Maine's tribal health departments, in collaboration with researchers at the University of Nebraska Medical Center College of Public Health, jointly conducted the Waponahki Tribal Health Assessment Project 2010 to identify emerging health problems, establish and track health objectives and develop and evaluate public health policies and programs. The Maine Tribal Health Directors addressed the need for a crucial up to date comprehensive community health assessment at the individual tribal level and also combined data from all five tribes. The Tribal Councils from each of the tribal sites approved and supported this health assessment with a resolution. Each Tribe maintains ownership of their respective tribal data. Data related to asthma has been summarized in this report with permission from each of Maine's Tribal Health Directors.[24]

The Maine Tribes participating in the assessment included the Aroostook Band of Micmac Indians, The Houlton Band of Maliseet Indians, Passamaquoddy Tribe at Indian Township and Pleasant Point, and the Penobscot Nation. The national BRFSS questionnaire was used as the basis for this project. Questions in the BRFSS were reviewed for cultural sensitivity and language was changed as appropriate. Additional questions were added to address specific issues that were identified by the Tribal Health Directors as vitally important.

Tribal members from the five tribal communities, 18 years and older, both male and female were eligible to be surveyed. A master list was developed for each community totaling 3,014 individuals. A random sampling list of 1,445 total participants was used. Sample sizes were different for each community depending upon tribal population. A community-based participatory research method was used to conduct the computer-based survey. Interviewers from each community conducted face-to-face surveys at secure/safe tribal locations. Participants were given the option of self-completing the survey sections determined to contain very sensitive questions. Each completed survey was uploaded to a secure site maintained by the University of Nebraska Medical Center. Maine's tribal health departments provided the

Maine CDC with unweighted aggregate data from all tribes. Because sampling, interview methods and interview questions and/or categories differ from those used in the Maine BRFSS, results are not directly comparable. For more information about the Waponahki Tribal Health Assessment information see: http://www.maine.gov/dhhs/mecdc/public-health-systems/tribal/documents/waponahki-assessment.pdf.

Maine Health Data Organization (MHDO) Data

In 1996, the Maine Legislature established MHDO as an independent organization to collect and maintain "clinical and financial health care information and to exercise stewardship in making this information accessible to the public."[25] The MHDO provides the emergency department and inpatient hospitalization data utilized in this report.

CDC WONDER (Wide-ranging Online Data for Epidemiologic Research) Data

CDC WONDER was developed by the U.S. CDC as an integrated information and communication system made available to public health professionals and the general public. The system allows for individuals to query datasets, including the mortality data included in this report, and receive analyzed and summarized data. State and national death data are derived from death certificates collected and compiled by states using standardized collection forms and analysis and reporting systems. In Maine, the Offices of Vital Records and Data, Research and Vital Statistics collect, compile and submit death certificate data. More information on CDC WONDER may be found on the website: http://wonder.cdc.gov.

Determining Differences between Prevalence Estimates

Asthma prevalence rates presented in this report are estimated from responses to population-based surveys. Because surveys sample only a subset of the population, sampling variability must be considered when interpreting the data we obtain. This variability means that differences between two prevalence estimates across time or population do not necessarily represent true differences in the underlying population. In this report, determination of such differences was based upon whether the 95 percent confidence intervals for each estimate overlap: estimates with overlapping confidence intervals cannot be assumed to be different and estimates with non-overlapping confidence interval were considered to be significantly different. The 95 percent confidence interval is a measure of sampling variability and is similar to the margin of error often shown with polling data. The 95 percent confidence intervals for prevalence estimates are shown in data tables in the appendix that correspond to each figure.

In this chapter, unless otherwise noted, any statements about differences between asthma prevalence estimates indicate that differences have been deemed statistically significant based on a comparison of the estimates' confidence intervals. Finally, it should be noted that small sample size hinders the ability to detect true differences. Thus, the absence of a statistically significant difference based on overlapping confidence intervals should not rule out the possibility of a true difference when sample sizes are small and confidence intervals are wide—as many are in this report.

Department of Health and Human Services

Maine People Living Safe, Healthy and Productive Lives

Paul R. LePage, Governor — Ricker Hamilton, Commissioner

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